Cardiovascular Disease: Interventions Engaging Community Health Workers

Summary Evidence Table – Economic Review

Study Information Monetary Conversions	Study and Population Characteristics	Trial Name Intervention & Comparison	Effectiveness Findings	Program Costs	Healthcare Cost Averted Productivity Loss Averted	Economic Summary Measure
Author (Year): Adair (2012) **Design:** Pre Post **Economic Method:** Intervention cost **Risk Focus:** Multiple with heart failure, diabetes, and hypertension. **Funding Source:** Rabina Foundation. No details. **Monetary Conversions:** Index year assumed to be 2009 in U.S. dollars	**Location:** Minneapolis, MN **Setting:** CHWs located within inner city clinic. **Population:** Eligible were those => 18 years old with diabetes, Congestive Heart Failure, or Hypertension **Sample Size:** Intervention 332 **Characteristics:** Median age 61 Hypertension 48% Diabetes 9% Heart failure 1% Hypertension and diabetes 29% Hypertension and heart failure 7% Diabetes and heart failure 1% Hypertension, diabetes, and heart failure 6% Female 57% Uninsured 7%	**Intervention:** CHW Care Guides in primary care clinic. Team of CHW, Nurse , patient, and physicians. 3 Somali and Spanish-speaking CHWs in waiting room of inner city clinic. Integrated into primary care team 2 week training No home or community visits. All interactions with patients in clinic. No changes in usual activities of clinic. 3 tools from electronic health records (EHR)-care contract, periodic report card given to patient, and quarterly report card to physicians. Report card objective to reinforce desired behaviors. CHWs with 2 years of college. 2 week training by pharmacists, diabetes educators, electronic health records techs, psychologists,	Percentage point increase in those meeting goal Tobacco 4% BP Control 10.8% A1c 1% LDL 10% Eye Exam 19% Aspirin 10% All Goals 9% For n=280 closely associated with clinic ER Visits 310 in base, 259 in study year, 269 in follow-up year Hospitalization 188 in base, 166 in study year, 177 in follow-up year A1c and BP did not improve for those with diabetes.	**Cost for intervention per patient per year** $392 Included in cost: CHW wages and benefits Not included in cost: Small supervision cost In-house training Small rent and utilities Built semi-private cubicles for CHWs in waiting room. Case load per CHW 111 patients. **Data Source:** Not reported.	**Healthcare cost per person** ER plus hospital stays reduced $212,825 over 2 years Per patient per year drug costs for 3 conditions increased $2.76 **Productivity** Not included	For 280 patients with 'close association' with clinic. 2-year decrease in ER and hospital cost compared to baseline was $212,825. 1 Year cost of CHW was $392x280=$109,760 2 Year Savings $103,065

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	Black 43% White 49% Some HS 23% HS 33% **Time Horizon:** Likely occurred in 2009-2010. Length of intervention 12 months.	physicians, nurses. Cover nature of disease, treatments, protective behaviors, generic medicines, roles of different providers, confidentiality, etc. Supervised by Nurse for coaching and problem-solving at weekly meetings with CHWs CHW patient meetings after clinic appointments for assist with desired behaviors, goals, adherence, and referrals to specialists. CHW gave quarterly reports to physicians **Supervisor and Activities:** Nurse **Team-based Care:** Yes **Other Team Members:** Physician **Comparison:** None				
Author (Year): Allen (2014) **Design:** RCT	**Location:** Baltimore, MD **Setting:** Patients drawn from two	**Intervention:** Community Outreach and Cardiovascular Health study.	Mean intervention effects (p-value):	**Cost for intervention per patient per year**	**Healthcare cost per person** Intervention Labs $439	**Intervention plus healthcare cost per patient per year** Intervention: $2829

