

- Disease Management in the Workplace:
Pharmacists as Partners
- The Future Role of Pharmacists
• & Pharmacies
- Building Communities of Health

The Future of Pharmacists

- *Challenges & Opportunities*
- *Patient Safety*
- *Consumer Needs*
- *Engagement*
- *Compliance Adherence*

Present State

To Err is Human: Latent & Active Failures in Medication Use

- **Prescribing Phase (provider) Rate 12-1400 / 1000 admissions**
 - Patient Information
 - Patient Education
 - Communication Dynamics
 - Wrong Prescription Order
- **Ordering Phase (pharmacist) Rate .6-51 / 1000 orders**
 - Transcription - Prescription Misread / misheard
 - Lack of Knowledge of Drug
 - System error
 - Preparation error
- **Dispensing Phase (pharmacist) Rate 1.7-24 / 100 scripts**
 - Double check of drug and dose
 - Labeling error
 - Lack of Knowledge of drug
- **Drug Administration / Consumption (patient / care giver)**
 - Route error Rate 2.4-11 / 100 opportunities
 - Dosage error
 - Wrong patient
 - Self-prescribing
 - Adherence

- 10,000 prescription drugs & biological products
- 300,000 OTC products
- Recalls in 2004
 - 215 prescriptions
 - 71 OTC drugs
- Approximately over 50% of all prescription on the market today became available only since 1990.
- An average of 11 prescriptions per person is written in the United States annually.
- Sound-alikes/Look-alikes
 - "Celebrex" (arthritis) - "Cerebyx" (seizures) - "Celexa" (depression)

**To Err is Human:
Treatment Options Beyond Memorization**

To Err is Human: Medication Error at Hospital / Ambulatory Level

- 2 of every 100 hospital stays experience preventable adverse drug event
- average increase cost for these admissions is \$4700
- \$2.8 Million increase cost annually / hospital
- Extrapolated to all U.S. Hospitals implies \$2Billion Cost Annually
- ADE costs per 1000 older adults 27-65K in ambulatory setting

Bates, David W. et al *JAMA* 277: 307-311, 1997

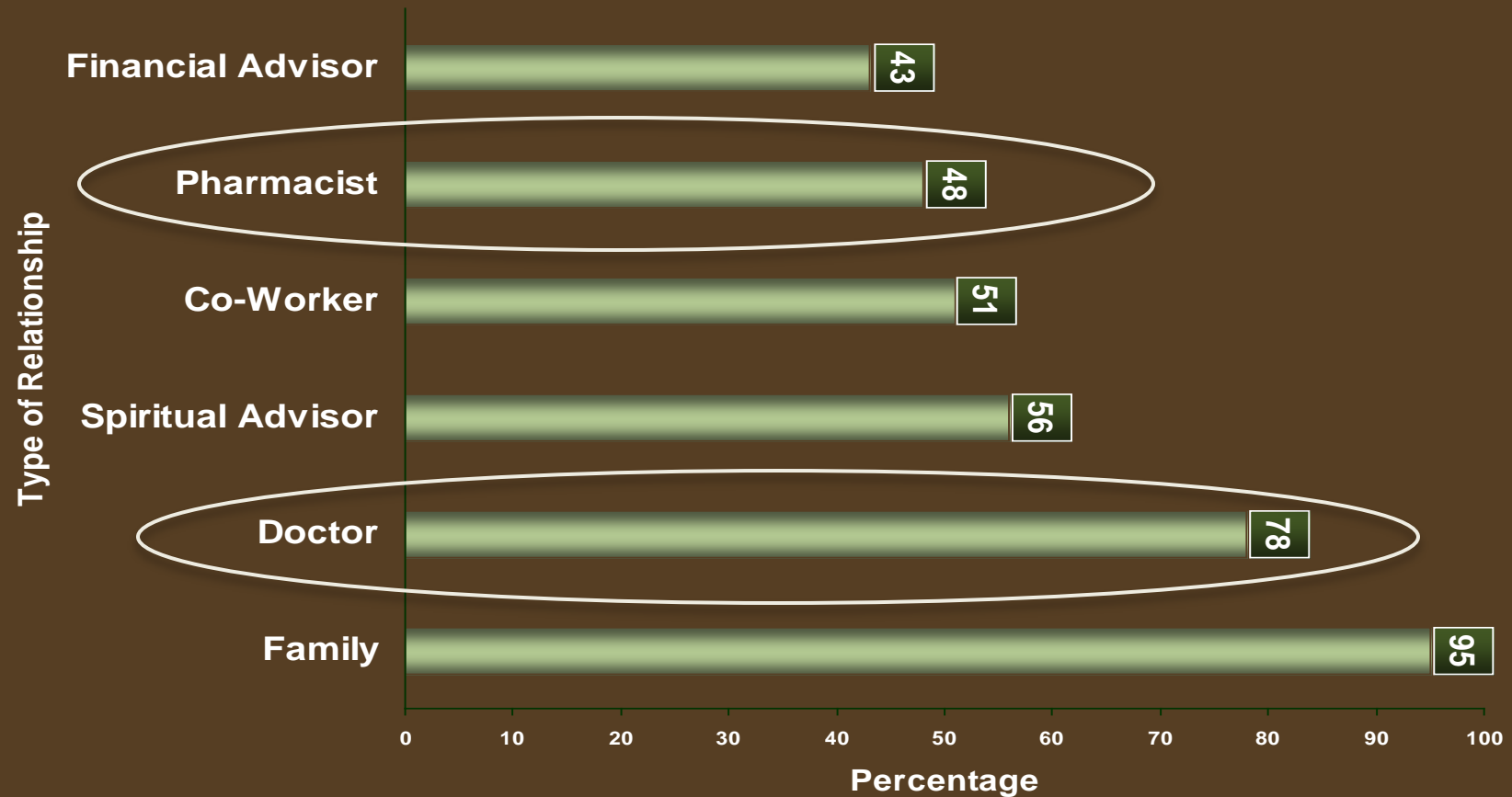
What do consumers want from the healthcare system ?

