Disease Management and e-Health Can Be Successfully Merged

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LifeMasters Supported SelfCare

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PMG of Santa Cruz

- Single-County IPA of 60 PCPs and 140 specialists

- 40,000 total patient membership, 6000 in Senior HMO product

- Two community hospitals

- Contracts with 9 HMO's

- Intranet linkage since 1993--tech aware IPA

- Standard list of stressors

- 2001 Survivors

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- Founded in 1994 by Harvard-trained MD /Biomedical Engineer

- 12 contracts in 5 states representing >3 million covered lives

- 34,000 patients under management

- 10,000 physicians actively engaged

- Peer reviewed published outcomes studies

- Introduced web-based disease management in 1998 in conjunction with Intel Corporation

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- ## Co-morbidity and multiple disease state population management programs
  - Cardiovascular, Diabetes, Pulmonary

- ## Three product lines
  - Full service "out-sourced" disease management programs
  - Web based technology tools (ASP & Patient Review Application)
  - Interactive health management web-site

- ## 2000 Survivors

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LifeMasters *Two Underlying Themes*

Decision Support Tools for Physicians:
> through a system that allows daily monitoring of patient vital signs, we provide MDs with actionable clinical information that allows for early intervention resulting in reduced ER visits/hospital admissions and improved adherence to evidence-based guidelines.

Supported SelfCare for Patients:
> utilizing high touch / high tech out bound nurse call centers, the web, and direct mail we provide lifestyle coaching & educational interventions resulting in improved adherence to treatment plans and better quality of life.

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Physician Decision Support Components

Initial patient training

- Variety of options
    - Video, telephonic, group, in-home
- Monitoring skills
- SelfCare concepts

Biometric Monitoring

- Choice of easy to use methods
    - IVR, Web, Connected device
- Vital signs and symptoms
- Customized for co-morbidities

MD Exception reports

- Actionable information
- Early intervention
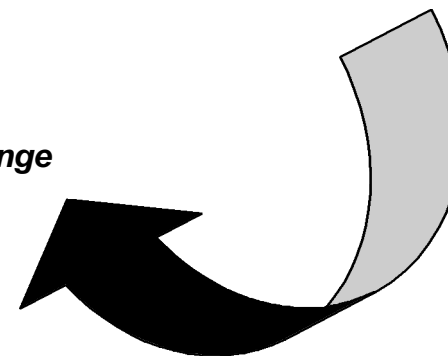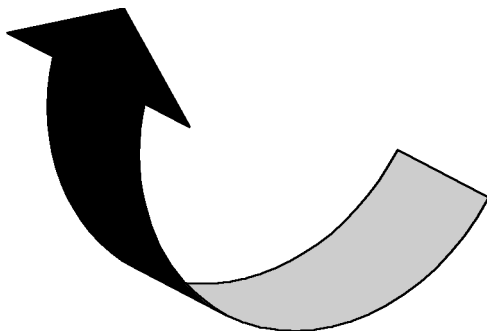- Improved efficiency
- Trend reports

Alert generation
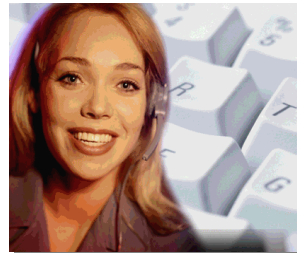
- MD-set thresholds
- Verified by LM nurse
- Feedback for behavior change

Personal Home Page for Data Entry and Content Retrieval

Secure Web Access to Patient Data for Patient and MD

MD Exception Reports via Fax

Supported SelfCare Process
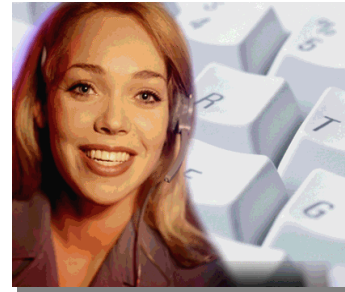
- **Education and Coaching**

- **Telephonic, email, web, direct mail**

- **Longitudinal relationship with nurse**

- **Based on Prochaska's *Stages of Change* Model**

- **Protocol driven content**

- **Opportunity for data collection**

- **LifeTracks Monthly Patient Report**

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Study Partnership

Study Objectives

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- Expand knowledge of how multi-media opportunities are accepted and utilized in DM programs

- Test the efficacy of such approaches against the currently accepted model

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- Introduce disease management to IPA physicians