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Economic Method: Intervention cost and cost per unit effectiveness outcomes. Partial healthcare cost. **Risk Focus:** Multiple factors: Diabetes, CVD, High BP, High Cholesterol **Funding Source:** NHLBI Grant R01HL082638 **Monetary Conversions:** Index year assumed to be 2011 in US dollars	federally qualified health centers, Baltimore Medical Systems Inc (BMS). **Population:** African American or White patients =>21 years old with diagnosed CVD, diabates, high BP, high cholesterol. **Sample Size:** Interv 261 Control 264 **Characteristics:** African American 79% Private insurance <50% Female 70-72% Mean age 54-55 years **Time Horizon:** Recruited July 06 to July 09. Length of intervention is 12 months. Start date not reported	Tailored educational and behavioral counseling for lifestyle modification, pharmacologic management, and telephone follow-ups. Nurse Practitioner (NP)-led team-based case management with CHWs for CVD risk reduction. Intensity of interaction with patients and physician depended on goals achieved. NP activities – case coordination, managed intervention plan, lifestyle counseling, drug titration and prescription, conferred with physician, supervised CHW. CHW activities – met patients to reinforce lifestyle and drug adherence instructions, assisted patients with designing strategies. **Supervisor and Activities:** Nurse Practitioner **Additional Intervention:**	A1c reduced by 0.5 pct pt (0.034) LDL reduced by 15.9 mg/dL (<0.001) SBP decreased by 6.2 mmHg (0.003) DBP decreased -3.1 mmHg (0.013)	$251 (Nurse Practitioner cost = $217 and CHW cost = $34) Included in cost: CHW and NP time with patients Preparation and follow-up time Wage rate plus 30% Mean encounters during 1 year with: NP 7.6, CHW 5.3 Not included in cost: Office space and equipment **Data Source:** Nurse Practitioner and CHW time from 30% sample of patient records. **Data Source:** Computed average physician encounter time and wage rate. Mean visits in 1 year: 2.8	Medication $2139 Subtotal $2578 Control Labs $206 Medication $1684 Subtotal $1890 Difference: $688 higher Included components: Laboratory, drugs **Productivity** Not included	Control: $2198 Difference: $631 **Cost per unit reduction in key outcomes** SBP $102 per mmHg DBP $204 per mmHg LDL $40 per mg/dL A1c $1262 per pct pt **Comment:** The total cost calculated by reviewers is slightly higher than reported in the paper ($631 versus $627) Mix of patients with diabetes, CVD, high BP, high cholesterol The intervention cost compared to usual primary care by physician is negative or cost-saving Healthcare cost does not include ER and inpatient Short term analysis

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		Yes **Team-based Care:** Yes **Other Team Members:** Primary care provider **Comparison:** Usual care enhanced with feedback on CVD risk factors to patients and primary care provider				
Author (Year): Barton (2012) **Design:** RCT **Economic Method:** Cost per QALY **Risk Focus:** Diabetes, high BP, high cholesterol, overweight, smoking **Funding Source:** Medical Research Council (MRC) National Prevention	**Location:** Liverpool, UK **Setting:** CHWs within urban community. **Population:** Patients =>18 years identified by 5 general practices serving deprived communities, with one of 5 CVD risks: high BP, high cholesterol, smoking, diabetes, BMI>30. Excluded established CVD. **Sample Size:** Interv 72	**Intervention:** 6 CHWs trained by research team. Target behavior change through short-term goals and building self-efficacy. Focus on diet, beliefs, challenges to change. CHW service available for 3 months with target of 6 meetings, ideally face to face at client choice of location, and additional phone support. **Supervisor and Activities:** Not reported **Additional Intervention:** No	6-month mean incremental QALY 0.028 QALY estimated using EQ-5D for health-related quality of life.	**6 month cost for intervention per patient** 151.01 Included in cost: CHW wages and benefits Each participant recommended 6 visits with CHW over 3 months. Visit assumed to be 1 hour plus 1.27 for preparation and travel. For those with less than 6 visits, assumed 0.25 hours phone contact per 2 weeks. Training and supervision costs apportioned across face to face contacts. **Data Source:** Records maintained by CHW	6 month change in Healthcare plus Personal Social Services Cost per patient Intervention Baseline 441.33 6-month 366.89 Control Baseline 398.45 6-month 377.17 **Difference** 53.16 saving **Healthcare Cost** Cost to the National Health Service (NHS) No separate estimate provided Components: Outpatient, inpatient, drugs.	6 month change in Healthcare plus Personal Social Services Cost plus Intervention cost per patient 97.85 increase 6 month incremental QALY 0.028 6 month cost per QALY gained 14480 **Comments:** Probability intervention is cost-effective is 39% if threshold is 20000. Short horizon implies estimate is conservative.