- Ease of Access
- Availability
- Caring Provider

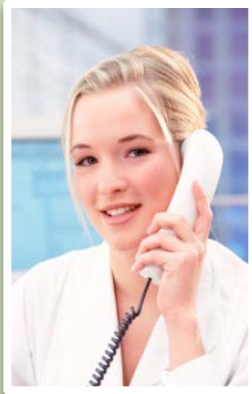
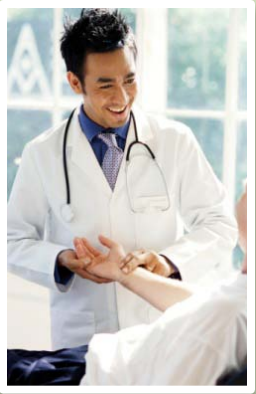


Where better to provide this than the workplace through the trusted clinician?

Rating of Relationships



Source: Magee, J., *Relationship Based health Care in the United States, United Kingdom, Canada, Germany, South Africa and Japan. 2003*



The Secret Ingredient

The Trusted Clinician

The Doctor or Nurse or Pharmacist who works in your neighborhood or goes to work with you

Creating Lasting Behavior Change

Only 2 Types!

Improve lifestyle

Increase compliance



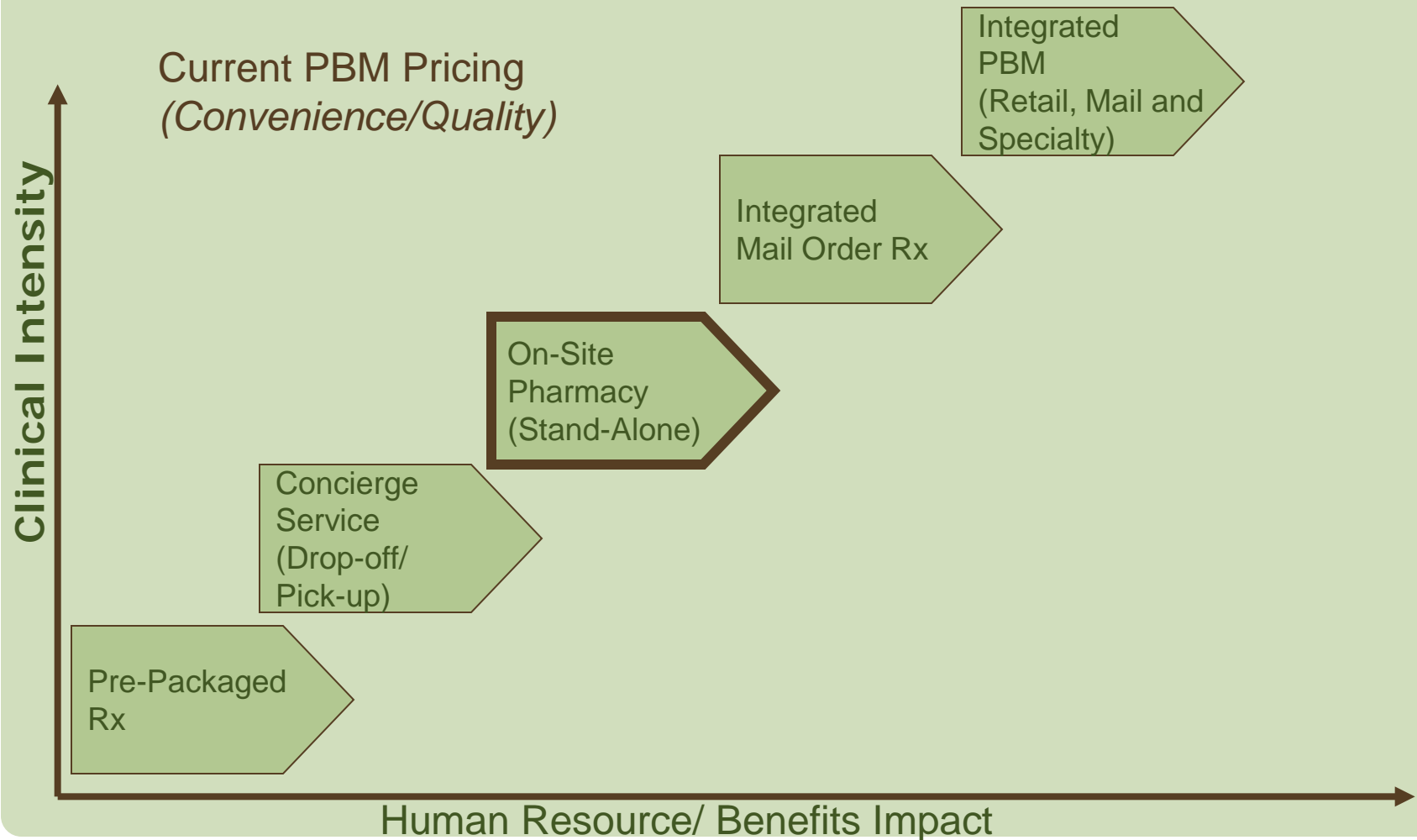
- *Workplace Pharmacies*
- *Workplace Health Centers & Pharmacies*
- *Integrated Disease Management*

