



# ***Bridges To Excellence – Rewarding better quality care***

A review of the business case



# BTE Performance Dimensions

## Structure:

### PHYSICIAN OFFICE LINK

<b>Clinical Information Systems</b>	<b>Patient Education and Support</b>	<b>Care Management</b>
Use of Patient Registries	Educational Resources (multiple languages)	Care of Chronic Conditions (disease management)
Electronic RX and Test ordering systems	Referrals for Risk Factors & Chronic Conditions	Reductions in ACSC Admissions
Electronic Health Records	Quality Measurement and Improvement	Care of High-Risk Medical Conditions (care coordination)

## Process & Outcomes:

### DIABETES CARE LINK

- HbA1Cs tested and controlled
- LDLs tested and controlled
- BP tested and controlled
- Eye, Foot and Urine exams

### CARDIAC CARE LINK

- LDLs tested and controlled
- BP tested and controlled
- Use of aspirin
- Smoking cessation advice



# Primary Source Of Savings

## PHYSICIAN OFFICE LINK

Measure Focus	Primary Impact	Estimated Impact
<b>Disease Management</b>	<ul style="list-style-type: none"> <li>•Reduced variation in overall costs of care</li> <li>•Increased compliance with guidelines, better control of patients with chronic conditions</li> </ul>	5% of Total Gross Spend
<b>ACPOE</b>	<ul style="list-style-type: none"> <li>•Reduced outpatient medication errors</li> <li>•Reduced lab and radiology overuse</li> </ul>	3% of Total Gross Spend
<b>EHR</b>	<ul style="list-style-type: none"> <li>•Reduced adverse drug events</li> <li>•Increased compliance with care guidelines</li> </ul>	5% of Total Gross Spend
<b>Amb. Care Sensitive Hosp</b>	<ul style="list-style-type: none"> <li>•Reduced hospitalizations for patients at higher risk of being hospitalized</li> </ul>	2% of Total Gross Spend
<b>Care Coordination</b>	<ul style="list-style-type: none"> <li>•Reduction in duplicative testing</li> <li>•Reduction in hospitalizations</li> </ul>	5% of Total Gross Spend

<b><u>DIABETES CARE LINK</u></b>	<ul style="list-style-type: none"> <li>•Increased compliance with care guidelines</li> <li>•Reduced variation in practice patterns and resource use</li> </ul>	6.4% of Gross Spend on Diabetes
<b><u>CARDIAC CARE LINK</u></b>	<ul style="list-style-type: none"> <li>•Reduced hospitalizations and ED visits</li> <li>•Reduced severity of disease complications</li> </ul>	10% of Gross Spend on Ischemic Vasc. Diseases



