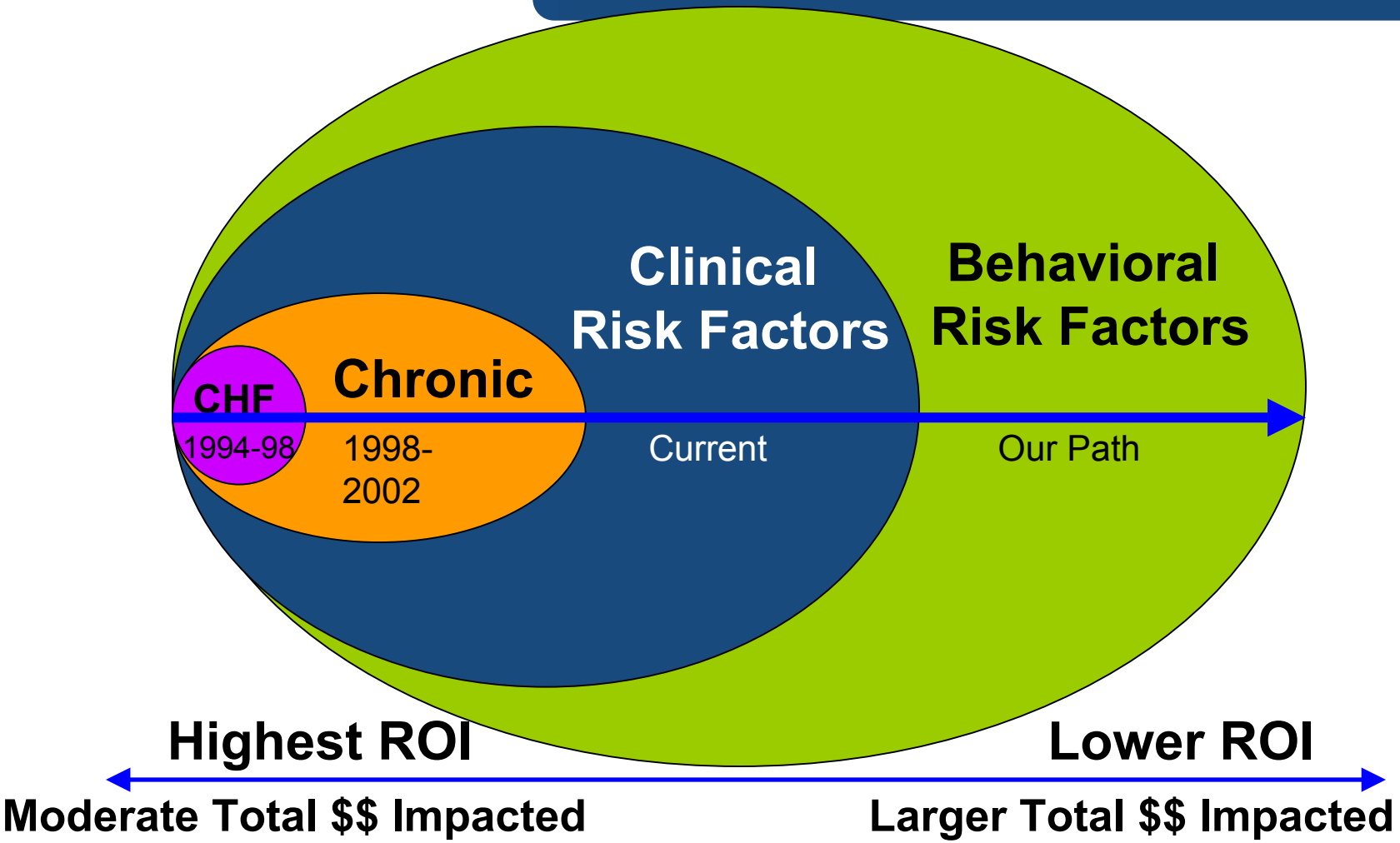
LifeMasters

IT Support of the Active Intervention Model

The Fourth Annual Disease Management Summit
Jefferson Medical College
June 29, 2004




The evolution of population health improvement



We're no longer dealing with the low hanging fruit

- People with chronic conditions only receive 56.1% of recommended care*
- Only 24% of people with diabetes received three or more HbA1c tests in a two year period
- Only 45% of people presenting with an MI received beta-blockers

Condition	% Not Receiving Recommended Care
Diabetes	54.6%
Hyperlipidemia	51.4%
Asthma	46.5%
COPD	42%
CHF	36.1%
Hypertension	35.3%
CAD	32%

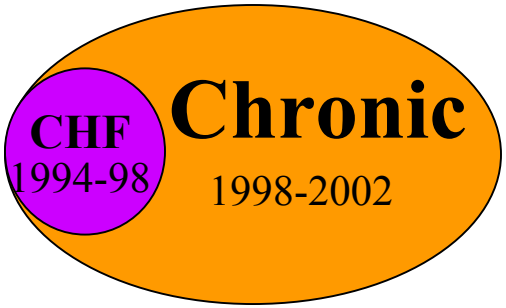
*McGlynn, Asch et al, The Quality of Health Care Delivered to Adults in the US
NEJM 2003; 348:2635-48

The days of low hanging fruit

Rudimentary Data Systems

- Basic claims-based algorithms and MD referrals to ID and stratify
- Standardized content for education and coaching
- Faxes, telephones, pagers to communicate with pts. and MDs
- Static workflow engine to facilitate QA and RN efficiency
- Collection and analysis of pt. reported data for monitoring, alerting, and reporting

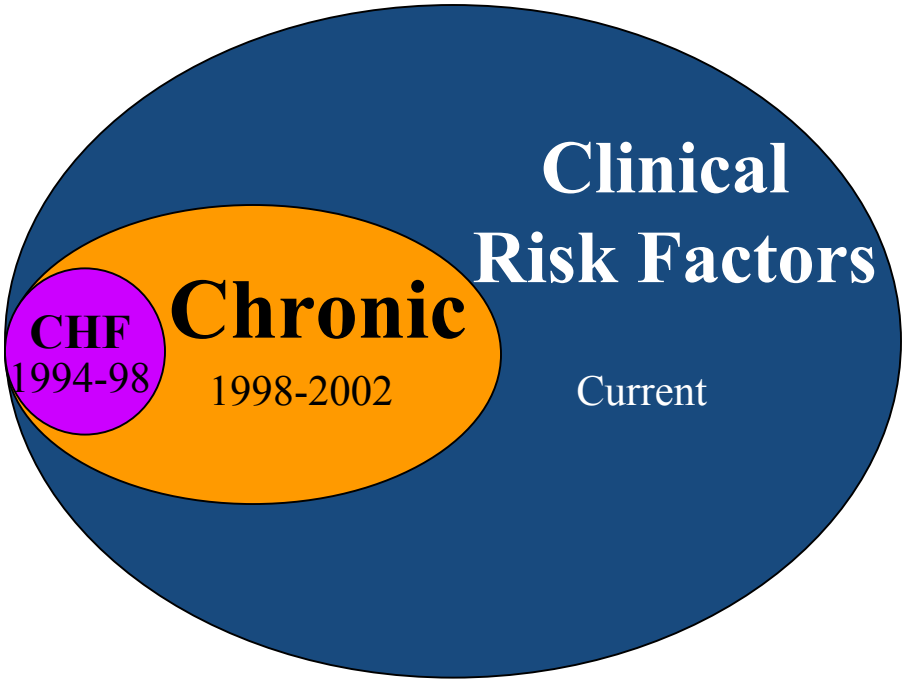
The introduction of multiple condition and true co-morbidity management



More Advanced Data Systems

- Refinement of ID algorithms to minimize false positives and negatives – still just claims based
- Regression models for stratification
- More customized content to deal with co-morbidities
- Internet, faxes, telephones, pagers to communicate with pts. and MDs
- Dynamic workflow engine to prioritize based on condition severity
- Collection and analysis of pt. reported data, connected biometric devices, and some chronic disease related claims data for monitoring, alerting, reporting

Dealing with gaps between recommended and actual care



Intelligent Data Systems

- Aggregation and analysis of multiple data feeds for ID and initial stratification
- Predictive modeling to ID and profile (individual stratification)
- Individualized content to focus on each pt's. risk factors
- Internet, faxes, telephones, pagers to provide secure, remote access for pts., MDs, case managers, and customers
- Data driven workflow engine to prioritize tasks based on potential ROI
- Real time EDI to monitor, alert, track progress, update risk factors and profiles, identify new prospects

The Holy Grail: Changing behavior to prevent disease

Interactive Data Systems

- All of the above plus more real time two way remote interaction between pts., disease managers, and MDs (e.g. interactive TV, implantable devices, PDAs, cell phones, other wireless technologies)

The Active Intervention Model: Enhancing ROI through targeted risk factor management

- Make the most efficient use of resources to minimize intervention cost
  - Devote resources toward the people who are going to deliver the highest ROI – intervene with the right people
  - Target every interaction toward changing things that will contribute to a positive ROI – focus on the right things
- Increase the probability of sustained behavior change to optimize outcomes
  - Build a trusting relationship between the disease manager and the participant to enhance engagement
  - Make every interaction relevant to the participant and/or his or her physician - to enhance adherence
  - Focus on measurable things – to provide positive feedback to reinforce positive behavior change