Disease Management in the Workplace: *Pharmacists as Partners*

“Mega-trends” Impacting Employer Healthcare Management

- Escalating healthcare costs (medical & pharmacy)
- Increasing interest in on-site pharmacy & health centers
- Migration of occupational health to full service primary care
- Clinical quality and a reduction in medical errors
- Focus on human capital and impact on productivity
- Movement to outsourcing
- Consumer-driven healthcare
- Applying system process optimization to health care

Pharmacy Options at the Workplace



"Migration & Integration" of Workplace Health Services: Yielding Great Improvements in Productivity

Risk Management

Medical Management

Population Management

Medical
Surveillance
Exams

OSHA
Reporting

Disability
Management

Wellness/
Prevention

Disease
Management

Primary
Care

Injuries &
Illness

Workers
Compensation

Case
Management

Physical
Therapy

Fitness

Pharmacy

Ergonomics

Absence Management

Emergency
Preparedness

Urgent
Care

Referral
Management

Emergency
Response

EAP
Behavioral
Health

Travel
Medicine

Dental

Health Advocacy

25%

% of Employer Healthcare Costs

75%

Our Employer Solutions Range of Services

PRIMARY SERVICES

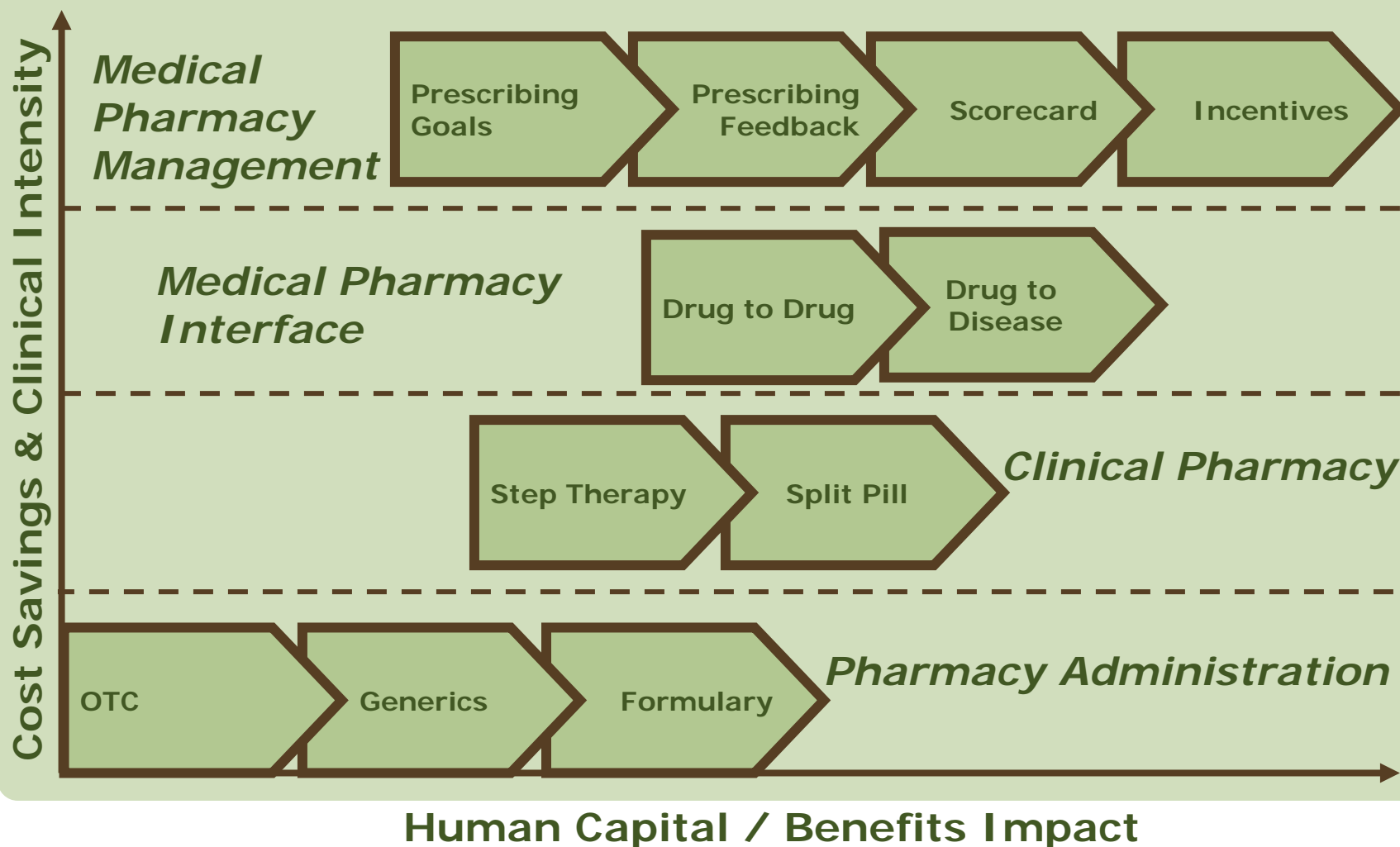
- ☒ Primary Care
- ☒ Acute/ Extended Episodic Care
- ☒ Pharmacy
- ☒ Prevention/Wellness
- ☒ Occupational Health
- ☒ Fitness