# Physician Office Link Savings

Savings Category	Evidence	Estimated Impact
Disease Management	<ul style="list-style-type: none"> <li>• Hewitt Associates, Health &amp; Productivity Model, November 2002</li> <li>• Bodenheimer T, Wagner EH, Grumbach K, "Improving Primary Care for Patients with Chronic Illness: The Chronic Care Model" JAMA 2002 Oct 9; 288(14):1775-9; Oct 16; 288(15):1909-14.</li> <li>• Arnold Chen, Randall Brown, Nancy Archibald, Sherry Aliotta, and Peter D. Fox, "Best Practices in Coordinated Care.", Document No. PR00-10, Mathematica Policy Research, Inc., March 2000.</li> <li>• Adomeit, A. et al. "A New Model for Disease Management." <i>McKinsey Quarterly</i>, 2001, Number 4</li> <li>• Freemantle N, Harvey EL, Wolf F, et al, "Printed educational materials: effects on professional practice and health care outcomes" (Cochrane Review) The Cochrane Library, Issue 4, 2001.</li> </ul>	5% of Gross Spend
ACPOE	<ul style="list-style-type: none"> <li>• The Value of Computerized Provider Order Entry in Ambulatory Settings, Center for Information Technology Leadership (CITL), 2003 , <a href="http://www.citl.org">www.citl.org</a></li> <li>• Javitt, J. et al, "Use of a Sentinel System for Medical Error Detection and Prevention: Randomized Prospective Trial," Manuscript, 2003.(from The Health Technology Center report " Spending Our Money Wisely: Improving America's Healthcare System by Investing in Healthcare Information Technology")</li> <li>• Bates, D. et al, "The Impact of Computerized Physician Order Entry on Medication Error Prevention," <i>Journal of the American Medical Informatics Association</i>, 6(4) 1999.</li> <li>• Harpole LH, Khorasani R, Fiskio J, Kuperman GJ, Bates DW. Automated evidence-based critiquing of orders for abdominal radiographs: impact on utilization and appropriateness. <i>J Am Med Inform Assoc</i> 1997; 4(6):511-21.</li> </ul>	3% of Gross Spend
EHR	<ul style="list-style-type: none"> <li>• Honigman B, Lee J, Rothschild J, Light P, Pulling RM, Yu T <i>et al</i>. Using computerized data to identify adverse drug events in outpatients. <i>J Am Med Inform Assoc</i> 2001; 8(3):254-66.</li> <li>• Lobach DF, Hammond WE, "Computerized decision support based on a clinical practice guideline improved compliance with care standards" <i>Am J Med</i> 1997 Jan; 102(1) 89-98.</li> <li>• Overhage JM, Tierney WM, Zhou XH, et al, "A randomized trial of 'corollary orders' to prevent errors of omission", <i>J Am Med Inform Assoc</i> 1997 Sept-Oct; 4(5): 364-75.</li> </ul>	5% of Gross Spend
Amb. Care Sensitive Hosp	<ul style="list-style-type: none"> <li>• Siegrist RB Jr, Kane NM. Exploring the relationship between inpatient hospital costs and quality of care. <i>Am J Manag Care</i>. 2003 Jun;9 Spec No 1:SP43-9.</li> </ul>	2% of Gross Spend
Care Coordination	<ul style="list-style-type: none"> <li>• Forman, S. and Kelliher, M. "<i>Status One</i>" San Francisco: Jossey-Bass Publishers. 1999</li> <li>• Forman, S. et al. "Clinical Improvement with Bottom-Line Impact: Custom Care Planning for Patients with Acute and Chronic Illnesses in a Managed Care Setting." <i>American Journal of Managed Care</i>, 1997, 3(7), 1039-1048</li> </ul>	5% of Gross Spend



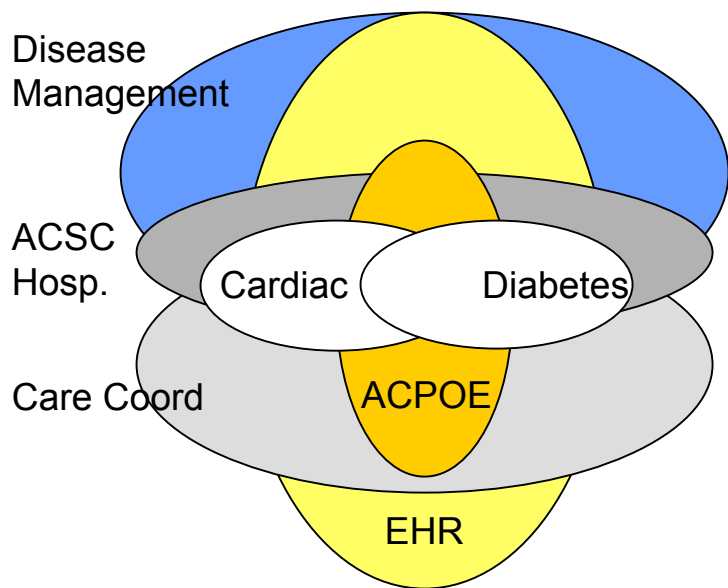
# **Diabetes & Cardiac Care Links Savings**

- **Diabetes (3.5% of average commercial members):**
  - Hewitt Model suggests gross savings of 8%
  - Wagner’s Chronic Care Model demonstrates annual incremental savings between \$650 and \$950 per diabetic patient per year for patients with elevated HbA1c
    - National benchmarks indicate that between 30% and 40% of diabetic patients are not controlled
    - Applying a factor of 35% to the mid-point of the savings yields average expected savings of \$280 per patient
  - Mid-point of Hewitt and Wagner model yields average gross savings of about \$350 per diabetic patient per year (6.4% of spend on patients with diabetes)
- **Cardiac (2.5% of average commercial members):**
  - Towers Model suggests savings of \$180 to \$390 per cardiac patient per year, depending on demonstrated ability to control Blood Pressure