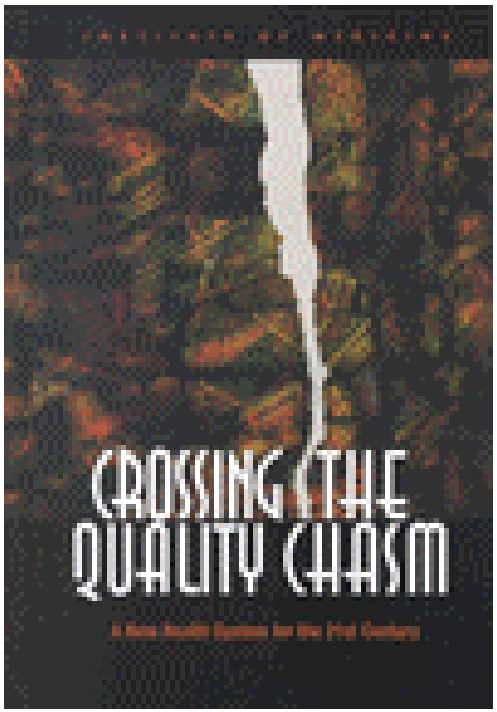
Minimizing intervention cost

- Find and intervene with the right people
  - Predictively model people most likely to benefit
  - Prioritize participants by potential ROI rather than severity
  - Ensure ongoing surveillance to identify people with gaps in care
- Focus on the right things
  - Prioritize activities by potential ROI
  - Ensure appropriate ongoing surveillance to detect modifiable risk factors
  - Modify intervention (up or down) as health status changes

Optimizing outcomes

- Short term - Detect and avoid emerging exacerbations
  - Start with near term high risk prospects
  - Actively monitor symptoms, behaviors, gaps in care, and vital signs
  - Educate, support, and coach to modify unhealthy behaviors
  - Alert MDs to clinical changes in health status
  - Reinforce adherence to the treatment plan
- Long term - Slow disease progression
  - Design an appropriate intervention for everyone in the target population
  - Focus on closing the gaps in the standard of care
  - Promote clinical guideline adherence
  - Promote sustained behavior change

This approach was outlined by the Institutes of Medicine



Crossing the Quality Chasm:
A New Health System for the 21st Century
National Academy Press, July 2001

Establish and maintain a comprehensive program aimed at making scientific evidence more useful and accessible to clinicians and patients*

- Ongoing analysis and synthesis of the medical evidence
- Delineation of specific practice guidelines
- Identification of best practices in the design of care processes
- Enhanced dissemination efforts to communicate evidence and guidelines to the general public and professional communities
- Development of decision support tools to assist clinicians and patients in applying the evidence
- Establishment of goals for improvement in care processes and outcomes
- Development of quality measures for priority conditions

*IOM Recommendation 8

There's too much information

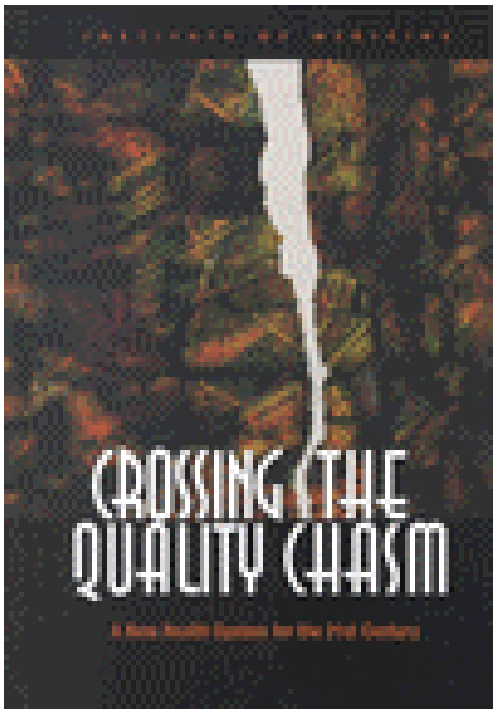
- The lag between the discovery of more efficacious forms of treatment and their incorporation into routine patient care is in the range of 15 to 20 years*
- Traditional method of dissemination has proven ineffective
    1. Search for relevant information – widely scattered & with wide variation in quality
    2. Evaluate the evidence for validity and usefulness – advanced study in evaluation is required
    3. Implement the appropriate findings – Demands and rigors of clinical practice do not permit regular application of this process

*Balas and Boren, 2000
(Quoted in the IOM Report)

And many challenges to incorporate it into MD and pt. decision making

- Integrating fragmented clinical and administrative data
- Integrating fragmented and duplicative healthcare delivery
- Maximizing efficiency of disease management staff without compromising the quality of relationships
- Engaging and motivating patients (particularly those who are at risk and asymptomatic)
- Implementing biometric monitoring cost effectively
- Increasing patient adherence to biometric monitoring
- Increasing physician acceptance of best practice reinforcement
- Integrating multiple medical management efforts

IT can help us overcome these challenges



Crossing the Quality Chasm:
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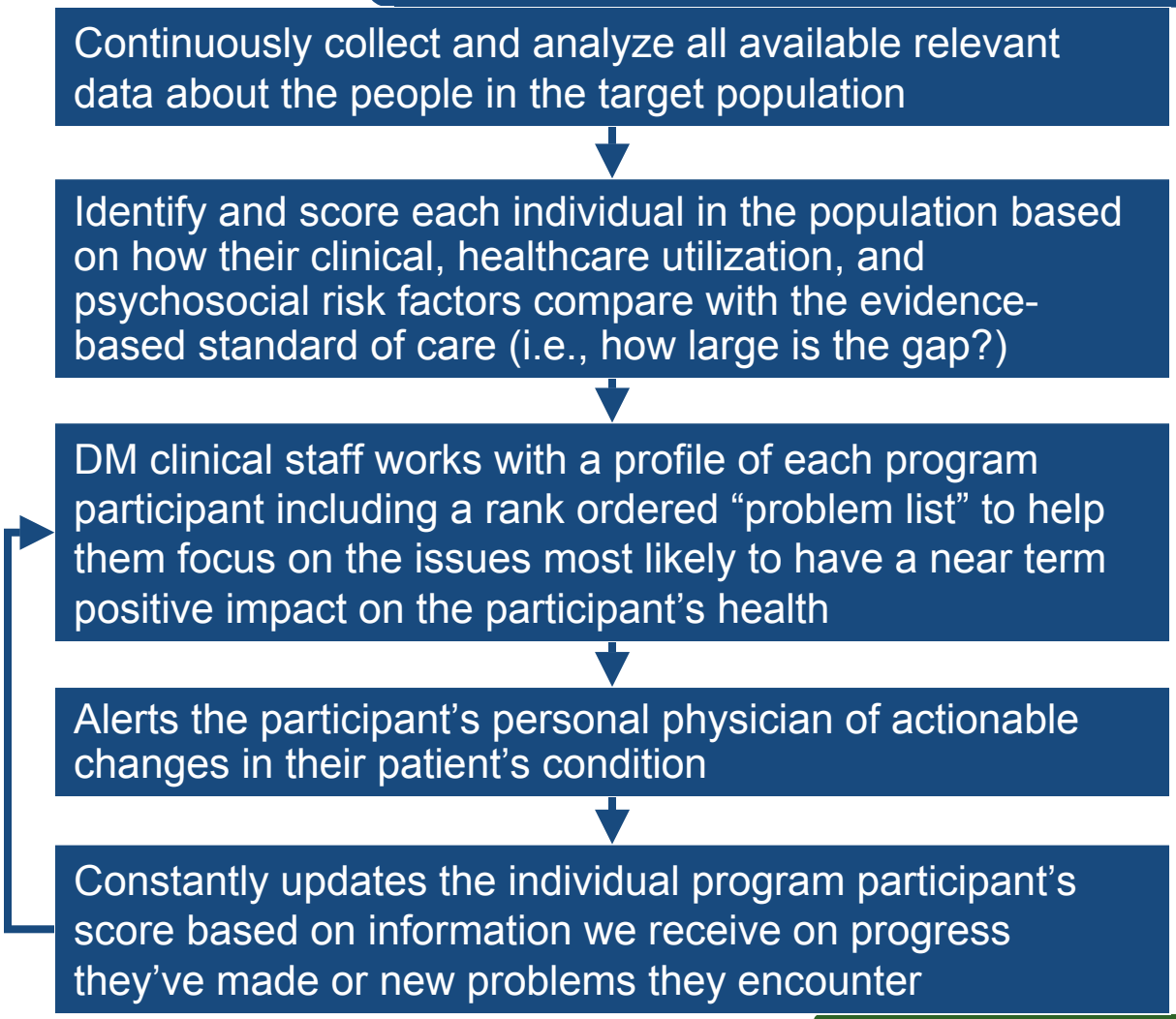
1. Redesign care processes based on best practices
2. **Effectively use information technologies to improve access to clinical information and support clinical decision making**
3. Manage the growing knowledge base and facilitate changes in required skills
4. Develop effective teams to interact with the patient
5. Coordinate care across patient conditions, services, and settings over time
6. Incorporate performance and outcome measurements for improvement and accountability