ADDITIONAL SERVICES

- ☐ Disability Management, Including STD, LTD & FMLA
- ☐ Physical Therapy
- ☐ Laboratory Services
- ☐ Specialty Services Rotations
- ☐ Woman's Health
- ☐ Medical Emergency Services
- ☐ Substance Abuse Testing
- ☐ Global Medical Leadership/ Direction
- ☐ Compliance: OSHA ,AED, CLIA and VIS
- ☐ Medical Surveillance
- ☐ Workplace Safety
- ☐ Physicals Examinations
- ☐ Return to Work Program
- ☐ Ergonomics
- ☐ Pharmacy Concierge Services
- ☐ Specialty Pharmacy Services
- ☐ Integrated PBM/ Mail Order Services
- ☐ Physician Referral Network
- ☐ Disaster Management
- ☐ Travel Medicine
- ☐ Disease Management/ Wellness Coordination
- ☐ Health Screening/ Fairs
- ☐ HRAs/ Biometric Testing
- ☐ Health Coaching
- ☐ Health Advocacy

The Integration of Primary Care & Pharmacy:

The Power is in the Prescribing – Dispensing Collaboration



Benchmarking for Continuous Improvement

Onsite Pharmacies Generic Utilization Rates

Missed Generic Opportunities

Site	Overall Generic %	Site Type	CHD Doctors	Community Doctors	Missed Generic Conversion Rate
Site A	69%	PCR X	84%	58%	0.53%
Site B	67%	PCR X	71%	61%	0.21%
Site C	66%	PCR X	75%	62%	0.53%
Site D	65%	PCR X	69%	58%	0.53%
Site E	63%	PCR X	71%	60%	0.45%
Site F	62%	PCR X	73%	60%	0.32%
Site G	61%	PCR X	67%	56%	0.26%
Site H	61%	PCR X	70%	58%	0.47%
Site I	61%	PCR X	74%	53%	0.41%
Site J	59%	PCR X	70%	51%	0.32%
Site K	59%	PCR X	68%	56%	0.24%
Site L	58%	PCR X	68%	53%	0.43%
Site M	57%	PCR X	62%	51%	0.96%
Site N	56%	PCR X	79%	47%	0.55%
Site O	56%	PCR X	61%	51%	0.64%
Site P	56%	RX Only	NA	56%	0.60%
Site Q	56%	PCR X	65%	51%	0.88%
Site R	55%	PCR X	59%	48%	0.62%
Site S	54%	RX Only	NA	54%	0.93%
Site T	54%	RX Only	NA	54%	0.60%
Site U	51%	RX Only	NA	51%	0.72%
Site V	50%	RX Only	NA	50%	0.97%
Site W	48%	RX Only	NA	48%	1.00%
Site X	48%	RX Only	NA	48%	1.01%
Site Y	48%	RX Only	NA	48%	1.18%
Site Z	44%	RX Only	NA	44%	0.80%
Site AA	43%	RX Only	NA	43%	1.47%
Site BB	38%	RX Only	NA	38%	0.79%
Site CC	37%	RX Only	NA	37%	2.35%