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Research Initiative (NPRI–Go501280) **Monetary Conversions:** Index year is 2009 in UK pounds	Control 38 **Characteristics:** Mean age 53 Female 59% BMI>30 64% High cholesterol 49% High BP 39% Diabetes 14% Smoke 21% **Time Horizon:** Recruitment Feb-Aug 2008. Study length is 6 months.	**Team-based Care:** No **Other Team Members:** None **Comparison:** Usual care plus health promotion literature including heart related, and food diary			**Productivity** Not included **Other Economic Costs Averted** Personal social services. No separate estimate provided **Source:** Patient reported units of utilization converted to cost using NHS cost per unit.	Only 25 had complete QALY data. Only 33% had at least one face to face visit with CHW.
Author (Year): Dixon (2016a,b) Linked to Salisbury (2016) **Design:** RCT **Risk Focus:** CVD Prevention **Economic Method:** Cost per QALY **Funding Source:** National Institute for	**Location:** Bristol, Sheffield, Southampton, UK **Setting:** Community. Patients recruited from general practices **Eligibility:** Age 40 to 74, 20% CVD risk score based on QRISK2, and high BP, smoking, BMI=>30. Access to phone, internet, email. **Sample Size:** Intervention 325	Telehealth in Chronic Disease (TECH) The present study focuses on CVD among all chronic diseases covered by program. **Interventions:** Healthlines, a computerized behavior management system using scripts for lay health advisers to: educate patients on CVD risk and lifestyle, drug treatments and side effects, home BP monitoring and automated feedback, statins, drug adherence with	Mean effects at 12 months after start: Improved or maintained CVD risk score 8% higher but insignificant No difference in cholesterol level or smoking SBP reduced 2.7 DBP reduced 2.8 BMI reduced 0.4 QALY based on EQ-5D-5L 0.012 increase Improvement in diet and physical activity noted	**Cost per patient over 12 months** 129 **Components:** Calls with patents 110 (85%) BP Monitors 19 Simulated intervention cost per patient per year is included in the incremental National Health Service cost reported	**Healthcare Cost per patient over 12 months:** NHS healthcare cost 10 pound higher (Interv 374, Control 364) Components of NHS Cost: Hospital and ambulance Drugs Primary care visits Non-NHS Cost for Healthcare per patient over 12 months Private healthcare 50 lower Out of pocket costs for patient 15 higher	**NHS Perspective at 12 months:** NHS incremental healthcare cost per patient including intervention cost 138 Incremental QALY 0.012 Cost per QALY gained 10,859 Cost-effective at 20K threshold with probability 0.77 NHS Perspective over Lifetime Simulated 1000 patients to death or age 100 Evets and transition probabilities to various states based on CVD