Disease Management IT Tools

- Data collection and analysis
  - Claims
  - Administrative
  - Self report
  - Automated biometric
  - Clinical
  - RN interactions
- Predictive modeling and profiling
- Clinical indicator gap analysis
- Workflow prioritization
- Pt engagement
- MD engagement
- Integration/EDI

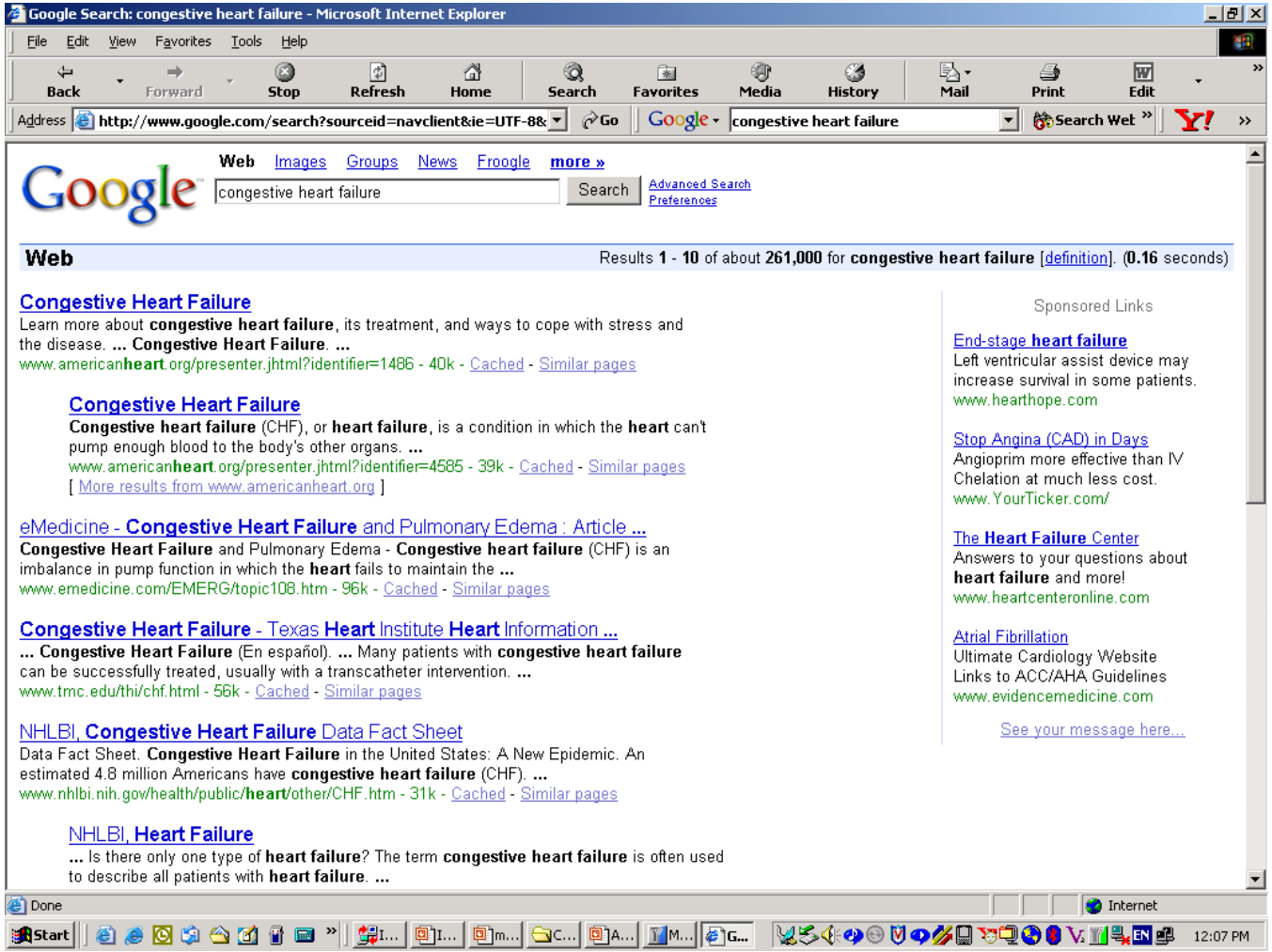
Profiling:
The Active Intervention Model



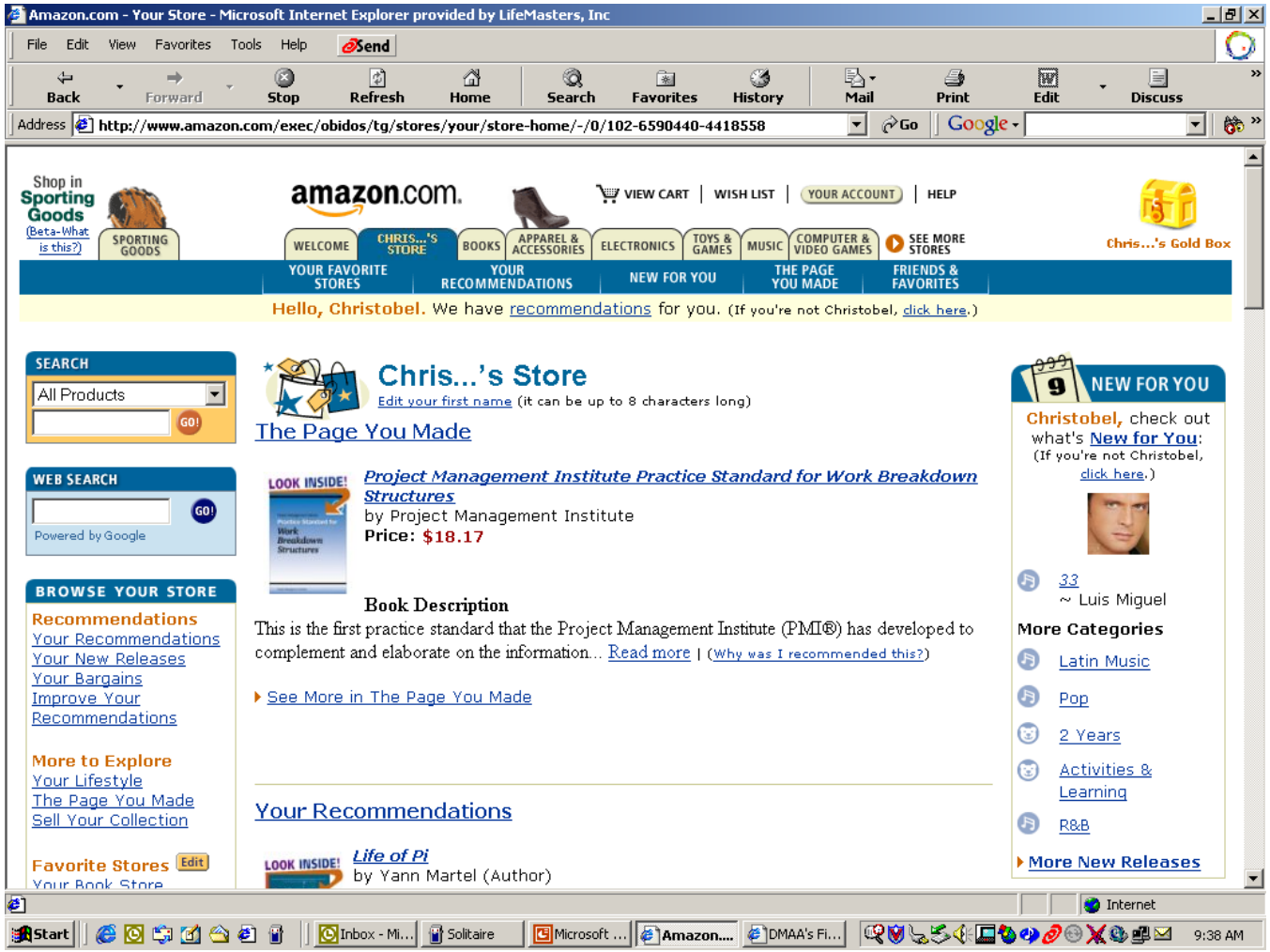
The IT to support AIM

- Categorizes, assigns value to, and prioritizes major cost drivers and best practices based on an extensive review of evidence-based best practices, clinical literature, and claims analysis
- Rank orders clinical indicators by their contribution to cost and quality
- Develops an individual profile and score for each program prospect based on the identified gaps in the standard of care
- Develops a prioritized action plan to help disease managers work with participants to close the gaps
- Creates alerts to send to the participants' MDs or disease managers based on identified urgent gaps
- Provides appropriate content for teaching, support, and coaching