# Overall Savings

## Venn Diagram of Savings:



Estimated total impact:  
3% to 4.5%  
of total gross spend

- Cardiac & Diabetes-specific savings subsumed in POL savings
- ACPOE savings subsumed in EHR savings
- ACSC Hospitalization savings subsumed in Disease Management and Care Coordination savings
- 50% of DM and Care Coordination savings + 25% of EHR savings are net impact – about 6.25% of total gross spend
- Current market interventions in DM and CC may already be realizing some of these savings



# ***Savings Attribution***

- 4% of average pmpy gross cost is \$110
- Excluding diabetes and cardiac spend and patients, 4% of average pmpy gross cost is \$80 – implying max reward of \$40 pmpy for docs meeting POL measures
- Applying half of the diabetes/cardiac attributed savings (50% of \$30) yields an additional \$15 in reward pmpy for all members
- Reserving \$5 of the balance and attributing it all to diabetes and cardiac patients yields an extra \$80 reward (\$5/overall prevalence rate for cardiac & diabetes – 6%)



# BTE Incentives For PCPs

Offices meeting Passing Score in:		POL			DCL/CCL
		Clinical Information System	Patient Education & Support	Care Management	
<b>Any Module</b>	Y1	<b>\$50</b>			<i>20% of bonus is withheld until practice meets DCL and/or CCL Doc gets full POL bonus plus extra \$80 for each diabetic and cardiac patient when meeting CCL/DCL</i>
	Y2	<b>\$20</b>			
	Y3	<b>\$10</b>			
<b>Two out of three Modules</b>	Y1	<b>\$50</b>			
	Y2	<b>\$50</b>			
	Y3	<b>\$30</b>			
<b>All three Modules</b>	Y1	<b>\$50</b>			
	Y2	<b>\$50</b>			
	Y3	<b>\$50</b>			

***Linking process and outcomes gives us a much bigger bang for our buck.***





## ***Reward Example***

- 3 PCP Practice with 1000 patients covered by the program:
  - 3.5% are diabetic patients
  - 2.5% are cardiac patients
- Practice receives total of \$54,800:
  - $\$40 * 1000 = \$40,000$  for meeting POL measures
  - $\$80 * 60 + \$10 * 1000 = \$14,800$  for meeting DCL & CCL measures
- Purchaser saves a total of \$55,000 less program costs (\$5 pmpy)

