Preconference II

Incorporating Evidence Based Medicine into Disease Management Programs

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Health Intelligence and Solutions

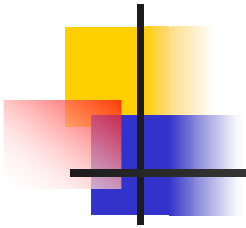
- Why Does our Company Exist?
  - To help participants improve their health, and avoid complications and death
  - To educate and support them in managing their chronic diseases
- What is our Mission?
  - To make a difference in the health of participants
  - To make that quality quantifiable
  - To be the nation's leading customer-Centric health intelligence and solutions company

Our experience is YOUR advantage

- Proven track record in population-based health improvement programs – over 60 contracts
- Managing over 275,000 individuals per month
- Over 12 million participant months experience
- Contracted population of 10 million covered lives
- Over 1 million employee covered lives

Self-Funded Employer Experience

- Solutia
- City of Charlotte
- Halliburton
- Kellogg, Brown & Root
- AstraZeneca
- The Allstate
- Aldine, Dallas &
- Houston ISD's
- Cardinal Health
- Centex Corporation
- National Gypsum
- LifePoint Hospitals
- JCPenney
- Pepsi Bottling Group
- Operating Engineers



Definition and Scope

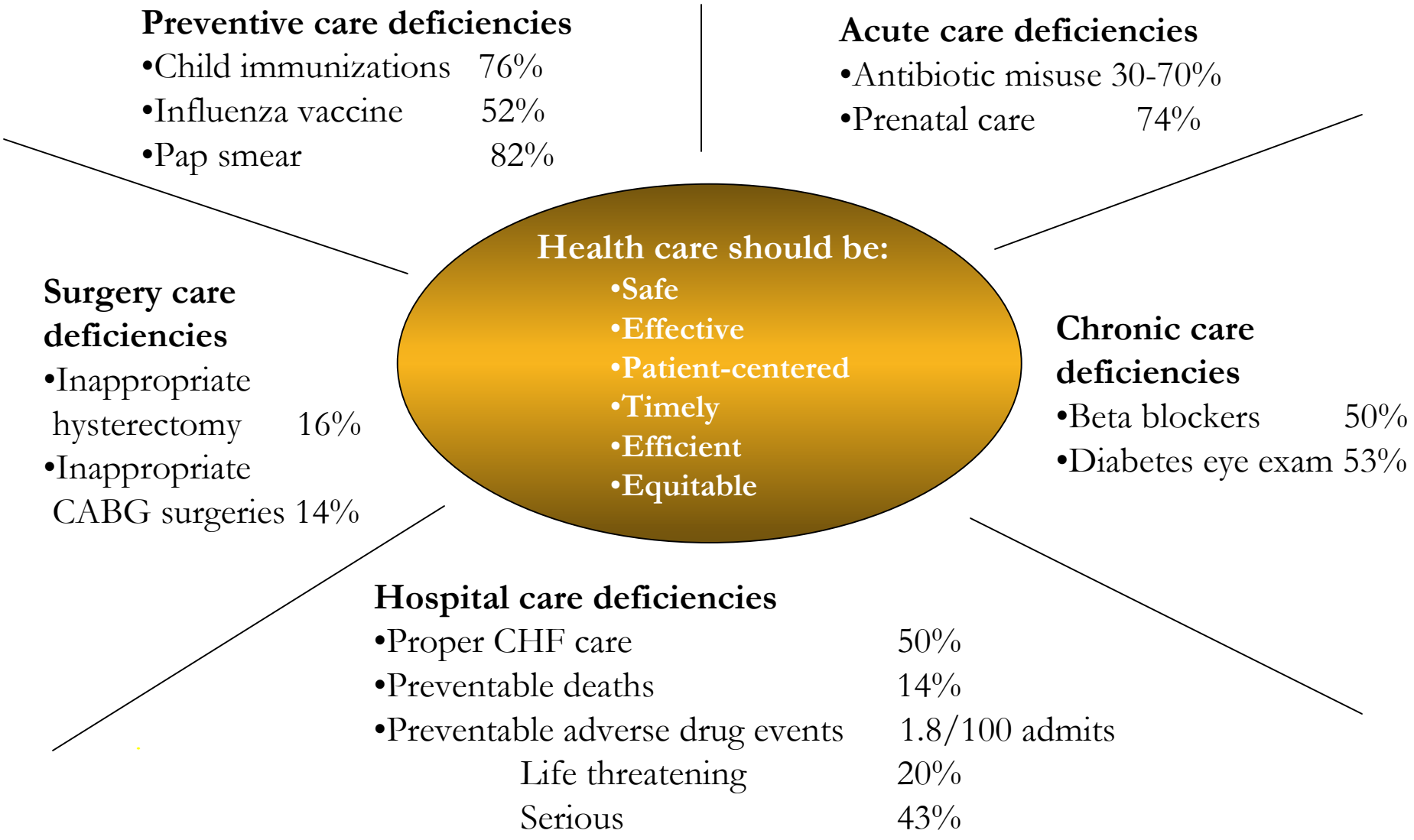
Evidence-Based Medicine: Definition and Scope