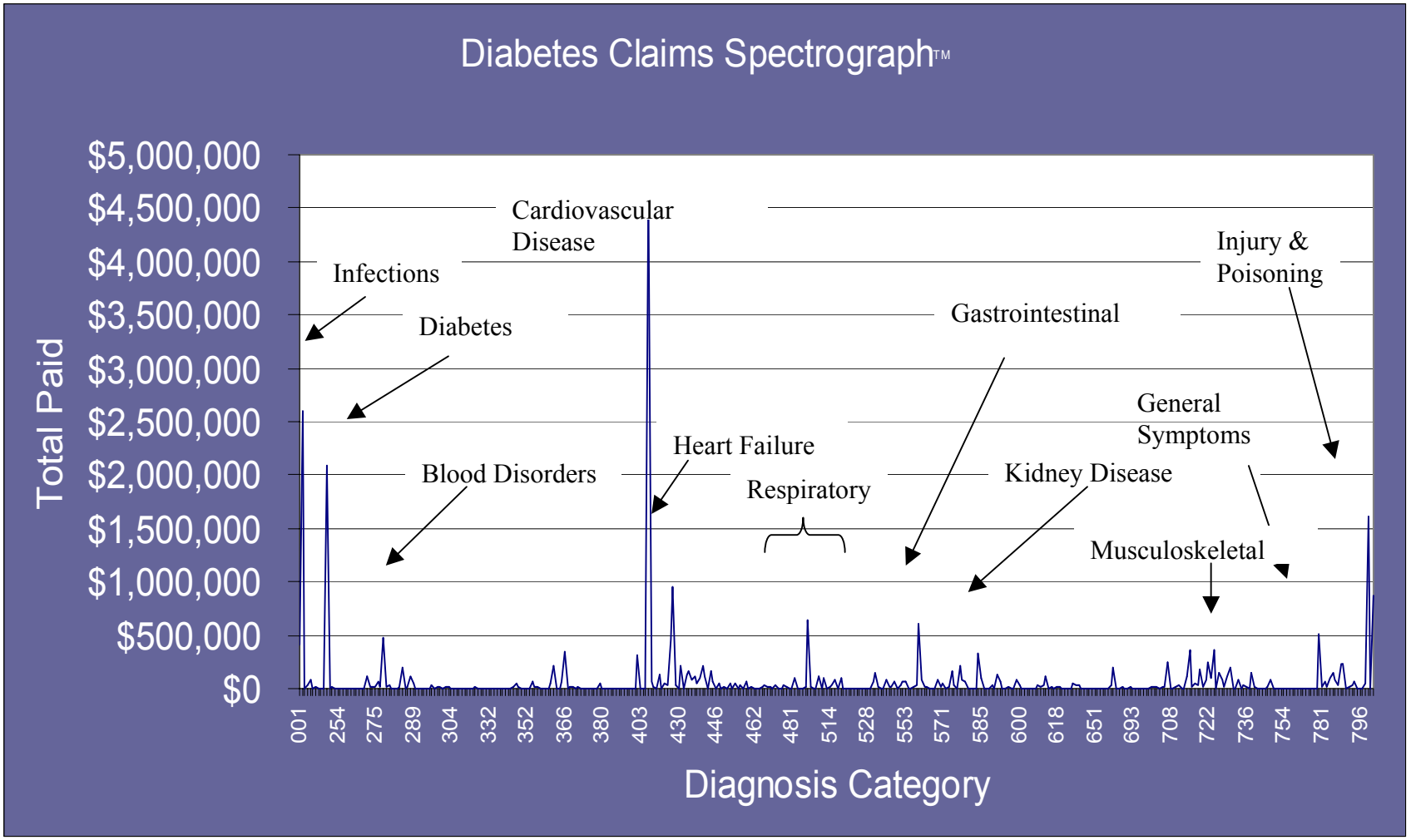
A model like this: Organization and prioritization of vast amounts of data



Added to one like this:
A continuously updated profile



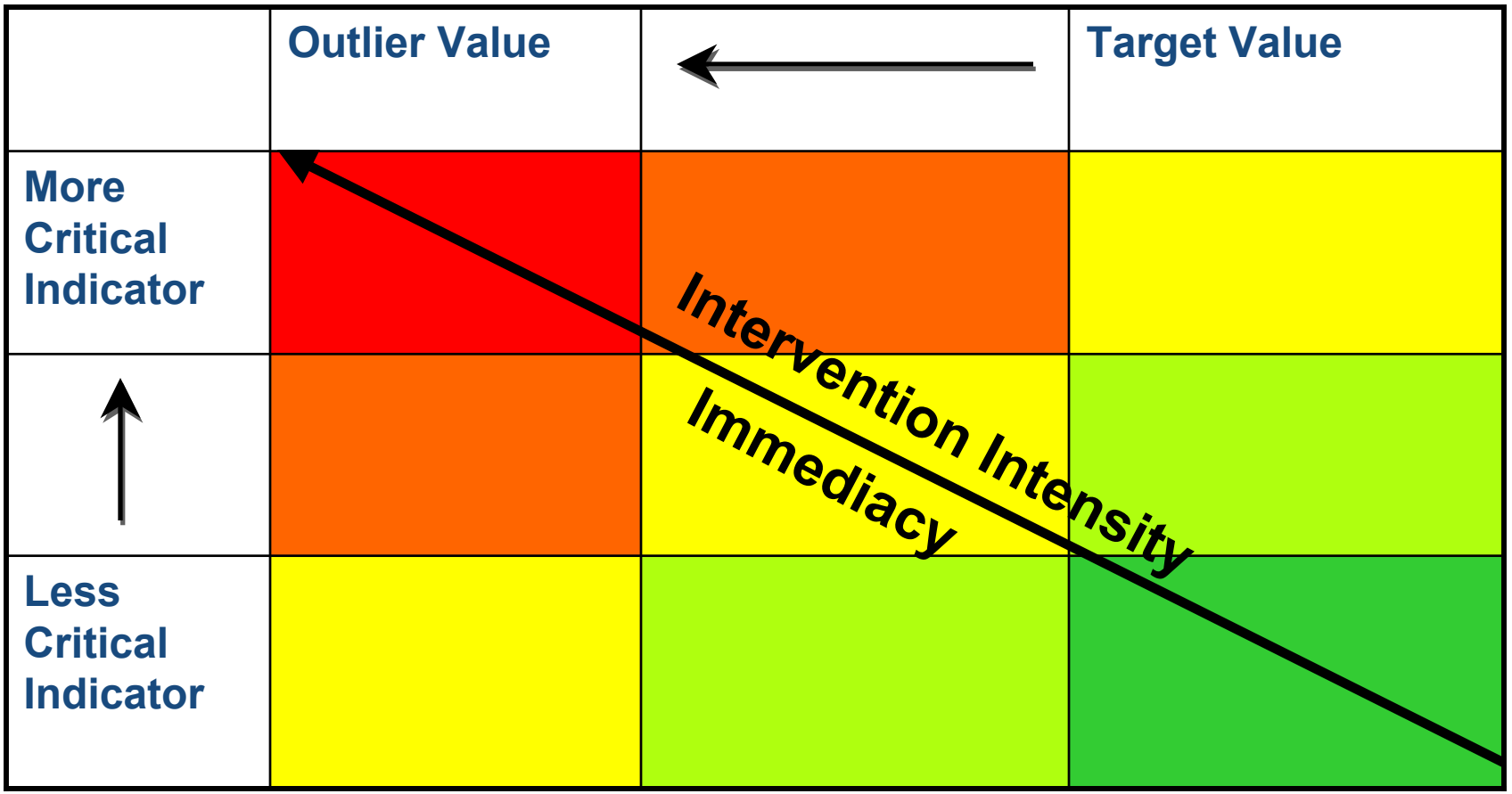
Each disease (and individual) has a profile of what drives cost



The Theory: Let the the cost drivers and clinical indicators dictate selection and intervention

- Review the clinical literature to determine the evidence-based best practices and targeted clinical indicator values
- Identify relevant clinical symptoms, laboratory values, utilization parameters, practice guidelines, and psychosocial factors that are driving costs
- Develop a system of prioritization to rank order clinical indicators by their contribution to cost and quality
- Develop a scoring system which profiles each participant based on the identified gaps in the standard of care
- Develop sets of actions that disease managers can take to work with participants and their physicians to close the gaps
- Develop content to support the disease managers in those efforts