- Improve patient outcomes

- Reduce costs in capitated setting

intel

- Understand potential market for computers among the frail elderly

- Increase use of personal computers in healthcare arena

Study Preliminaries

- Design study
- Design and build website
- Test with elderly users
- Identify study site
- Obtain IRB approval

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Study Design

- Assign 3 randomized groups of CHF pts.
    - Established LifeMasters telephonic/IVR program
    - Enhanced program using Web and PCs
    - Control with no disease management program
- Provide PC equipment and training
- Twelve month intervention
- Compare quality and claims data pre- and post-intervention

Elderly Web User Challenges

- Overcoming Fear
    - Assurances the computer is not easily broken
    - Demonstrations of alternative methods of doing specific functions
    - Demonstrate easy methods for getting out of "trouble"
    - Repetition
- Overcoming Security Issues
    - Explain fully and in lay terms, "secure site"
    - Explain encryption
    - Demonstrate security messages
    - Illustrate overall security plan in a simple manner
- Adapting to Physical Limitations
    - Mice/trackball choices
    - Keyboard choices
    - Monitor choices
    - Overall set up

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Web Developer Challenges

- Easy navigation
    - Simple structure
    - Large buttons
    - Continuity of illustrations
    - Minimal scrolling
    - Next page/question buttons
    - Always have "an out"

- Education level vs. heavy text issues
    - Cut material in to logical but small pieces
    - Provide simple navigation between pieces
    - Use illustrations whenever appropriate
    - Allow options for users choose to read more text

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Web Developer Challenges

- Hardware issues
    - Testing using a variety of peripherals
    - Ask users about preferences
    - Be observant of recurrent issues
    - Be open to unconventional/new technology
    - Be as flexible as possible

- Monitor/visual issues
    - Default font size larger than normal
    - Provide more white space than normal
    - Consider colors carefully
    - Understand bi-focal/tri-focal issues when positioning the monitor

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Study Participants

- Average age: 79
- CHF Classes II - IV
- Randomized Assignment
  - IVR Group
    - N=33
    - Severe/moderate CHF
  - Web Group
    - N=29
    - Severe/moderate CHF
- Matched Control
  - Non-enrollees
    - N=116
    - Moderate CHF (IRB felt DM was Standard of Care for severe CHF pts.)

Study Results

- Patient Satisfaction
  - 83% had high satisfaction
  - 73% said program made difference in their care

- Web Usage
  - 4% previous computer use
  - Average of 30 to 60 minutes per day
  - 90% continued to use web after study complete

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Study Results

- **Data Entry Compliance**
  - IVR = 76%
  - Web = 84%

- **Lifestyle Change**
  - Decreased intake of sodium, fat, cholesterol
  - 75% reported increase in general activity