- Definition: From the Centre for Evidence-Based Medicine located at the University of Toronto.
  - Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values.
  - The practice of EBM comprises 5 steps:
    1. Converting the need for information (about prevention, diagnosis, prognosis, etc) into an answerable question.
    2. Tracking down the best evidence with which to answer that question.
    3. Critically appraising that evidence for its validity, impact, and applicability.
    4. Integrating the critical appraisal with clinical expertise and with the patient's unique biology, values and circumstances.
    5. Evaluating the effectiveness and efficiency in executing Steps 1-4 and seeking ways to improve then both for next time.

Evidence-Based Medicine: Definition and Scope

- Limitation of EBM:
  - Shortage of coherent, consistent, scientific evidence
  - Difficulties in applying any evidence to the care of individual patients
  - Barriers to any practice of high quality medicine
  - Limited time for clinicians to master and apply EBM
  - Resources required for instant access to EBM can be a limiting factor in clinician offices
  - Evidence that EBM has positive impact is lacking
- Quote: "There is sufficient evidence to suggest that most clinicians' practices do not reflect the principles of EBM but rather are based upon tradition, their most recent experience, what they learned several years ago in medical school, or what they have heard from their friends."

The Quality Chasm



The Quality Chasm

- Misuse of Healthcare Services
  - It has been estimated, based on a large study, that at least 44,000 American die each year as a result of medical errors[7]
  - Total national costs of preventable medical errors are estimated to be between $17 billion and $29 billion[8]
  - Two percent of hospital admissions experienced preventable adverse drug events resulting in increased hospital costs of $4,700 per admission[9]

The Quality Chasm: Opportunities

- Overuse of Healthcare Services
  - Overuse of antibiotics[4]
  - NSAIDs
  - Upper GI Endoscopy
- Underuse of Healthcare Services
  - Only 50% of eligible AMI survivors receive beta-blocker therapy[5]
  - Merely 69% of eligible Medicare patients with CHF were on an ACEi[6]