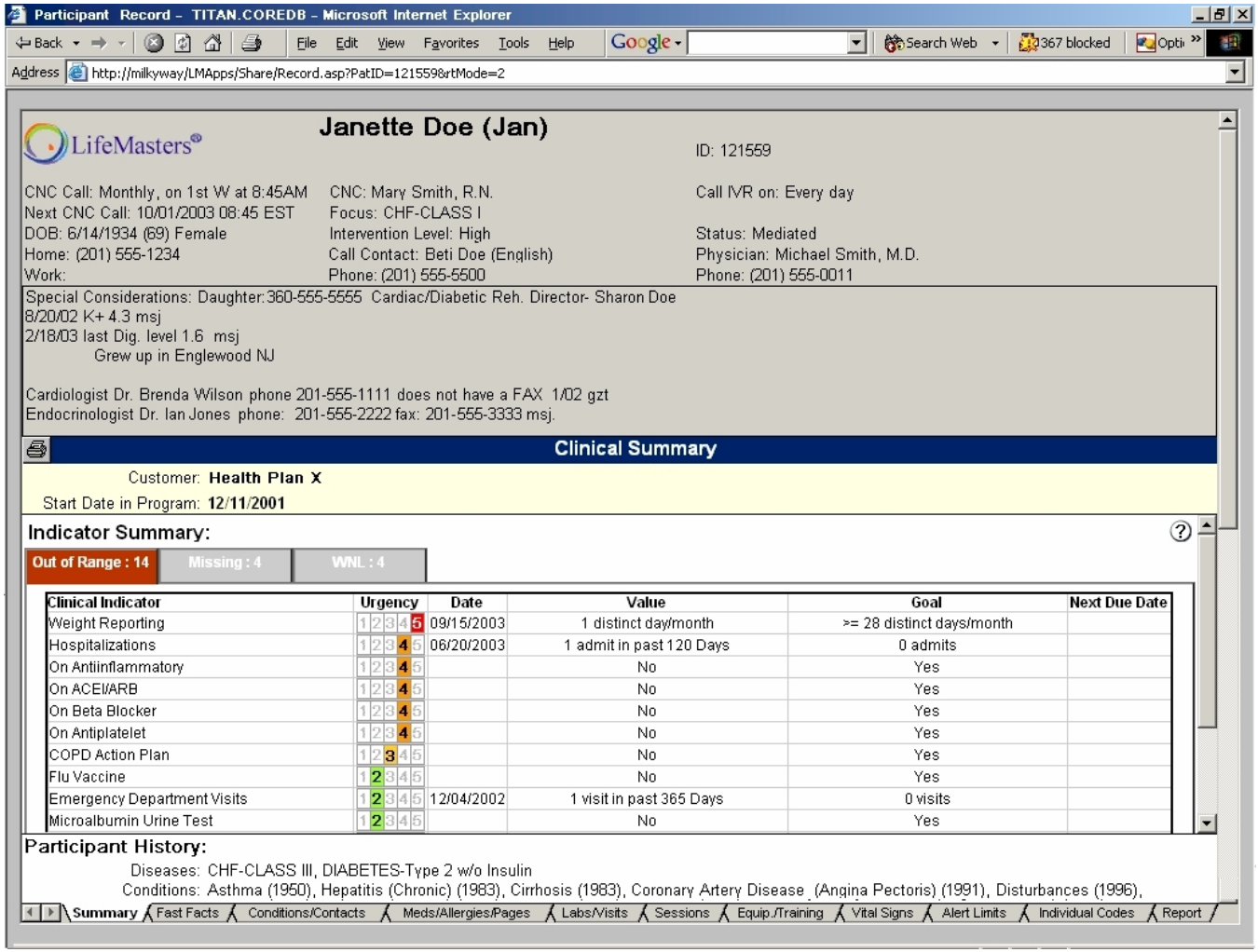
A system of indicators and values determine the immediacy, intensity, and type of intervention



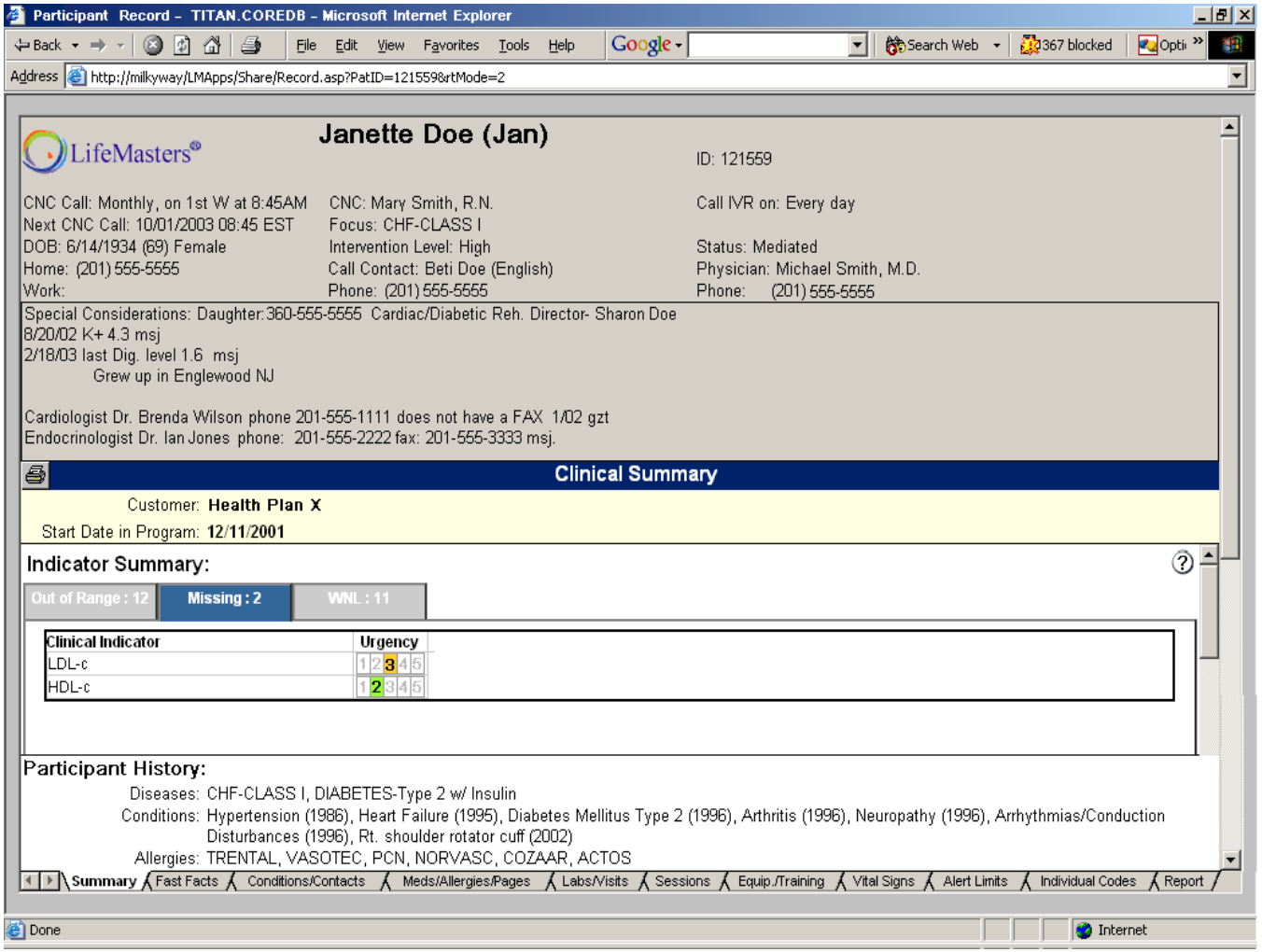
Examples of Clinical Indicators

Indicators	DM	CHF	COPD	CAD	ASTHMA
Hospitalization	X	X	X	X	X
ED visits	X	X	X	X	X
Office visits	X	X	X	X	X
HTN/Blood Pressure	X	X	X	X	
Flu	X	X	X	X	X
Pneumovac	X	X	X	X	>64 yrs
Smoking	X	X	X	X	X
LDLc	X	X		X	
Triglycerides	X	X		X	
ACE1 or ARB		X		X	
Antiplatelet Medication	X			X	
Urine McAlb	X				
A1c	X				
Annual Dilated Eye Exam	X				
Annual Monofilament Foot Exam	X				
Beta Blocker		X		X	
Ejection Fraction		X			
Spirometry Test			X		X
Short acting Inhaled Beta-Antagonist					X
Inhaled Anti-inflammatory controller medication					X
Written Asthma Action Plan					X
COPD Action Plan			X		
Reporting Weight Changes		X			