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Health Research (UK) **Monetary Conversions:** Reported in index year 2013 in UK pounds	Control 316 Mean age 67, Female 18-21% White 99% CVD Risk Score 31% Range of SBP/DBP 147-148/80-81 Mean BMI 31 Diabetes 20-24% Smoke 15-19% **Time Horizon:** Recruitment from Dec 12 to July 13. Outcomes assessed at 12 months after start. Economic outcomes assessed at 12 months and lifetime.	monthly review, smoking and nicotine replacement therapy, healthy eating, weight loss, alcohol use, physical activity., support primary care, treatment optimization in discussion of updates of effects with primary care. All activities listed above performed by health advisers who are not clinically qualified. With prior National Health Service (NHS) experience and underwent specific 3-week training. **Additional Intervention:** No **Team-based Care:** No **Other Team Members:** None **Comparison:** Usual Care	Physiological outcomes from primary care notes and from direct survey of patients. Median encounters with Healthline 10 Mean length encounter 18 minutes Median website logon 14 91% received BP monitors Median change in treatment 0 **Simulated incremental QALY per patient per year** 1 year 0.011 2 years 0.013 5 years 0.016 Lifetime 0.026		**Productivity:** Patient worksite productivity 24 higher. **Simulated incremental NHS cost per patient per year** 1 year 131 2 years 124 5 years 107 Lifetime 55 Productivity not considered for lifetime simulation.	risk – myocardial infarction, angina, transient ischemic attack, stroke. 4 Scenarios for effect of intervention: 1, 2, and 5 years and for lifetime. **Simulated incremental cost per QALY gained (Probability of cost-effectiveness with 20K threshold)** 1 year 11776 (0.74) 2 years 9886 (0.84) 5 years 6477 (0.95) Lifetime 2091 (0.99) **Limitations:** Intervention effect at 2, 5, and lifetime assumed with no intervention and no program cost after year 1.
Author (Year): Fedder (2003)	**Location:** Baltimore, MD	Community Health Worker Outreach program	Primary annualized outcome measures were mean ER visits,	Given bus pass and $40-$75 monthly stipend based on caseload Included in cost:	Healthcare cost per patient per year Post $6020 Pre $8266	Authors hypothesize a 30 patient per year case load per CHW. Authors state there will be annual savings of

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Design: Pre post **Economic Method:** Incomplete intervention cost and healthcare cost. **Risk Focus:** High BP, Diabetes, or high BP and diabetes. **Funding Source:** Maryland Health Services Cost Review Commission. U MD School of Pharmacy **Monetary Conversions:** Index year assumed 1994 in US dollars	**Setting:** CHWs within urban community. **Population**: U Maryland Medical System discharge and Medicaid Diabetes Care program. African American Medicaid patients. Diabetics with or without hypertension and age=>18 years. Ability for self-care and decisions. **Sample Size:** Interv 238, with 117 who had =>5 CHW contacts **Characteristics:** Mean age 57 Female 78% High cholesterol 49% High BP 27% Diabetes 8% Diabetes and high BP 64% **Time Horizon:** Study period is March 91 to June 94. Study analysis	U of MD (Baltimore) Community Pharmacy Programs. Study implemented 1 year after intervention started. **Intervention:** 68 CHWs recruited from neighborhoods. 60 hours minimum training over 6 month period as case managers, covering chronic disease, diabetes/hypertension management, resource identification, medications, emergencies, glucose/BP monitoring, telephone outreach, documentation, referrals, goal setting. Bi-weekly supervision meetings for patient assignments (starting with 2 patients and max at 10), forms collected, and problems addressed. At least once weekly contact with patients, alternating phone and home visit. Assist with linking to providers/specialists,	ER admissions, inpatient admissions, hospital length of stay from Medicaid claims. ER visits (1.49 to 0.93) 38% ER admissions (0.64 to 0.32) 53% Hospitalization (0.95 to 0.66) 30% There was increase in hospital length of stay (6.35 to 6.69 days) 5%	This is very incomplete cost of intervention **Data Source:** Study records	Reduced by $2246 (27%) Components: Outpatient, inpatient, ER, drugs. Excludes outpatient drugs. **Productivity** Not included **Source:** Medicaid reimbursements data.	$80K to $90K per CHW. However, this conjecture seriously underestimates the cost of intervention. **Comments:** Study's reported cost of intervention is a serious underestimate. However, observed savings in Medicaid may cover much of true cost of intervention.