**Incentives have to be compelling enough that physicians cannot afford to ignore them.**



# ***Appendix***

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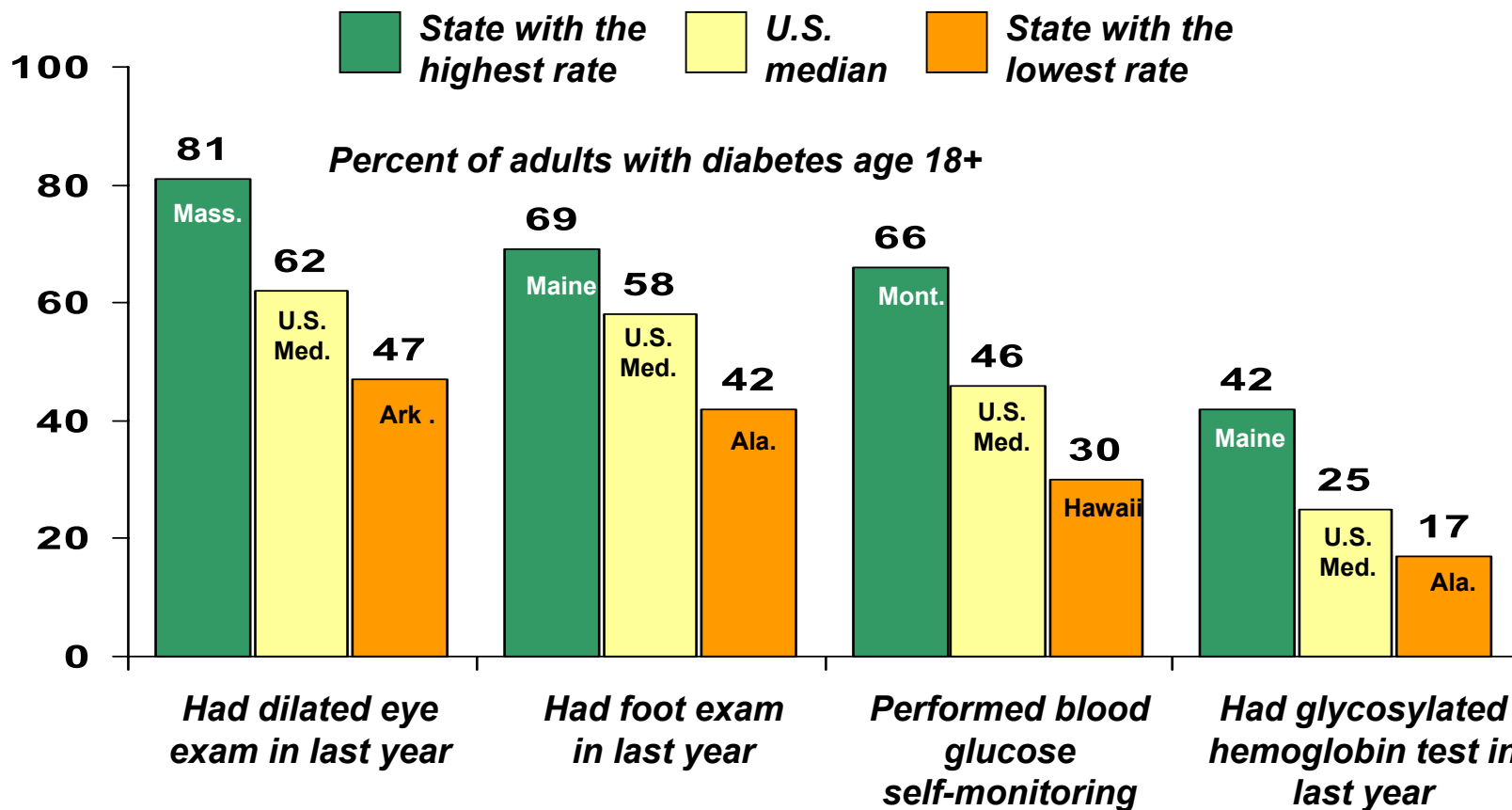
# ***Disease Management***

- Disease Management uses a systems approach to managing chronic disease to improve quality and reduce costs
- Evidence: Many programs; MPR study of DM/CC
- Potential Savings: Uncertain effect on overall costs; Savings of 10 to 30% on particular diseases (McKinsey Study). Hewitt Analysis: up to 5%
- Barriers: No incentive without capitation, financial and non-financial implementation capacity
- Quality of Evidence: ++



# Compliance With Guidelines

*Up to three-quarters of adults with diabetes did not receive recommended care from their health care practitioner in the middle-range state during 1997-1999, and over one-half did not perform recommended self-care*



Source: Behavioral Risk Factor Surveillance System (CDC 2000c). U.S. data includes 39 states and the District of Columbia. Data were not available for the following states: Delaware, Illinois, Indiana, Maryland, Missouri, New York, Oklahoma, Oregon, South Carolina, South Dakota, Washington.



# Hewitt "Disease Management" ROI Analysis

Demographic Modeling Example Based on age/gender of a typical Purchaser – 75K lives