Average

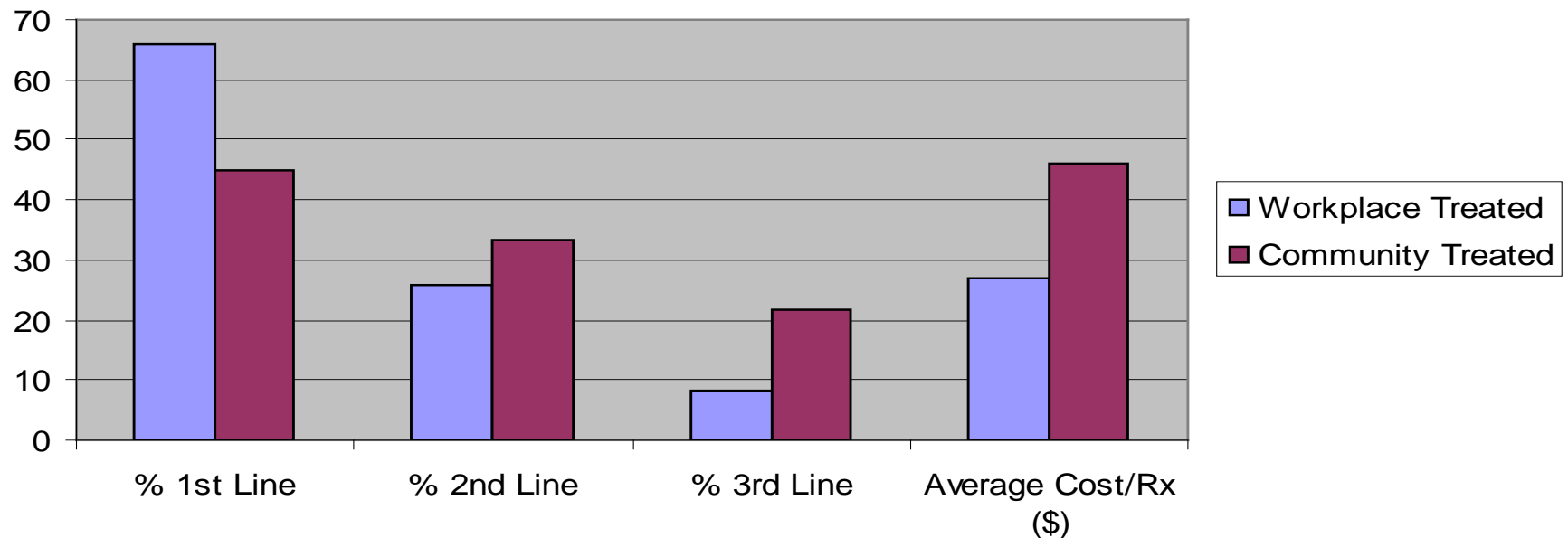
0.72%

- We started the analysis by ranking the generic prescription utilization percentage for all pharmacies in the CHDM chain. Generic utilization is defined as the generic percentage of total prescriptions dispensed regardless if the brand dispensed had a generic drug available.
- Next, we categorized sites by our ability to influence patient prescriptions written by an onsite prescribing clinician (PCR X). We found that on average the generic utilization percentage is 11% higher in our sites with a CHDM onsite prescriber.
- Part of the reason for higher generic utilization with primary care is the higher percentage of acute medications, which have more generics available, filled in our pharmacies with acute care attached.
- Then, we benchmarked the generic prescribing percentage of CHDM doctors versus the community doctors where applicable. CHDM doctors had 15% higher generic prescribing habits than the community doctors for the scripts filled in CHDM pharmacies.
- Next, we analyzed the percent of maintenance medications (90 day) filled at each site because they have fewer generic substitutes available than acute medications.
- The top 10 ranked sites in maintenance medication % utilization had a 52% average generic utilization versus a 57% generic utilization from the remaining sites.
- Our next area of focus was the benefit plan, specifically the number of drug class tiers in the design of the plan.
- The bottom nine pharmacies in generic percentage utilization have only two tiers, with the highest ranking two tier plan having a 55% generic utilization, ranking 18th in CHDM's chain.
- Next, we looked at the structure and value of monetary incentives extended to the employee through the benefit plans copay structure.
- High copay differential is categorized as a difference of \$10 or higher between brand and generic copays, whether that be a fixed difference or a difference calculated on current drug utilization.
- All but 4 locations with a "Low" copay differential (<\$10) were in the bottom 8 locations in generic utilization.

Evidence-based prescribing practices generate value

(recently published article in Journal of Health & Productivity – March 2007)

Figure 2
Antibiotic Line and Average Cost: Workplace Treated v. Community Treated

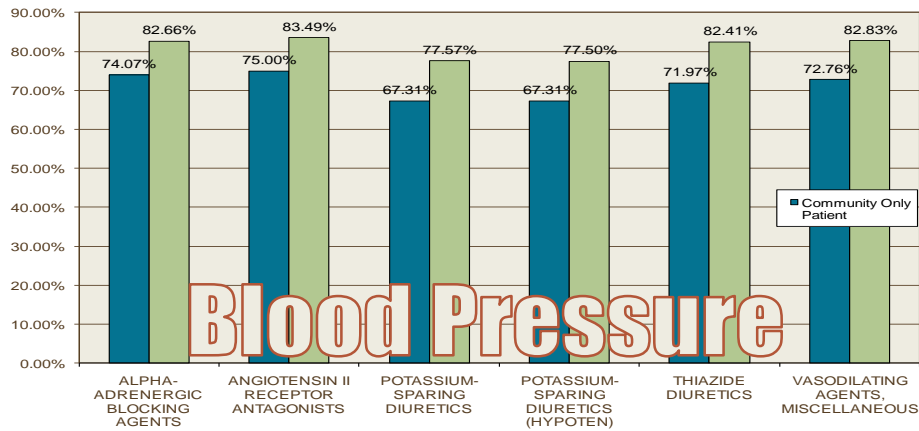


Better Care – and a Potential Savings of \$1.5 Million for Antibiotics Alone

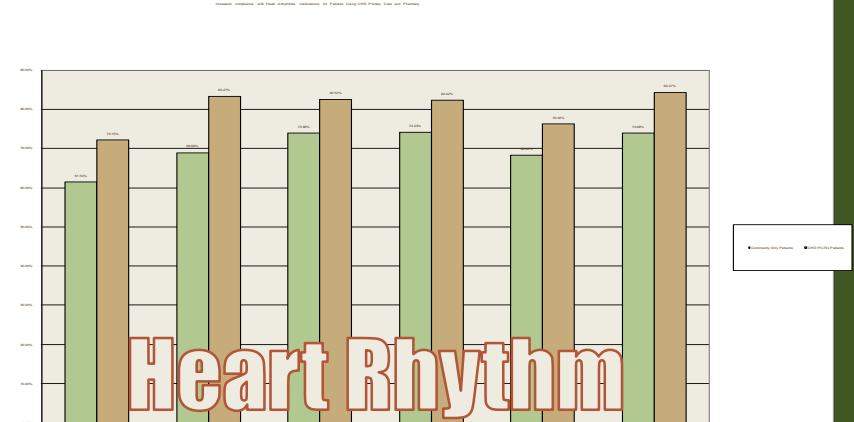
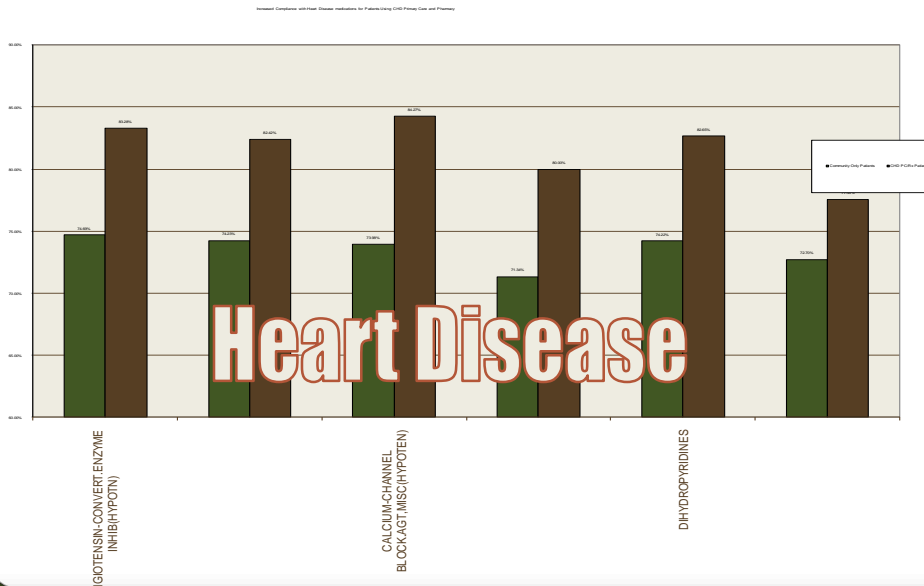
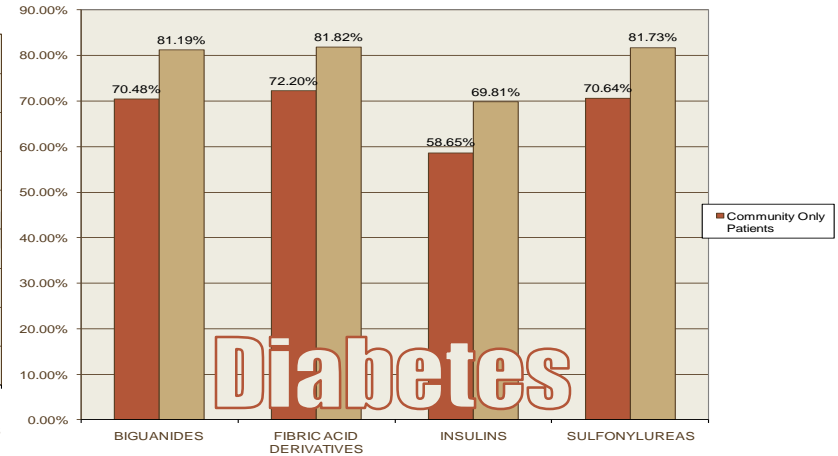
10%-12% Greater medication adherence