The Quality Chasm: Drivers

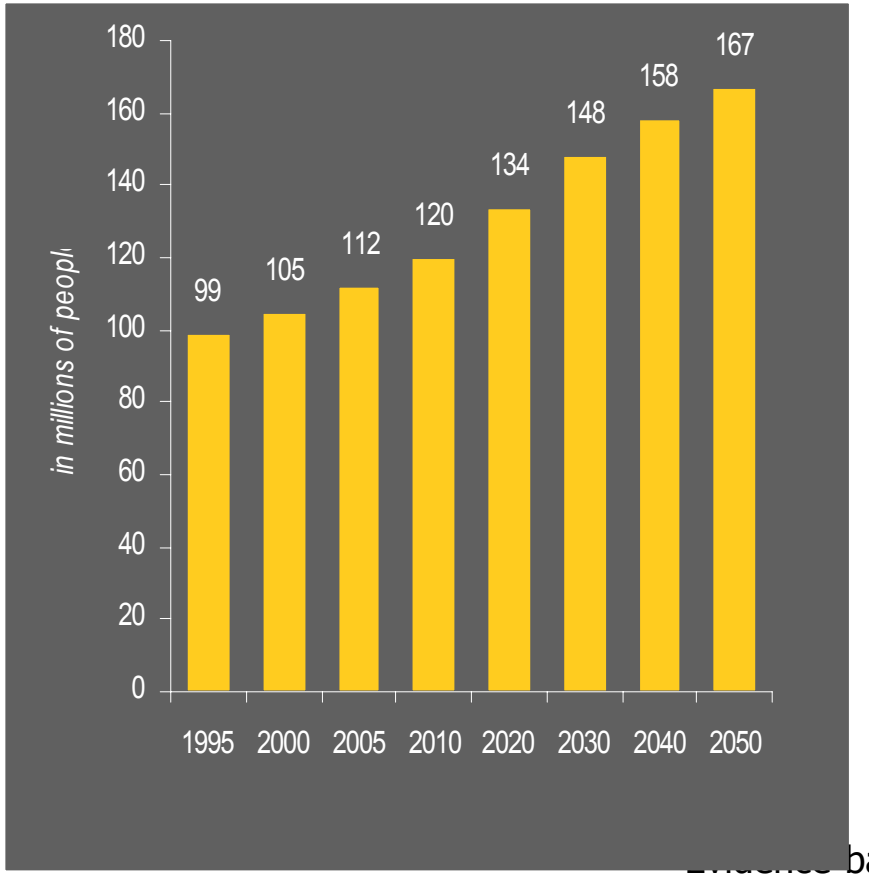
- Growing Complexity of Science & Technology
  - 50% to 100% growth in R&D investments in healthcare treatments from 1994-1999
  - Over last 30 years, published clinical trials have increased from 100 to 10,000 articles annually
  - 49% of all medical articles published in last 5 years
  - Since 1980, number of new drugs approved each year has increased from 19 to 38