Similar PMPM Financial Outcomes for Both Groups

IVR   **Web**   **Non-Enrolled**

- $15.75
- -$164.93
- -$6.78
- -$246.52
- $274.81
- $134.87

Legend: ■ All Claims ■ Cardiac Claims

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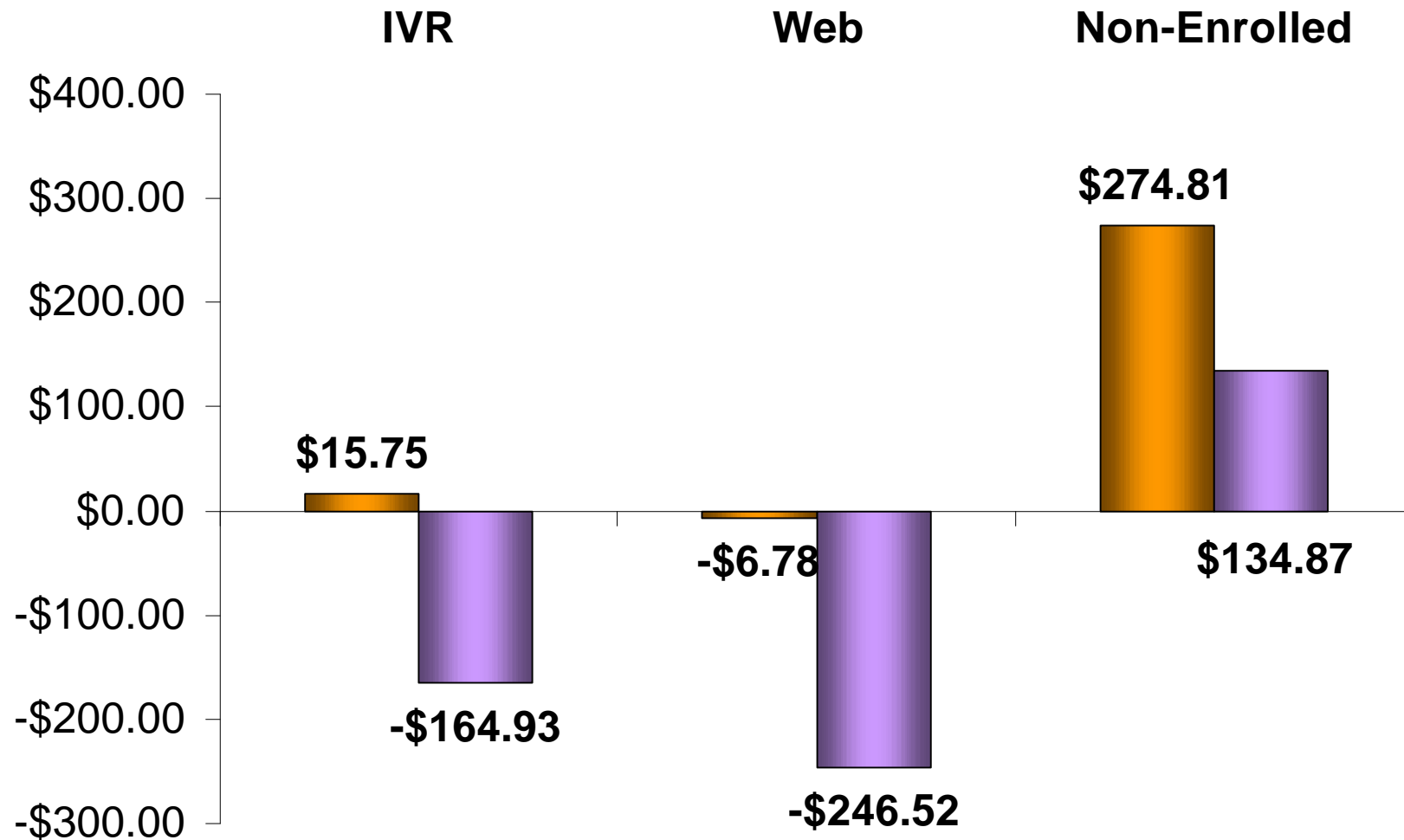
Cardiac Costs Reduced for Intervention Groups

PMPY Cardiac Cost Change
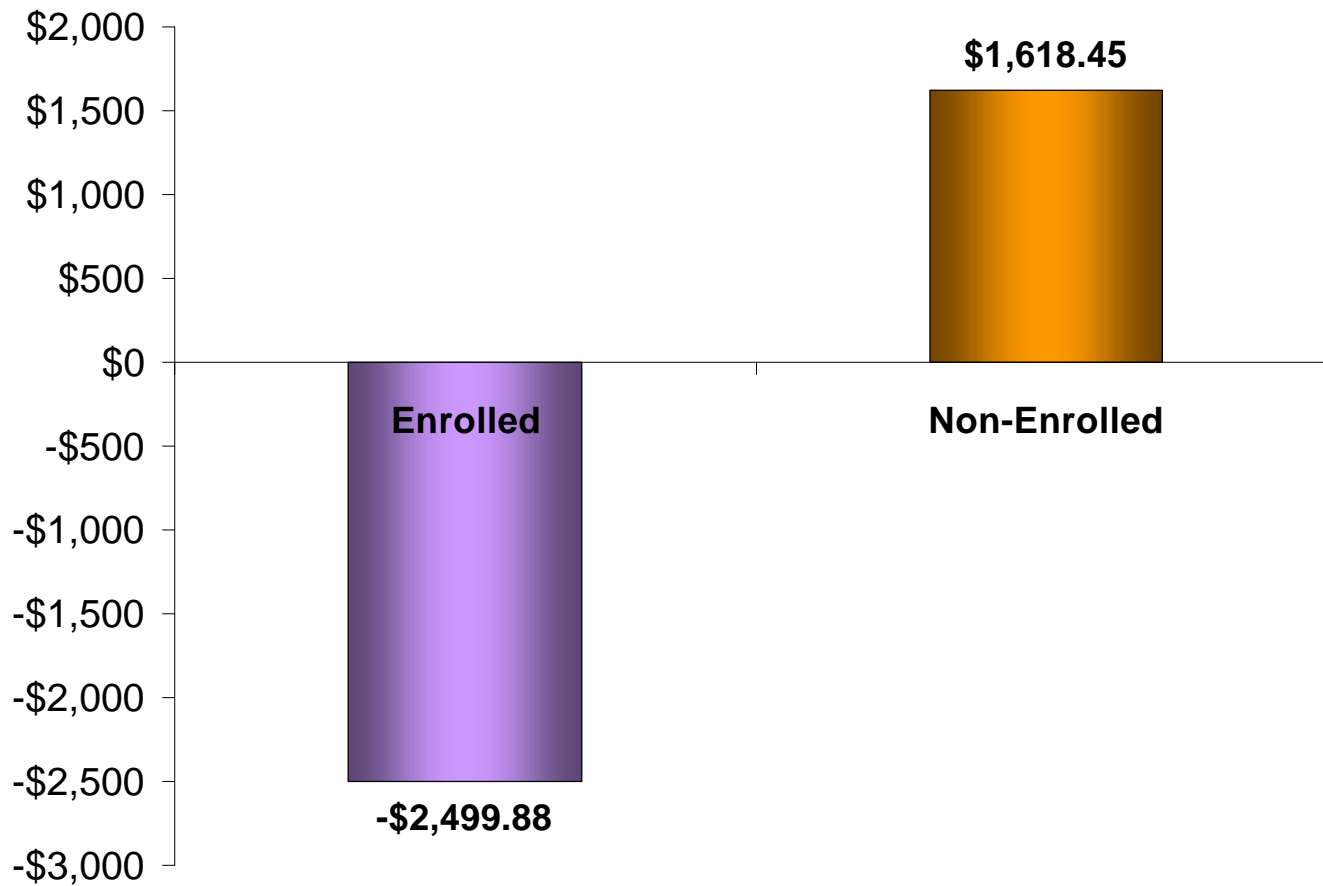
Lessons Learned