Integrated primary care & pharmacy users versus community

Increased Compliance with Blood Pressure medications for Patients who use CHD Primary Care and Pharmacy



Increased Compliance with Diabetes medications for Patients using CHD Primary Care and Pharmacy



Medication patient safety:

Significantly better than Community



- With a community error rate recently reported in USA Today of 1/1000

- Expect 1000 errors

- At \$2000 per ADE (IOM) = \$2 Million

- 4 Hospitalizations at 10,375 each (IOM)

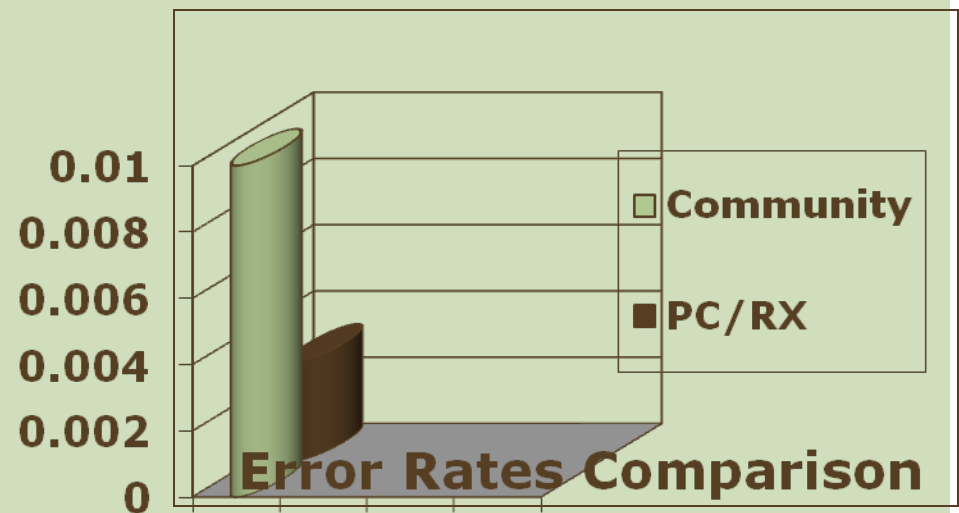
- 24 ER visits at \$ 1444 each (IOM)

- With our error rate of 3/10000

- (prior to implementation of new IT platform)