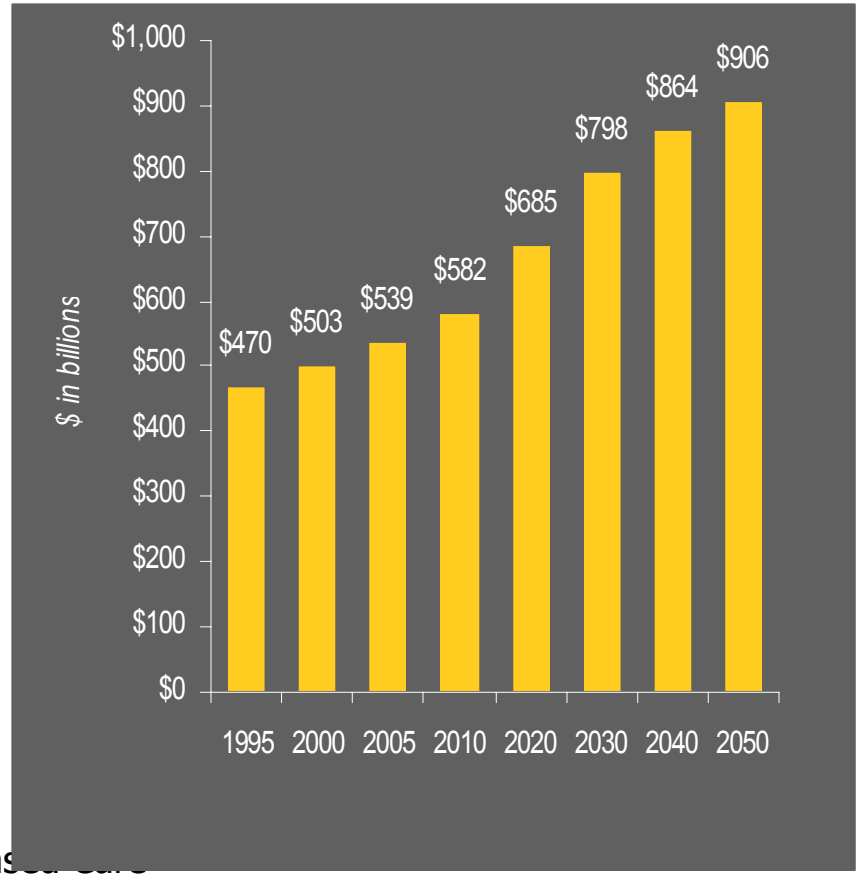
The Quality Chasm: Drivers

- Increase in Chronic Conditions
  - An increase in the incidence and prevalence of chronic conditions
  - Hospitalizations for CHF as a primary diagnosis has increased 64% over the past 10 years[2]
  - Prevalence of diabetes continues to increase among U.S. adults[3]
  - Since 1965, 1 year of additional life expectancy added every 5 years
  - Today- 13% over 65; 2030- 20% over 65 years old

Quality Chasm: Drivers

Increase in Chronic Conditions





The Quality Chasm: Drivers

- Poorly Organized Delivery System
  - Although hospital systems have consolidated, physicians remain decentralized
  - Wagner et al. identify 5 elements to improve patient outcomes for chronic illness[1]:
    - **Evidence-based, planned care**
    - Reorganization of practice to meet needs of patients who require more time, education, closer follow-up, etc.
    - Systematic attention to patient need for information and behavioral change
    - Ready access to clinical expertise
    - Supportive information systems

Quality Chasm: Sources of Variation

- Variation among patients
- Variation among physicians
- Variation in the local systems of care (e.g., health care structure)

- Treatment variation = f(Pv, Dv, Sv)

  where:

  Pv (Patient Variation) = g(PT, AV, PR)

  where:

  PT (Phenotype) = h(comorbids, disease severity, demographics, past behavior)

  AV (Adherence variation) = h(behavior, unorganized, lack of understanding)

  PR (Preference variation) = h(Cost, QoL, side-effects)

Quality Chasm: Sources of Variation

Dv (Physician Variation) = g(AV, PR)

where:

AV (Adherence variation) = h(forget to subscribe, don't know EBM guidelines)

PR (Preference variation) = h(medical training, specialty, values)

Sv (Health System Variation) = g(BV,SRV,EBMV)

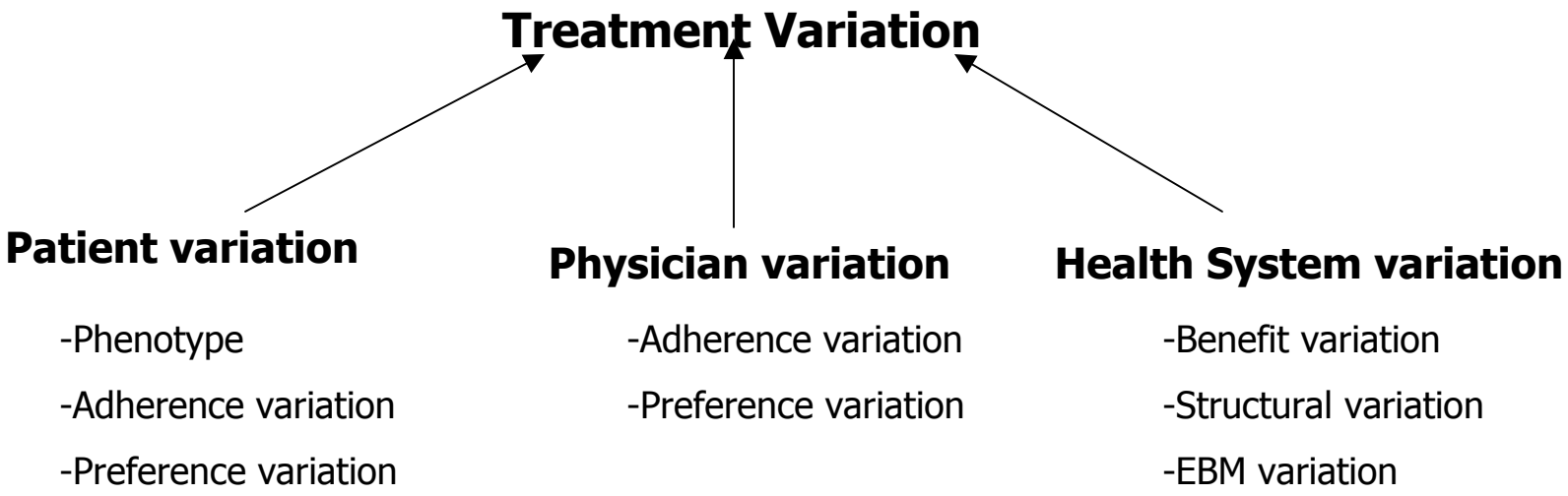
where:

BV (Benefit variation) = h(benefit structure)

SRV (Structural variation) = h(hospital location,specialties represented)

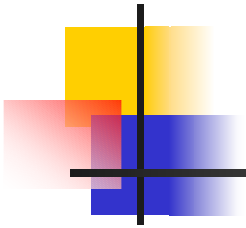
EBMV (Evidence based medicine variation) = h(gaps in EBM, cost-effectiveness)

Quality Chasm: Sources of Variation



Quality Chasm: Sources of Variation

- For both the patient and physician EBM Guidelines can directly impact adherence variation.
- Over time EBM guidelines can affect preference variations.



Program Design

Program Design: EBM-Based

- IOM Redesign Rules to Improve Healthcare Quality
  - Care is based on continuous healing relationships
  - Care is customized according to patient needs and values
  - The patient is the source of control
  - Shared knowledge and the free flow of information
  - **Decision making is evidence-based**
  - Safety is a system property
  - Transparency is necessary
  - Needs are anticipated
  - Waste is continuously decreased
  - Cooperation among clinicians is a priority

Program Design: EBM-Based

- Factors that positively impact physician behavior:
  - Patient reminders
  - Patient-mediated interventions
  - Outreach visits
  - Opinion leaders
  - Multifaceted activities
- Audit with feedback and educational materials are less effective in affecting physician behavior.

CorSolutions' General Program Design

1. *Evaluation of prescribed treatment plans for High Risk participants against evidence based guidelines.*
2. *Consultations with the physician, as needed, about areas where the treatment plan might be enhanced or optimized based on findings from this review.*
3. *Empowering participants through ongoing education.*
4. *Providing coaching and support to promote adherence to the prescribed treatment plan.*
5. *Emphasizing the timely and appropriate action required for urgent or emergent symptom management.*
6. *Customer-centered approach to create programs that are uniquely designed around each customer.*