Technology won't...

- Replace the effectiveness of human interaction
  - Entrenched attitudes about health "covenant" slow to change
  - Personal encouragement key to coaching

- Create compliance
  - Behavior change is complex process

- Be adopted or available uniformly
  - The "digital divide" for patients
    - Age, cost education
    - Need to adapt content and interface for these variables
  - Resistance to change by providers
    - Practice patterns
    - Capital investment
    - Need to make it worth their while

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Technology will...

- Enhance compliance and participation
  - Monitoring equipment becoming easier to use
  - Tools are compelling and "fun" to use
  - Immediate feedback possible for positive reinforcement

- Enhance efficiency and effectiveness
  - Content delivery quicker and less costly
  - Data collection and analysis done with less human involvement
  - Communication is immediate
  - Web reduces social isolation - opportunity for virtual support groups
  - 24/7 access to information

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Technology will...

- ## Allow scalability
  - Data driven content can be mass customized
  - Care providers have immediate access to vital information
  - Participants have access to information without need for human intermediaries

- ## Remove barriers to care
  - Information never before accessible
  - Geography is no issue
  - Time is no issue

Pre-Launch Acceptance Barriers for a Small IPA

Barrier	Mitigation
• New cost to IPA in lean times	• Experimental study design
• Distrust/resentment of outside commercial "skimmers"	• Credible data from "elsewhere" experiences
• Intrusion of third parties into doctor-patient relationship	• Face time from LM Medical Director and senior staff
• Implication of deficient care	

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Operational Phase Complaints

Complaints

- Cost--"Give me this money instead."
- "False positive" alerts--Peter and the Wolf
- Increase # patient contacts with staff overhead

Consequence

- Reluctance to refer newly identified patients
- Cynicism regarding IPA administrative efforts in office-quality arena

Mitigation

- Continual data feed
- Recurring meeting agenda item—smoke out snipers
- Publicity regarding successes--share credit

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Physician Group Review

Findings

- Cost--"We could have done this cheaper."
- Clinical outcomes advantage definite
- Financial savings impressive even to skeptics ($500K)
- Hospital adopted short term approach for Medicare inpatients
- Acceptance of Disease Management strategy for other areas of care, i.e. Diabetes, Osteoporosis.

Reservations

- Savings on hospital utilization side did not overcome larger deficits in hospital risk pools
- Financial structure of pools didn't benefit MDs with additional $$
- Financial incentives may not be aligned with DM savings
- Lack of "brand" bonding to vendor--regard as generic service

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Unexpected Consequence

Success Paradox--proliferation
of HMO efforts with redundancy,
inefficient scale, poor
coordination with IPA, paper
snowstorm for providers

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Requirements for Success

- Well designed program with strong clinical foundation
- Commitment from local practitioners
- Financially sustainable

All need to be supported by data, continual reporting, willingness to look at things in different ways

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