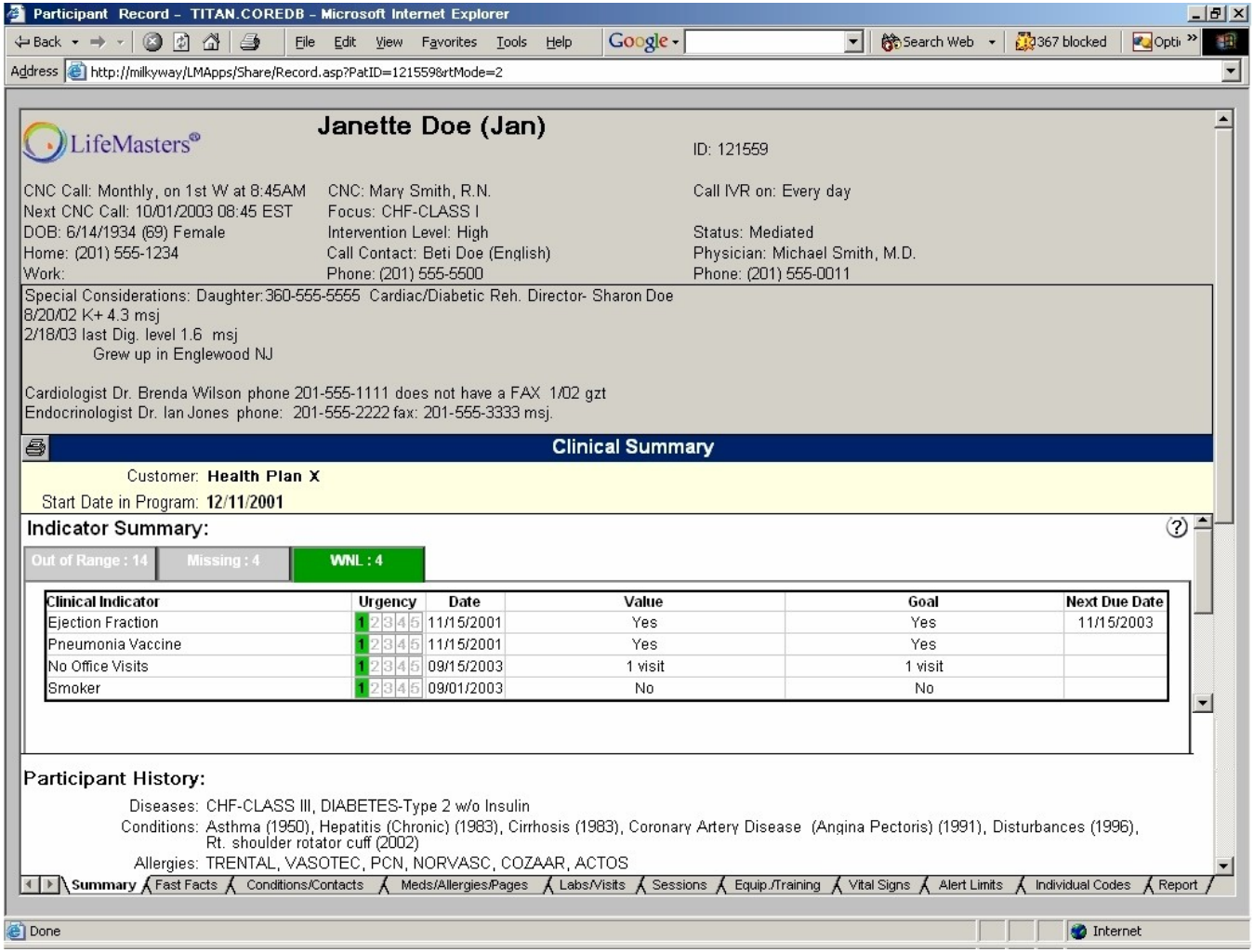
Prioritize indicators to guide the disease manager's work in closing the gaps in evidence-based care



Minimize the time spent collecting data and allow for an exclusive focus on things that will have an impact on ROI



And provide the opportunity for very specific praise and feedback to promote behavior change

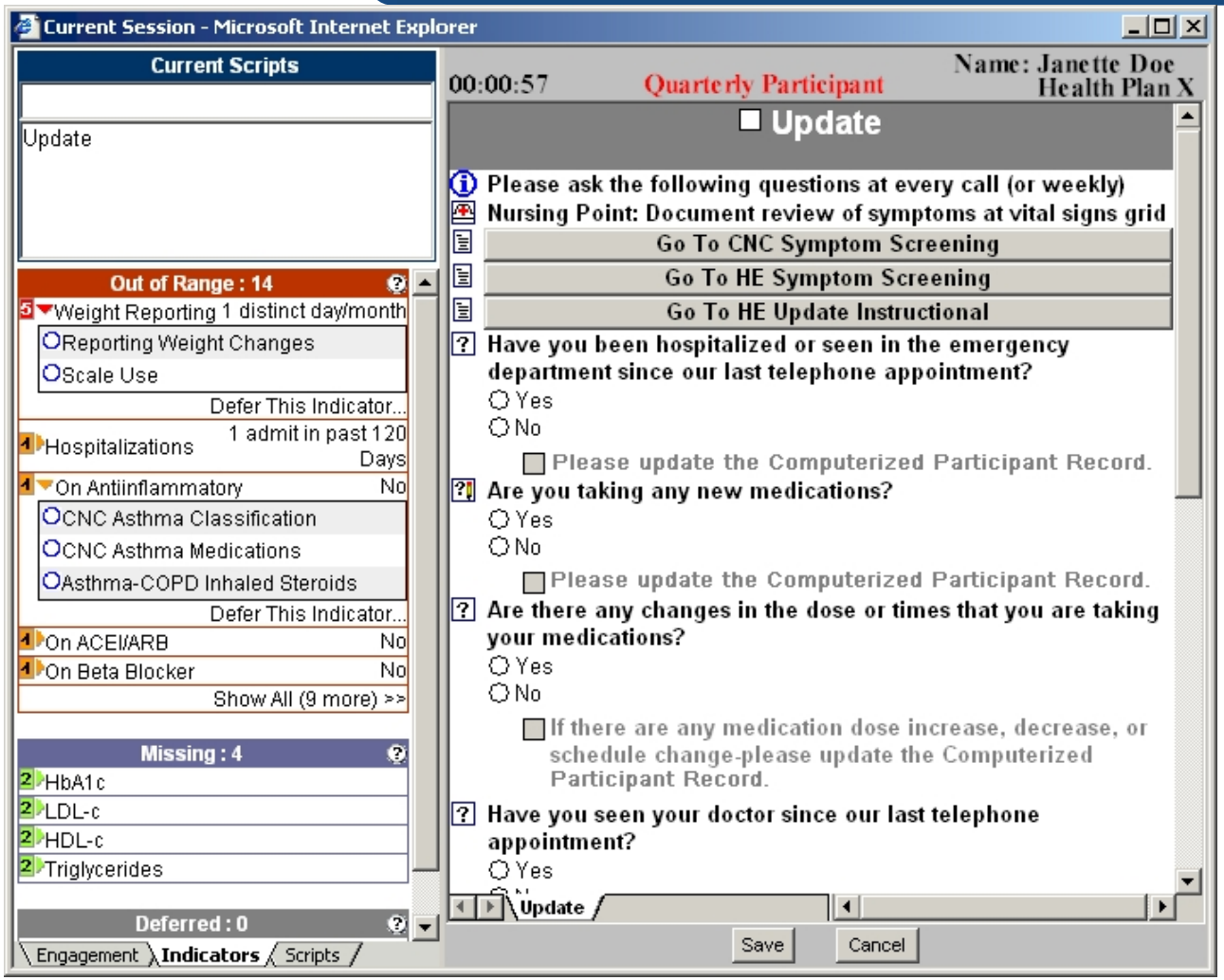


The combination of triggers and values drives an individualized Member Action Plan (MAP)

Indicator	Goal	Value	Action	Tools
A1C	**<7%**	**11.5%**	1. Review Medications 2. Focus on daily monitoring 3. Dietary review	1. Diabetes medication module 2. Monitoring tools 3. Order Equipment 4. Dietary review
Blood Pressure	**<130/80**	**180/110**	1. Review Medications 2. Focus on daily monitoring 3. Dietary review 4. Exercise	1. Hypertension medication module 2. Monitoring tools 3. Order Equipment 4. Dietary review

The MAP is designed to address those factors that the disease manager can affect the fastest and that can have the largest impact on the participant's health.

The workflow engine can then push targeted actions and content to the disease manager



The power of technology

- Every single program participant gets his or her own individual disease management intervention

- For example, with CHF (not taking co-morbidities into account) there are more than a trillion possible individual data driven programs given the number of indicators and different severity levels (30 indicators with an average of 4 severity levels each)

To engage physicians, communicate actionable gaps or exacerbations to them in real time

Participant Demographic Information

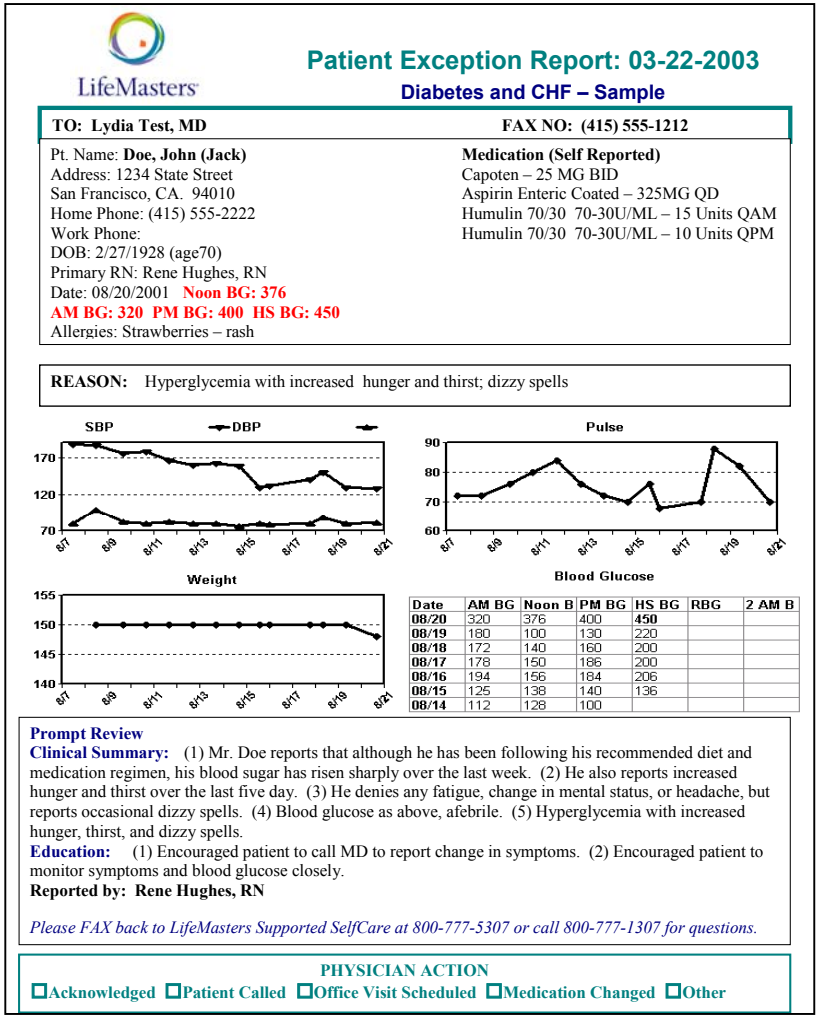
Nursing Note

Medications

Vital Sign Information

Comorbidity Tracking

MD f/u



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Patient Exception Report: 03-22-2003