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	is 1 year pre and 1 year post.	monitor self-care, assist with appointments,Medicaid eligibility, and social support for patients/family/care-givers. Mean number contacts was 18.2 **Supervisor and Activities:** Supervisor not reported **Other Intervention:** No **Team-based Care:** No **Other Team Members:** No **Comparison:** None				
Author (Year): Goeree (2013) Linked to Kaczorowski (2011) **Design:** Cluster RCT **Economic Method:** Cost Benefit. **Risk Focus:**	**Location:** Ontario, Canada **Setting:** Community pharmacies **Population:** Communities with 10K-60K population. Those =>65 years of age invited. Participant organizations funded included	Cardiovascular Health Awareness Program (CHAP) **Intervention:** 3 hour 1-1 weekday sessions of CVD risk assessment and education led by CHWs over 10 weeks in community pharmacies. Advertised by flyers, posters, and free media.	Primary effect was 9% reduction in hospitalizations due to myocardial infarction, heart failure, and stroke. No difference in trial population for all-cause inpatient, ER, outpatient, or drugs.	Total cost $1,414,178 (excluding in-kind) $71K per community $20.20 per elderly resident $417 per intervention patient Composed of: Cost to community range $11,976 to $57,113 (variance by size, volunteer work, and in-kind support) or total of $609,874 and average $30,494 per community.	Healthcare cost per person for all causes Total reduced by ~$23 Inpatient reduced $18.67 ER reduced $4.27 Outpatient reduced $1.93 Specialist visit increased $1.45 Drugs increased $0.42	Based on $20.20 per resident intervention cost and ~$23 per resident lower healthcare cost (with all-cause inpatient), the net benefit is $1.65 per resident. <u>Sensitivity Analyses Effect on Per Resident Cost</u> Only CVD-related versus all-cause inpatient - $29.15 lower

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CVD Prevention. **Funding Source:** Canadian Stroke Network, Ontario Ministry of Health Promotion, Ministry of Health and Long-Term Care. **Monetary Conversions:** Index year is 2010 in Canadian dollars.	clinics, hospitals, senior centers and CBOs. **Sample Size:** 3394 from 20 Cardiovascular Health Awareness Program (CHAP) communities 3830 from 19 control communities Area target population used in economic analysis: CHAP ~68-70K Control ~73-76K **Characteristics:** Mean age 75 Female 57% Low Income 17% Diabetes 22% Congestive heart failure 12% **Time Horizon:** 10 weeks in Autumn 2006. Pre period Sep 05 to Aug 06. Post period Sep 07 to Aug 08. Cost analysis is based on 1 year.	CHW are peer health educators recruited locally from existing volunteer base. Public health nurse developed materials and local nurses trained CHWs. CHWs support self-management by discussing tailored risk profile, providing education materials, and direction to community resources. Community health nurse coordinated physician, pharmacist inputs for high risk. BP readings and risk factors shared with physicians, along with session summaries at end of trial and 6 months after. **Supervisor and Activities:** Not reported **Additional Intervention:** Yes **Team-based Care:** Yes **Other Team Members:**		Central office cost was $804,304 and average $40,215 per community. Included in cost: Substantial one-time planning and implementation composed of salary, hiring, training, equipment, materials, advertising and travel. Apportioned to CHAP communities. Central office cost for salary, materials, space, equipment, and travel also apportioned to each CHAP community. Also included cost of 2 regional coordinators. Not included in cost: Volunteer CHW, physicians, and nurses time. However, included in sensitivity analysis. **Data Source:** Project records.	**CVD-related inpatient reduced $39.72** Components: Outpatient, specialist visit, ER, inpatient, drugs. **Productivity** Not included **Source:** Retrospective administrative data for whole population of elderly.	CHAP central costs excluded versus included - $13.18 lower CHAP central cost equal to 20 intervention communities versus per resident - $1.64 higher. Adding $5K, $10K to $15K to each community for in-kind contributions: $0.16, $2.00 to $3.84 higher **Comments:** Unable to determine the effect of the CHW component. Note authors state that CHAPS includes improved clinical info systems, decision support, self-management, delivery system, and community leadership. Averaging intervention cost over entire elderly population assumes perfect scalability.