## Claim Costs by Condition

	LTD	STD	Sick Pay	Workers' Comp	Medical	Productivity	Total
Asthma	\$1,410,000	\$739,000	\$557,000	\$0	\$5,036,000	\$1,727,000	\$9,469,000
Diabetes	\$378,000	\$801,000	\$403,000	\$0	\$12,366,000	\$1,424,000	\$31,372,000
Depression	\$1,280,000	\$1,030,000	\$518,000	\$128,000	\$1,403,000	\$16,191,000	\$20,550,000
Chronic heart failure	\$751,000	\$174,000	\$87,000	\$0	\$1,549,000	\$569,000	\$3,130,000
Allergy	\$347,000	\$80,000	\$40,000	\$2,000	\$4,372,000	\$10,851,000	\$15,692,000
Hypertension	\$75,000	\$162,000	\$82,000	\$0	\$5,968,000	\$12,360,000	\$18,647,000
Heart Disease	\$4,506,000	\$694,000	\$349,000	\$0	\$5,315,000	\$14,774,000	\$25,638,000
Prenatal	\$0	\$1,965,000	\$988,000	\$0	\$3,202,000	\$2,601,000	\$8,756,000
Rheumatoid	\$0	\$1,198,000	\$602,000	\$0	\$372,000	\$13,228,000	\$15,400,000
Low Back Pain	\$401,000	\$3,285,000	\$1,651,000	\$55,000	\$944,000	\$3,936,000	\$10,272,000
Cancer	\$2,141,000	\$1,876,000	\$943,000	\$0	\$10,502,000	\$2,257,000	\$17,719,000
COPD	\$1,410,000	\$1,764,000	\$887,000	\$0	\$2,312,000	\$118,000	\$6,491,000
Other	N/A	N/A	N/A	N/A	\$103,028,000	N/A	\$103,028,000
<b>Total identified</b>	<b>\$12,699,000</b>	<b>\$13,768,000</b>	<b>\$7,107,000</b>	<b>\$185,000</b>	<b>\$156,369,000</b>	<b>\$96,036,000</b>	<b>\$286,164,000</b>

## Potential Savings

	LTD	STD	Sick Pay	Workers' Comp	Medical	Productivity	Total
Asthma	(\$114,000)	(\$47,000)	(\$36,000)	\$0	(\$252,000)	(\$259,000)	(\$708,000)
Diabetes	(\$30,000)	(\$51,000)	(\$26,000)	\$0	(\$618,000)	(\$2,614,000)	(\$3,339,000)
Depression	(\$206,000)	(\$131,000)	(\$66,000)	(\$19,000)	(\$140,000)	(\$4,857,000)	(\$5,419,000)
Chronic heart failure	(\$109,000)	(\$20,000)	(\$10,000)	\$0	(\$139,000)	(\$28,000)	(\$306,000)
Allergy	(\$3,000)	(\$1,000)	\$0	\$0	(\$22,000)	(\$2,713,000)	(\$2,739,000)
Hypertension	(\$1,000)	(\$4,000)	(\$2,000)	\$0	\$0	(\$618,000)	(\$625,000)
Heart Disease	(\$726,000)	(\$88,000)	(\$44,000)	\$0	(\$532,000)	(\$2,955,000)	(\$4,345,000)
Prenatal	\$0	(\$50,000)	(\$25,000)	\$0	(\$64,000)	(\$26,000)	(\$165,000)
Rheumatoid	\$0	(\$8,000)	(\$4,000)	\$0	(\$2,000)	(\$132,000)	(\$146,000)
Low Back Pain	(\$32,000)	(\$126,000)	(\$63,000)	(\$2,000)	(\$47,000)	(\$394,000)	(\$664,000)
Cancer	(\$173,000)	(\$120,000)	(\$60,000)	\$0	(\$525,000)	(\$23,000)	(\$901,000)
COPD	(\$114,000)	(\$112,000)	(\$57,000)	\$0	(\$116,000)	(\$18,000)	(\$417,000)
Other							
<b>Total</b>	<b>(\$1,508,000)</b>	<b>(\$758,000)</b>	<b>(\$393,000)</b>	<b>(\$21,000)</b>	<b>(\$2,457,000)</b>	<b>(\$14,637,000)</b>	<b>(\$19,774,000)</b>

## Program Costs

	Total
Asthma	\$367,443
Diabetes	\$367,443
Depression	\$367,443
Chronic heart failure	\$121,256
Allergy	\$49,018
Hypertension	\$367,443
Heart Disease	\$489,924
Prenatal	\$1,494,669
Rheumatoid	\$895,102
Low Back Pain	\$367,443
Cancer	\$367,443
COPD	\$367,443
Other	
<b>Total</b>	<b>\$5,622,070</b>

75,000 members \* 3% = 2,250 Diabetics  
 $\$12,366,000 / 2,250 = \$5,500/\text{diabetic}/\text{year}$

**Gross Savings = Net Savings + Program Costs**

$\$985,443 = \$618,000 + 367,443$

**Gross Savings/Diabetic = \$440 per year**



## ***Wagner et al In JAMA, 2001, 2003***

- Wagner's Chronic Care Model demonstrates annual incremental savings between \$650 and \$950 per diabetic patient per year for patients with elevated HbA1c
- National benchmarks indicate that between 30% and 40% of diabetic patients are not controlled
- Applying a factor of 35% to the mid-point of the savings yields average expected savings of \$280 per patient
- Mid-point of Hewitt and Wagner model yields average savings of about \$350 per year