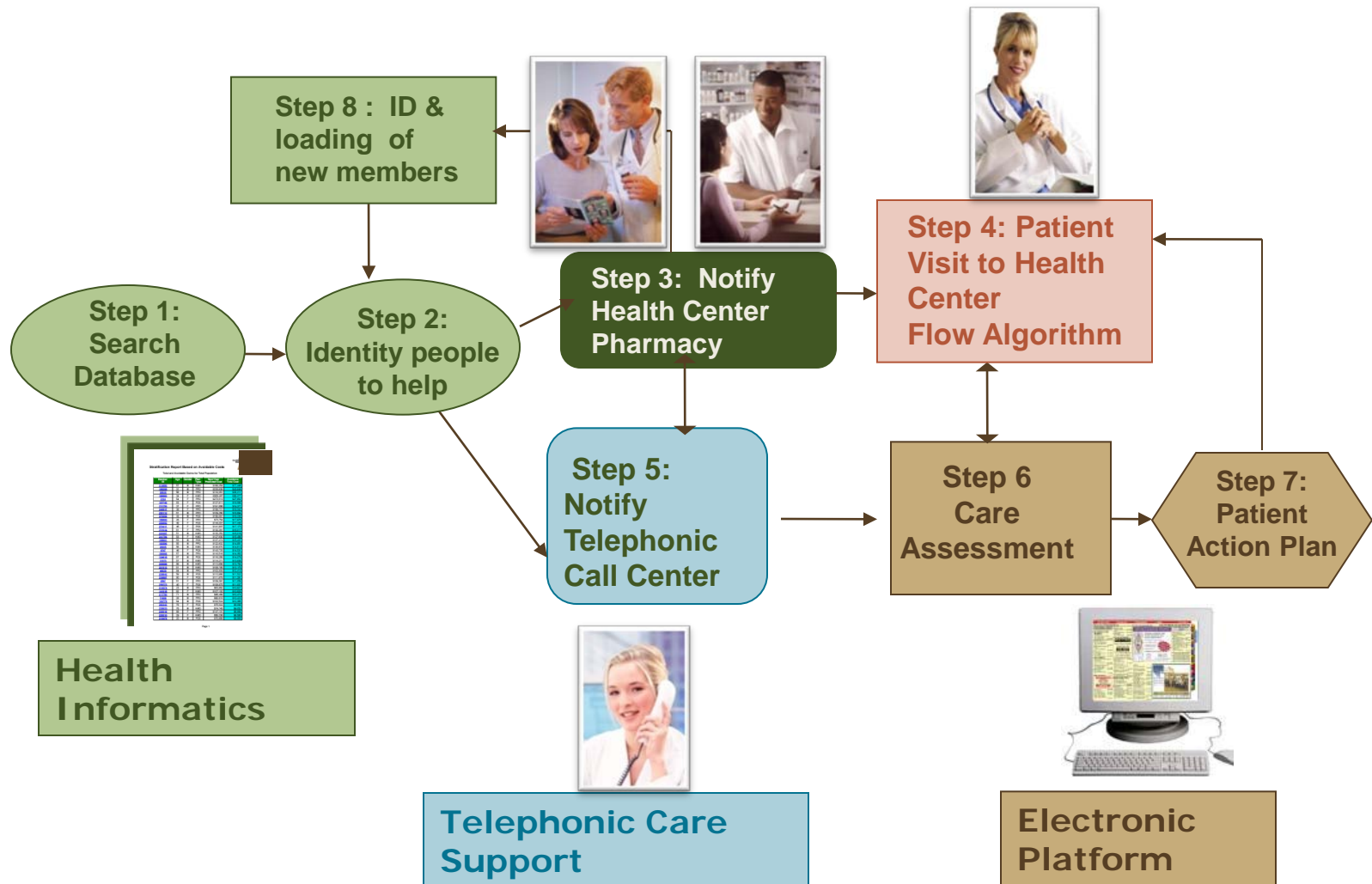
- Expect less than 300 = \$600K

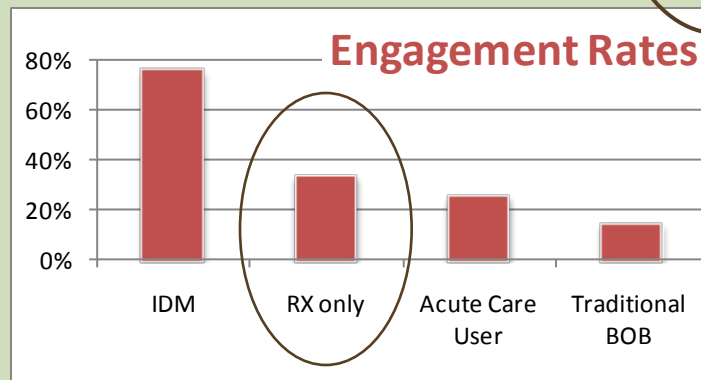
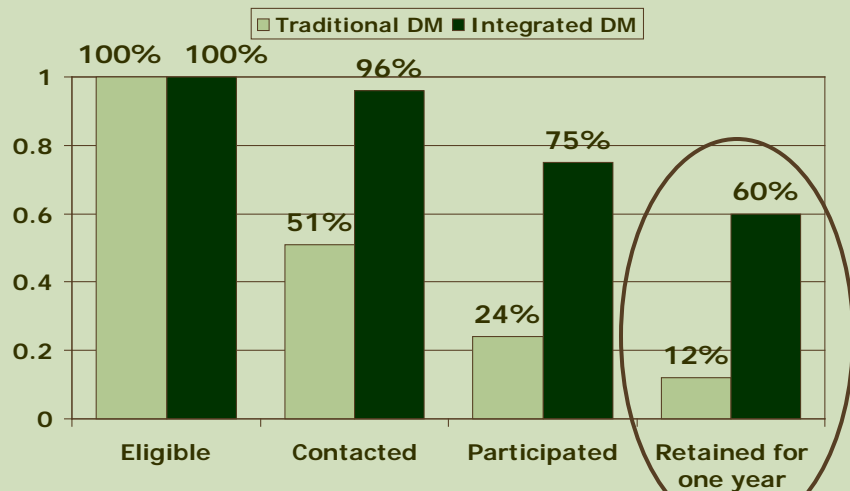
- 1 Hospitalization



PATIENT SAFETY COST SAVINGS = 1.4 Million
(Based on 1 million prescriptions)
2% of all hospitalizations are due to medication
misadventures

Integrated Disease Management Process





- Peer – reviewed publication
- DMAA best article of 2007
- Improved engagement & retention rates with integrated program

- Engagement rate related to depth of relationship
- Proven research influencing the marketplace
- Retention rate article will be in October issue of JPHM

The Power of The Trusted Clinician

Higher rates of engagement & retention

Clinical Outcomes for Health Center Users with Diabetes

Process Indicators Correlate with Outcomes (N = 336)

LAB Value	2003 Year 1	2005 Year 3	Variance
HbA1C	9.1	7.8	-14.0%
HDL Cholesterol	43	47	+9.3%
LDL Cholesterol	138	108	-21.7%
Triglycerides	288	201	-30.0%
Systolic BP	131	126	-3.8%

**Achieving the Promise of Disease Management:
Preventing Complications, Reducing Costs, & Improving Productivity**

Analysis of risk factors

predictive modeling indicate a significant reduction in risk of diabetes complications over the 2003-2005 period for diabetics under care