Diabetes and CHF – Sample

TO: Lydia Test, MD **FAX NO: (415) 555-1212**

Pt. Name: **Doe, John (Jack)**
Address: 1234 State Street
San Francisco, CA. 94010
Home Phone: (415) 555-2222
Work Phone:
DOB: 2/27/1928 (age70)
Primary RN: Rene Hughes, RN
Date: 08/20/2001 **Noon BG: 376**
AM BG: 320 PM BG: 400 HS BG: 450
Allergies: Strawberries – rash

Medication (Self Reported)
Capoten – 25 MG BID
Aspirin Enteric Coated – 325MG QD
Humulin 70/30 70-30U/ML – 15 Units QAM
Humulin 70/30 70-30U/ML – 10 Units QPM

REASON: Hyperglycemia with increased hunger and thirst; dizzy spells

SBP DBP

Pulse

Weight

Blood Glucose

Date	AM BG	Noon B	PM BG	HS BG	RBG	2 AM B
08/20	320	376	400	450		
08/19	180	100	130	220		
08/18	172	140	160	200		
08/17	178	150	186	200		
08/16	194	156	184	206		
08/15	125	138	140	136		
08/14	112	128	100			

Prompt Review
Clinical Summary: (1) Mr. Doe reports that although he has been following his recommended diet and medication regimen, his blood sugar has risen sharply over the last week. (2) He also reports increased hunger and thirst over the last five day. (3) He denies any fatigue, change in mental status, or headache, but reports occasional dizzy spells. (4) Blood glucose as above, afebrile. (5) Hyperglycemia with increased hunger, thirst, and dizzy spells.
Education: (1) Encouraged patient to call MD to report change in symptoms. (2) Encouraged patient to monitor symptoms and blood glucose closely.
Reported by: Rene Hughes, RN

Please FAX back to LifeMasters Supported SelfCare at 800-777-5307 or call 800-777-1307 for questions.

PHYSICIAN ACTION
☐Acknowledged ☐Patient Called ☐Office Visit Scheduled ☐Medication Changed ☐Other

Communicate evidence-based best practice in real-time rather than in a binder

Provided when the MD needs the info most

Based on up to date Evidence-based Guidelines

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Patient Exception Report, Cont'd

Diabetes and CHF – Sample

TO: Lydia Test, M.D. **FAX No: (650) 873-7197**

Pt. Name: Doe, John (Jack)
Medical #:
Current Smoker
BMI (based on self reported height/weight) 27.3
Disease State: DIABETES-Type 2, CHF-CLASS III, Coronary Artery Disease, COPD

Recommendations:

Hypoglycemia Alert Criteria:

BG<60 mg/dl twice in one week or a single result <50 mg/dl (nonpregnant adults with diabetes).

1. Review diabetes medication regimen. If pattern of frequent hypoglycemia exists, medication adjustments are usually needed. Consider serum creatinine of Cr clearance evaluation to assess possible reduced renal clearance.

   Also, rule out other possible causes; e.g. delayed meals/snack, decreased caloric intake, increased exercise, alcohol intake, psychological factors, other medications (for example, beta blockers). Consider change to nonhypoglycemic antidiabetes agent and/or meal plan/exercise regimen.

2. Consider adjustment upward of blood glucose targets (especially if hypoglycemic unawareness). ADA* glucose goals for nonpregnant adults with diabetes = fasting and preprandial 80-120 mg/dl, HS 100-140 mg/dl, whole blood values, fasting and preprandial 90-130 mg/dl, HS 110-150 mg/dl, plasma values).

3. Assess/prevent nocturnal hypoglycemia for patients on insulin therapy by:

   a) Checking 3 AM BG. If below target (usually glucose > 100 mg/dl whole blood values, >110 mg/dl, plasma values) adjust time of intermediate PM insulin to HS and evaluate dosage.

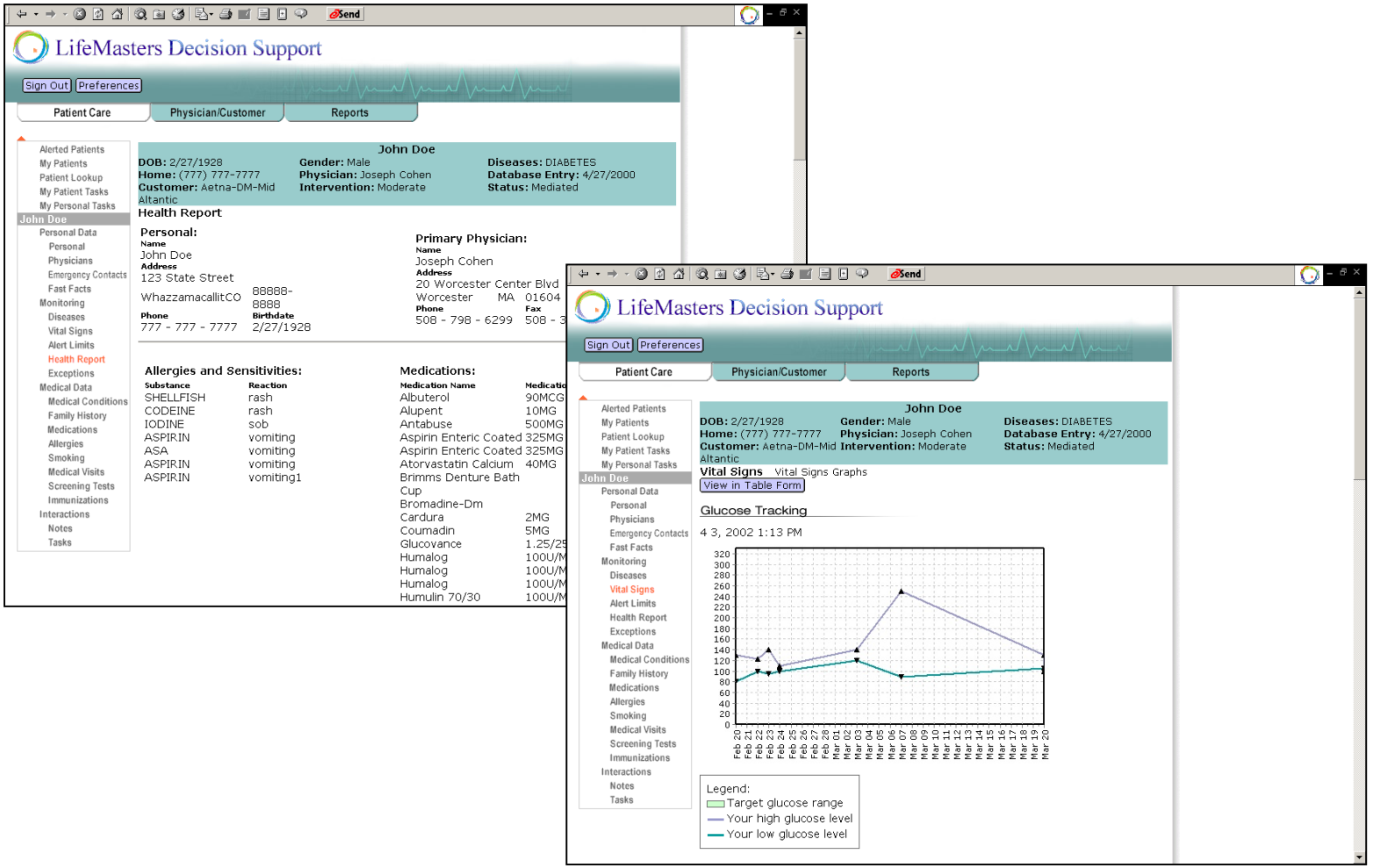
   b) Checking HS BG. If below target (usually glucose 100-140 mg/dl, whole blood values, 110-150 mg/dl, plasma values), increase HS snack (include complex CHO and protein). Evaluate dosage of predinner insulin(s).