# CCL ROI Model

Measure		Criteria	annual savings per patient that meets standard	annual savings per CAD patient
		% of patients that meet standard		
<b>Blood pressure control &lt; 140/90 mm Hg</b>		75%	\$275	\$206
<b>BP Result</b>	<b>Credit Toward Numerator</b>			
< 140/90 mm Hg	1.00			
<145/90 or <140/95 mm Hg	0.75			
< 145/95 mm Hg	0.50			
> 145/95 mm Hg	0.00			
<b>Completion of Lipid Profile</b>		80%	\$0	\$0
<b>LDL control &lt; 100 mg/dl</b>		50%	\$73	\$36
<b>LDL Result</b>	<b>Credit Toward Numerator</b>			
<100 mg/dl	1.00			
100 - 109 mg/dl	0.75			
110 - 119 mg/dl	0.50			
120 - 129 mg/dl	0.25			
> 130 mg/dl	0.00			
<b>Use of aspirin or other antithrombotic</b>		80%	\$179	\$143
<b>Notation of smoking status and cessation advice or treatment</b>		80%	\$5	\$4
<b>Total Annual Savings per Patient - All Measures Met</b>				<b>\$390</b>
Certification met based on all but Blood Pressure Control				\$184
Certification met based on all but Lipid Profiles				\$390
Certification met based on all but LDL Control				\$353
Certification met based on all but Aspirin Use				\$247
Certification met based on all but Smoking cessation				\$386



# CCL ROI Model Observations

- Savings Sources:
  - Blood pressure control appears to yield the greatest savings.
    - Several studies support a 250% relative risk for hypertensive patients (bp >140/90) compared to patients with normal blood pressure.
  - Aspirin use also yields significant savings, especially as a primary prevention intervention (savings from primary and secondary prevention are captured in our savings estimate).
  - LDL control yields modest savings, but these are dampened since the HSRP criteria only requires that 50% of sample patients meet the standard.
  - Only nominal savings can be supported for smoking cessation advice. While smoking is a significant risk factor for cardiovascular disease, the prevalence of smokers is relatively small (approximately 24% in the general population) and the success rate for smoking cessation treatments is low.
- Overall savings vary depending upon how the certification is met since only 4 of 5 measures need to be satisfied.
  - The maximum savings is approximately \$390 if certification is achieved by meeting the measures for Blood Pressure control, LDL control and Aspirin Use.
  - If certification is achieved without meeting the Blood Pressure measure, the savings would be as low as \$180 per patient.





- Electronic entry of ambulatory orders helps reduce ADEs, pharmacy, lab and radiology costs
- Evidence: CITL study, Bates et al
- Potential Savings: 3% (mostly pharmacy savings)
- Barriers: standards, incentives
- Quality of evidence: ++



# ***Electronic Detection of Medical Errors***

- Computer analysis of claims and lab data to detect medical errors and deviations from guidelines
- Evidence: ActiveHealth, Javitt et. al. (forthcoming)
- Potential Savings: up to 5.5%
- Quality of Evidence: + (paper forthcoming)



# ***Incentive to Physicians to Reduce Hospitalizations***

- Hospitalizations for diseases such as asthma and CHF are sensitive to ambulatory management and thus providing incentives to physicians can lead to fewer hospitalizations and lower cost
- Evidence: PGP (Medicare), Kane, Hewitt
- Potential Savings: up to 5%
- Barriers: Physician group implementing capacity, Multiple physicians/ co-morbidities
- Quality of Evidence: ++



# Care Coordination

- Care coordination focuses on the small number of chronically ill and frail elderly patients who account for a disproportionately large share of overall costs. Estimates: (1% to 2% account for 20% to 30% of costs)
- Evidence: MPR study of CC/DM, Status One, Forman et al
- Potential Savings: 2% to 5% of overall cost
- Barriers: No incentive without capitation, financial and non-financial implementation capacity
- Quality of Evidence: +++



# Relative Impact Of Interventions

## Cost Reduction vs. Strength of Evidence