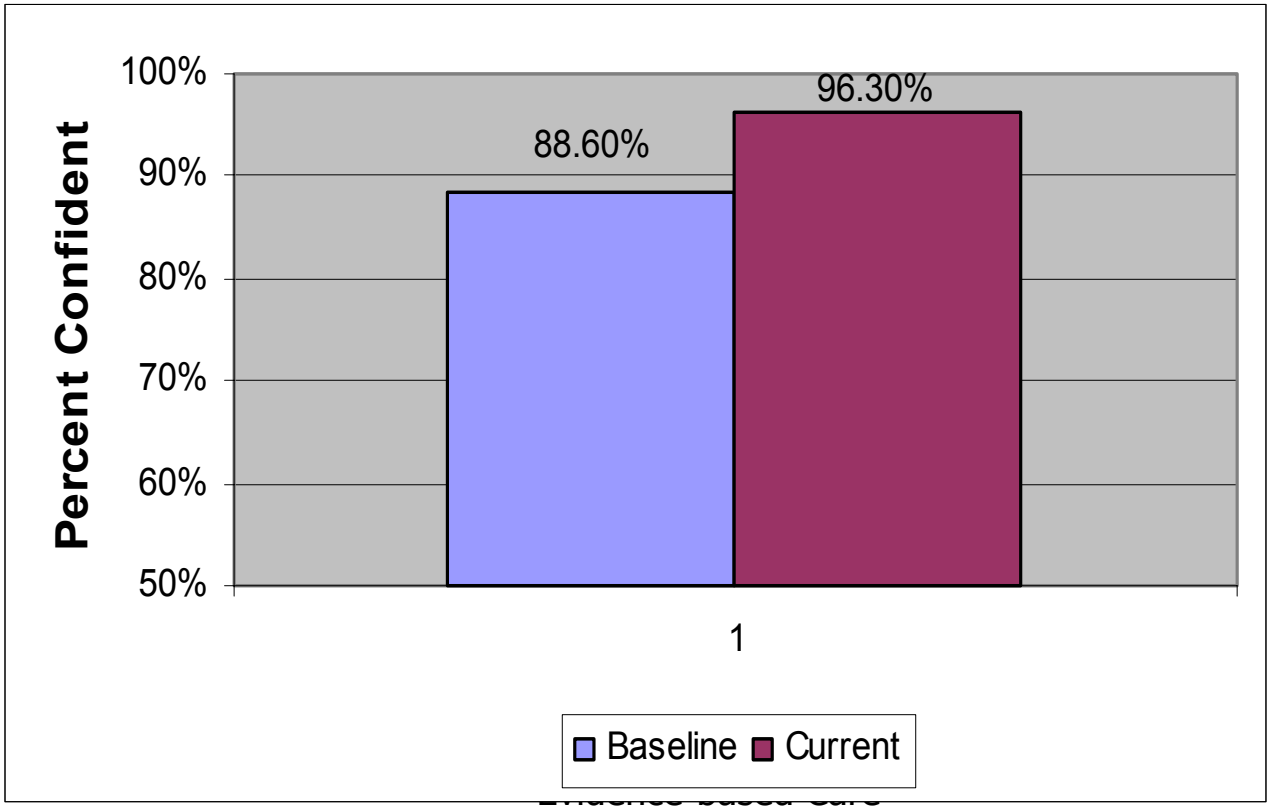
Applying EBM to Behavior Change Model

- EBM definition: is the integration of best research evidence with clinical expertise and patient values[1].
  - Patient values definition: the unique preferences, concerns and expectations each patient brings to a clinical encounter and which must be integrated into clinical decisions if they are to serve the patient.
- CorSolutions integrates the individual patients' beliefs, concerns, and experiences into its disease management models.
- To ensure long-term change in patient response to EBM guidelines, CorSolutions' approach to behavior modification concentrates on *changing attitudes* rather than *controlling behavior*.

CorSolutions' Behavior Change Principles

- Customized interventions are based on:
  - Individual **confidence** to make behavioral changes(Bandura model)
  - Individual **readiness** to make behavioral changes (Prochaska model)
- Critical steps for effective change in patients involve:
  - Initial assessments and
  - Assignment of priorities
  - Based on **individual experiences and preferences**

Example of Impact of Confidence on Patient Behavior

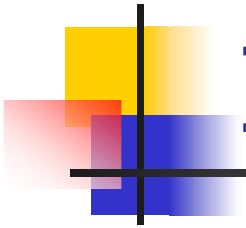


Patient Responses to the Program

- ″I've benefited by participating in this program. It's helped me make **positive changes**. The personal attention is wonderful -- it feels good when I hear from my nurse and encourages me to help myself."
- "Learning to manage yourself is a good thing because you might not always think of all the things the nurse will ask. It's great to have someone available immediately as a health advocate."
- Male Diabetic Patient
  - Baseline: Checked blood sugars twice every ten days, infrequently weighed himself, and did not exercise.
  - After two months on program: The patient monitors his weight daily, walks 20-45 per day at least six days a week and has learned to read food labels and checks blood sugars twice a day every day.

Physician Responses to the Program

- "CorSolutions' program simplifies the usually challenging treatment of patients with congestive heart failure. Partnering with the nurse strengthens the patient-physician relationship with phone follow-up and as needed visits in the home. The education and reinforcement of the physician recommendations improve compliance with the therapeutic diet and usually complex medical regimen. This should reduce hospitalizations and improve quality of life in this population of patients. Patient knowledge of their disease process and therapy should also make their visits with me more productive."
  - Dr. Howard Rubin, M.D., participating physician in the CMS Demonstration