4. Consider Glucagon Emergency Kit prescription/support person instruction.

***American Diabetes Association (2001) recommendations for the nonpregnant adult with diabetes.**

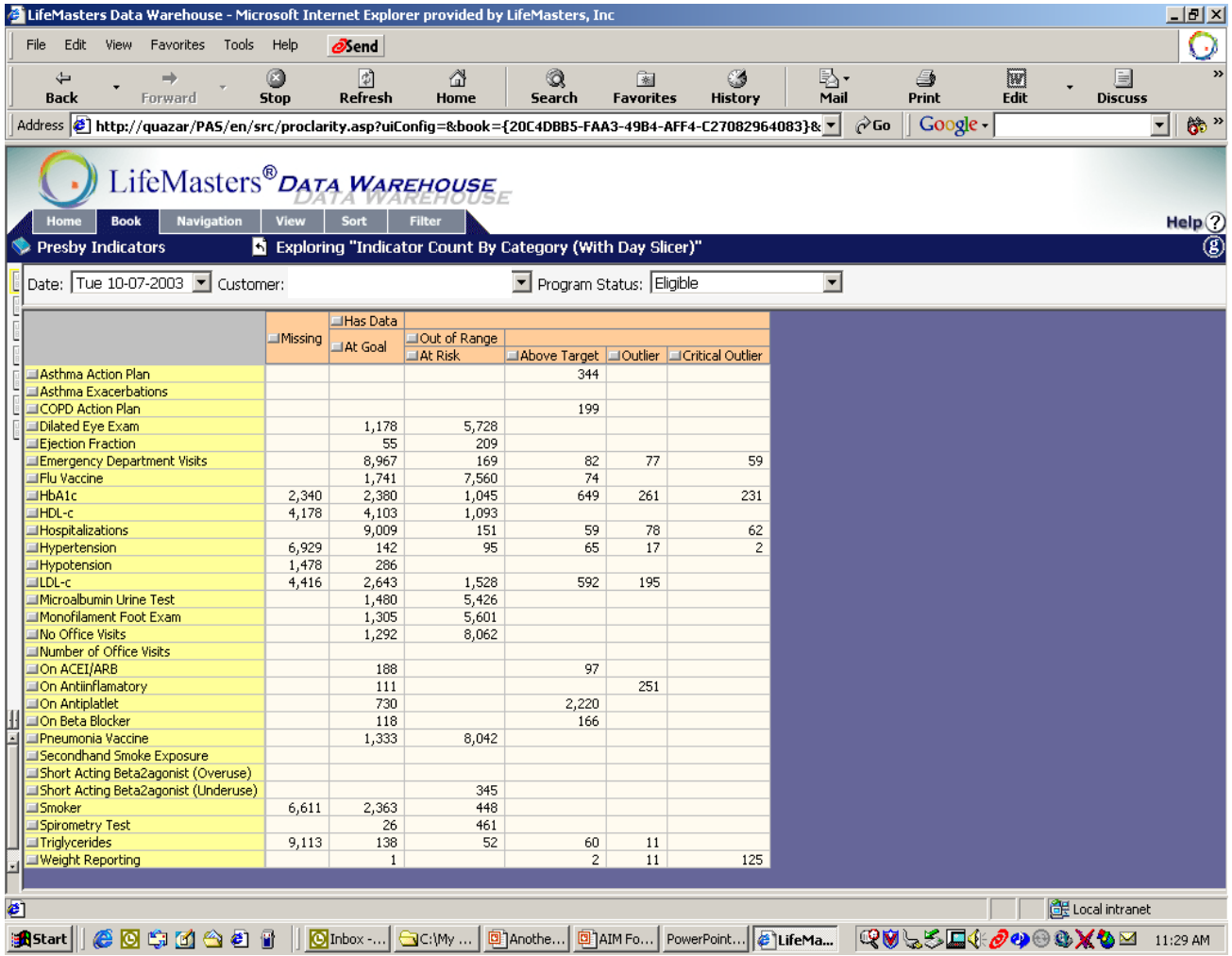
A variety of options can be provided leaving decision making to MD while reinforcing best practice

Provide case managers and MDs with real time access to participant information



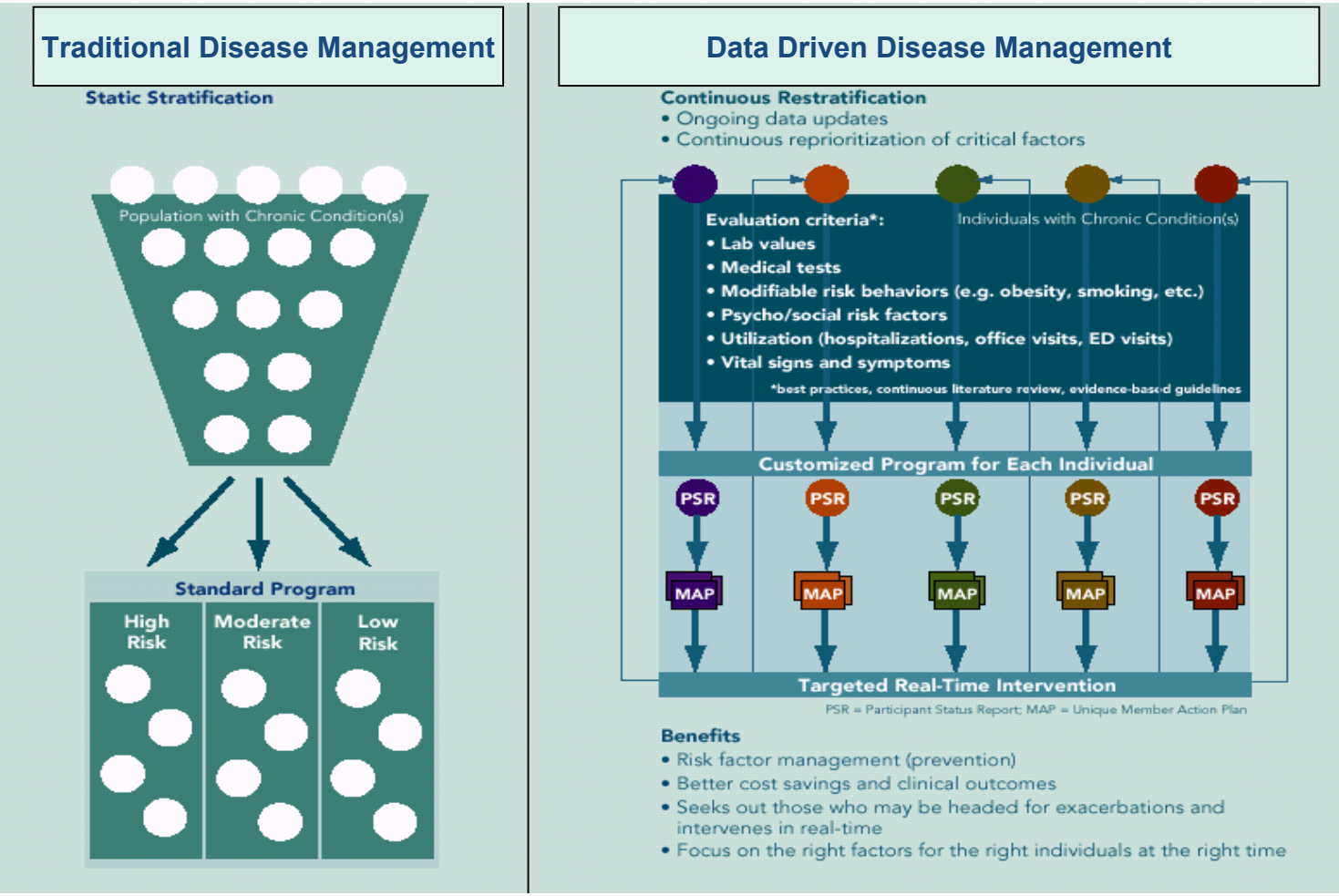
Provide participants with easy access to disease managers and selfcare content

Clinical indicator & risk factor focus enables the vision of the Institutes of Medicine…



	Missing	Has Data	Out of Range			
		At Goal	At Risk	Above Target	Outlier	Critical Outlier
Asthma Action Plan				344		
Asthma Exacerbations						
COPD Action Plan				199		
Dilated Eye Exam		1,178	5,728			
Ejection Fraction		55	209			
Emergency Department Visits		8,967	169	82	77	59
Flu Vaccine		1,741	7,560	74		
HbA1c	2,340	2,380	1,045	649	261	231
HDL-c	4,178	4,103	1,093			
Hospitalizations		9,009	151	59	78	62
Hypertension	6,929	142	95	65	17	2
Hypotension	1,478	286				
LDL-c	4,416	2,643	1,528	592	195	
Microalbumin Urine Test		1,480	5,426			
Monofilament Foot Exam		1,305	5,601			
No Office Visits		1,292	8,062			
Number of Office Visits						
On ACEI/ARB		188		97		
On Antiinflamatory		111			251	
On Antiplatlet		730		2,220		
On Beta Blocker		118		166		
Pneumonia Vaccine		1,333	8,042			
Secondhand Smoke Exposure						
Short Acting Beta2agonist (Overuse)						
Short Acting Beta2agonist (Underuse)			345			
Smoker	6,611	2,363	448			
Spirometry Test		26	461			
Triglycerides	9,113	138	52	60	11	
Weight Reporting		1		2	11	125

Information driven individualized population health improvement



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