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		Community health nurse, local and regional coordinators **Comparison:** Usual care and health promotion available to all in Ontario				
Author (Year): Hollenbeak (2014) **Design:** RCT **Economic Method:** Program cost and modeled cost per QALY. **Risk Focus:** CVD Prevention. Hypertension. **Funding Source:** Robert Wood Johnson Foundation and Pfizer. No details. **Monetary Conversions:** Index year is 2010 in US dollars.	**Location:** USA City not reported. **Setting:** 2 urban general practices. **Population:** Patients with treated but uncontrolled BP from registry within 2 practices of African Americans age 40 to 75. Required moderate visit adherence and recent lipid panel. **Sample Size:** Intervention 136 Control 144 **Characteristics:** Mean age 61-63 Female 61-70% High BP 100% Diabetes 52-56% Coronary Artery Disease 14-21% **Time Horizon:**	Healthy Heart Trial **Intervention:** 20 African American CHWs (peer coaches) nominated by practicing physicians from patient panel that had controlled BP. Trained by study staff about coronary heart disease, risks and barriers to control, motivational interviewing, and practice making phone calls. 11 completed training and 5 remained to end of study. CHWs contacted patients every other months for 6 months. Practice-based counseling (2 sessions per patient) done by 2 African American medical assistants trained with same materials as CHWs,	Mean effects: 6 month change SBP reduced 6.38 mmHg Coronary heart disease risk avoided 0.08 pct pt Coronary heart disease risk used D'Agostino risk equations in Framingham data for primary and secondary events. 10-year prediction based on Markov model. 10-year QALY Intervention 0.14 higher	6 month cost per intervention patient $435 6 month cost per control patient $74 Difference $361 higher Included in cost for intervention group: CHW Training $74 CHW Time $55 Clinic visits $20 Labs $12 Medical Assistant Training $2 Medical Assistant time $27 Program Coordinator $145 Patient and CHW incentives $66 Supplies, transport, postage, conference calls $34 Included in cost for control group:	10-year change in healthcare cost $749 lower Composed of: Coronary heart disease and CVD events Intervention $3020 Control $3651 Follow-up costs Intervention $1564 Control $1682 **Productivity** Not included **Source:** Modeled on coronary heart disease risk reduction from trial.	10-year cost per QALY gained $12,373 Composed of: Incremental healthcare cost (-$749) Incremental Program Cost $2490 higher Difference $1741 higher Incremental QALY per patient 0.14 higher **Comments:** Study notes high initial cost due to training may be reduced once the program matures. The reviewers note the high cost of the coordination role. Study computes the 6-month cost per CH event avoided and concludes intervention is not cost effective in the short-term. Reviewers note this

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	Recruit July 2007 to Nov 2009. Intervention length is 6 months. Analytic period is 6 months and model for 10-years.	and in use of computer based 4-year coronary heart disease risk assessor. Educational brochures and healthy recipes provided. **Supervisor and Activities:** Supervisor not reported **Additional Intervention:** No **Team-based Care:** No **Other Team Members:** Medical assistants **Comparison:** Usual care with brochure literature.		Clinic visits Brochures and literature 10-year cost of intervention per patient $2490 higher Composed of: Intervention $2740 Control $251 **Data Source:** Study records		conclusion is not based on any standard threshold.
Author (Year): Kangovi (2016a,b) **Design:** RCT **Risk Focus:** Multiple including diabetes,	**Location:** Philadelphia, PA **Setting:** Patients from 2 urban adult academic clinics. **Eligibility:** At least one clinic visit prior year.	Adaptation of inpatient study, Individualized Management for Patient-Centered Targets (IMPaCT), for outpatients care. **Interventions:** Collaborative goal setting with 6 months of CHW support plus a	No outcomes reported yet	**Program cost not reported** **Components:** No details provided	**Healthcare cost not reported** **Productivity:** Productivity not considered.	Kangovi 2016b reports that interim data from the RCTs "(NCT01900470 and NCT02347787)" show a $1.80 return for every $1.00 invested in program. **Limitations:**

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hypertension, obesity **Economic Method:** Return on Investment number with no details **Funding Source:** University of Pennsylvania Institute for Translational Medicine and Therapeutics **Monetary Conversions:** Assumed 2015 as index year in US dollars.	Uninsured or publicly insured resident of high poverty zip code. With 2 or more of diabetes, high BP, obesity, asthma/Chronic Obstructive Pulmonary Disease (COPD). Exclude those who worked previously with CHW. **Sample Size:** Recruiting currently (NCT01900470). **Characteristics:** Mean age 56 Female 75% African American 95% Public insurance 82% Alcohol overuse 21% Drug use 11% Income < $15K 56% Past trauma 96% High BP 92% Obese 78% Diabetes 58% Asthma/COPD 18%	weaning period so patients are comfortable with primary care. At first visit, research assistant helped patient choose chronic disease to focus on (~2 minutes). The, collaboratively set chronic disease goal with primary care provider (3-5 minutes). Patients randomized to intervention worked in-depth with CHW through semi-structured interview to develop patient-driven action plans to achieve goals: A1c for diabetes, SBP for hypertension, weight for obesity, smoking cessation for COPD. Baseline data collected included clinical plus income, household, social support, food security, homelessness, income, employment, healthcare use, drug/alcohol use etc.				No details about components of program cost or averted costs.