Implementation

Program Implementation Issues

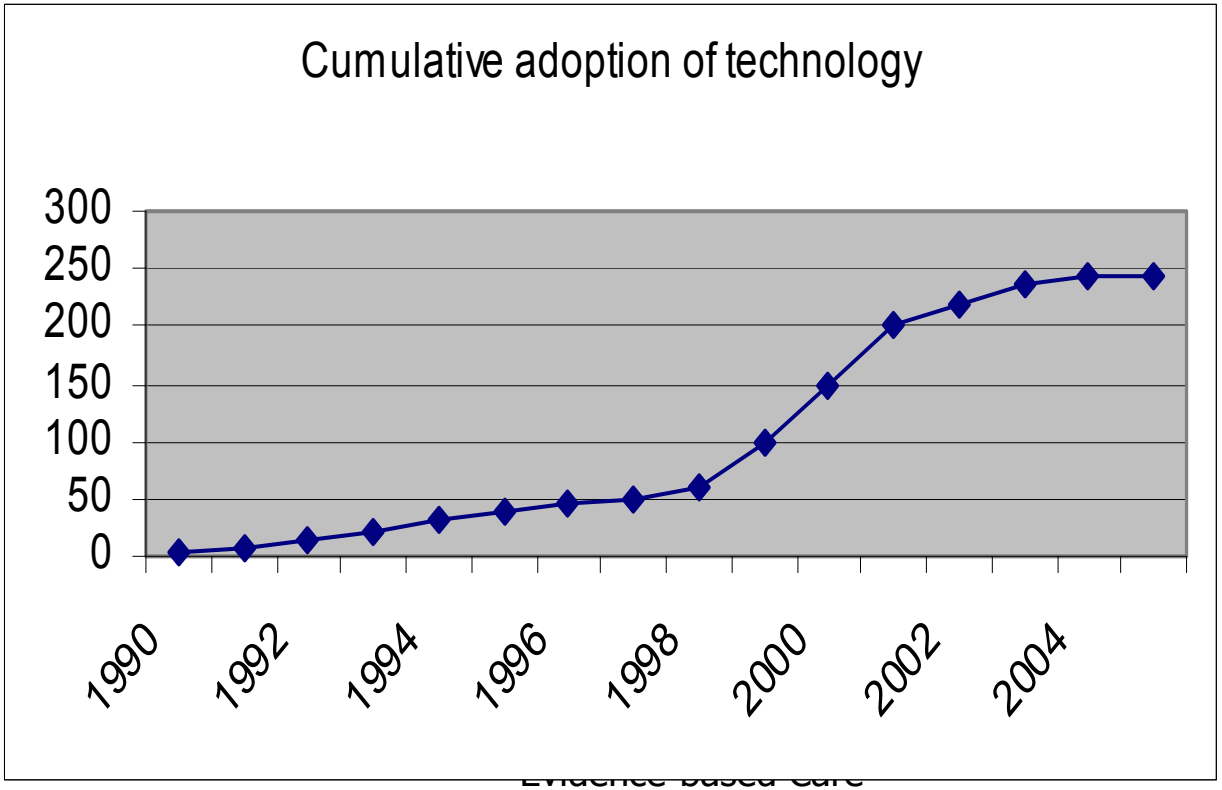
- Barriers to implementing EBM:
  - Variation in EBM itself
  - It takes time to apply new guidelines: 17 years is typical
  - Diffusion of innovation: Three general category of factors affecting speed of adoption:
    - Perceptions of the innovation
      1. Perceived benefit of change
      2. Innovation must be compatible with the values, beliefs, past history, and current needs of individuals
      3. Complexity of the proposed innovation
      4. Trialability: ability to test on a small scale before widespread adoption
      5. Observability: ease with which potential adopters can watch others try the innovation first

Program Implementation Issues

- Characteristics/Personalities of potential adopters
  1. Innovators (2.5%)
  2. Early Adopters (13.5%)
  3. Early majority (34%)
  4. Late majority (34%)
  5. Laggards (16%)

- Contextual and Managerial Factors
  1. Environment that supports innovation
  2. Leadership style

Program Implementation Issues



Compliance with Beta-blockers for patients with Heart Failure