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	Time Horizon: Recruit July 2013 to Oct 2014.	60 minute training for primary care provider on collaborative goal setting. Goals Chosen Obesity 62% of obese Tobacco 56% of smokers A1c 42% of diabetics SBP 18% of hypertensives **Supervisor and Activities:** Not reported **Additional Intervention:** No **Team-based Care:** No **Other Team Members:** Research Assistant, Primary care provider **Comparison:** Collaborative goal setting only				
Author (Year): Yun 2015 **Design:** Pre Post	**Location:** 10 Counties, Missouri, USA **Setting:** Community. Sessions located	Pilot rural program for education about blood pressure and CVD. **Intervention:** Health educators or nurses from the Health	For n=121 completing pre and post questions, based on self-reports.	**Program cost $300,000** Composed of $50,000 for project management and evaluation and $250,000 in grants to health departments for salaries	**Healthcare cost not reported** **Productivity:** Productivity not considered.	No cost effectiveness or cost benefit measures reported. Authors note that the program achieved between $3,488 and

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Risk Focus: Focus on high blood pressure and CVD. **Economic Method:** Intervention cost **Funding Source:** CDC-Missouri Department of Health and Senior Services cooperative agreement. **Monetary Conversions:** Assumed 2013 as index year in US dollars.	within Community Based Organizations (CBO). **Eligibility:** Focus on blood pressure. Rural counties selected for Health departments with track record of relations with CBOs and health system. Also with trained nurses and educators. **Sample Size:** 287 sessions held in 199 CBOs with 4405 attendees. 815 were referred for medical care, and 243 recruited for follow-up. 121 completed pre and post questionnaire. **Characteristics:** Age 52 Female 69% African American 8.6% White 86% Less than High School 11%; High School 39%	Departments provided group education within CBOs for members of the CBO. Describe cause, classification, prevention, and management of high BP. Participants screened and those with pre-hypertension or uncontrolled hypertension referred to partner health providers and invited to follow-up intervention. Participants followed up periodically for 1 year by nurse or educator for lifestyle coaching, identify and overcome barriers. **Supervisor and Activities:** Not reported **Additional Intervention:** No **Team-based Care:** No **Other Team Members:** Nurse	Those taking meds increased from 43% to 58%. Those seeing doctors for BP increased from 41% to 63%. Also reported substantial percentage point increases in those changing lifestyle. For n=62 with BP, 40% gained controlled versus 41% for WiseWoman. For n=45 with pre-hypertension, 22% became normal. Net increase in controlled or normal BP was 36%.	and benefits for nurses and educators. **The cost per attendee per year is $300000/4405=$68** **Components:** Salaries and benefits of CHW, Nurses, Central Program Administrators		$7,895 per person gaining BP control. Reviewers calculate $27,273 per person achieving BP control (300000/11, where 11 is additional persons achieving BP control based on Table 3 in paper) **Limitations:** Incomplete program cost includes only salaries. Possibly not accounted for local department costs. No measure of mean reduction in SBP/DBP.

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	Income less than $15K 30%; Income $15K-$35K 11% No health insurance 20% High BP 51% Pre-hypertension 37% **Time Horizon:** Intervention length 1 year No dates reported.	**Comparison:** No control group. Used Missouri WiseWoman participants for comparison.				

Abbreviations

HbA1c, Glycated hemoglobin

ER, emergency room

CVD, cardiovascular disease

RCT, randomized controlled trial

SBP, systolic blood pressure

DBP, diastolic blood pressure