Prevented:

3 Amputations

2 Episodes of Blindness

6 Dialysis Patients

44 Heart Attacks &

Strokes

Potential future economic impact

- reduced patient morbidity has been estimated at an average of **\$1,800 of avoided medical costs per patient per year** (before inflation adjustment)
- **Saved over 6 Million Dollars in direct medical costs alone by preventing these complications***

*Economic impact does not include impact on productivity or disability outcomes

	Projected Cases Per 336 Patients with Diabetes (10 Year Period)		Avoided Costs (10 Years)
	Risk Year 1	Risk Year 3	
Lower extremity amputation	10.7	7.0	\$156,600
Blindness	4.7	3.0	\$54,400
End stage renal disease	7.0	1.3	\$4,934,200
MI or stroke	84	40	\$1,094,000
Total Medical*			\$6,238,600

Projecting The Long-Term Economic Impact of Diabetes Care Improvement



The Future Role of Pharmacists & Pharmacies

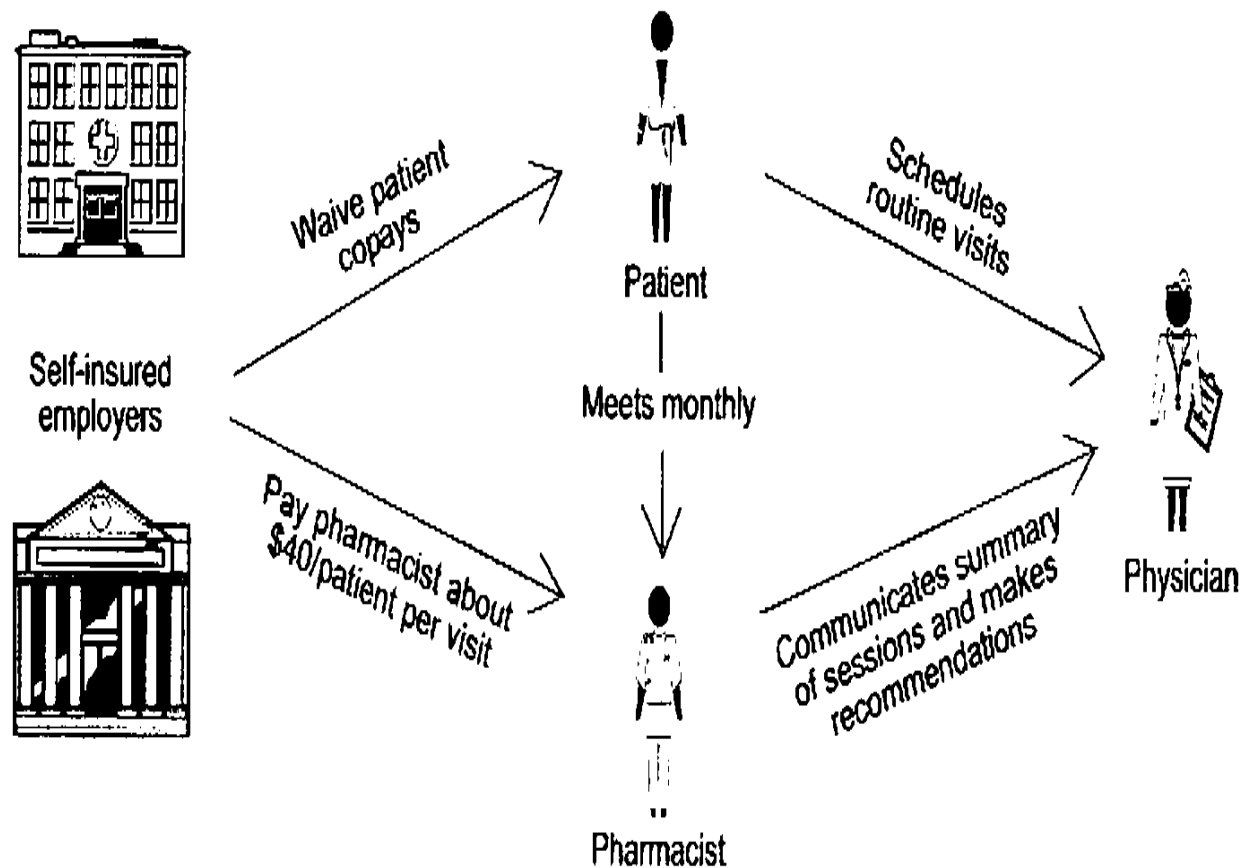
- Pilot project to explore the role and value of pharmacists as care managers
- Started in Asheville NC in 1997
 - NC Association of Pharmacists (NCAP) approached City of Asheville
 - NCAP committed to recruit and train community pharmacists
 - City of Asheville agreed to offer wellness program to city employees
 - Mission St. Joseph would coordinate the program

What is the Asheville Project?

Each Player Does What They Are Good At:

- Physicians diagnose and initiate treatment plans
- Educators educate
- Patients self-manage 24-7
- **Pharmacists coach patients to adhere with treatment plan, regularly assess, monitor, and recommend changes when the treatment plan isn't working.**
- **Pharmacies provide convenient access/expert service.**
- PBMs/TPAs facilitate billing & provide data for outcomes.
- Payers encourage participation and provide incentives.

The Asheville Project at a glance



Source: Watch interview, 9/10/02.

Employer Recruitment

Patient Education Program

Assignment to Certified Pharmacist Care Manager

Face to Face Visits with Pharmacist who Receives Reimbursement

Patient Receives Reduced Co-pays on Meds & Supplies

Communication with PCP

Employer Approves Aggregate Data Collection & Analysis

Ashville Model Components

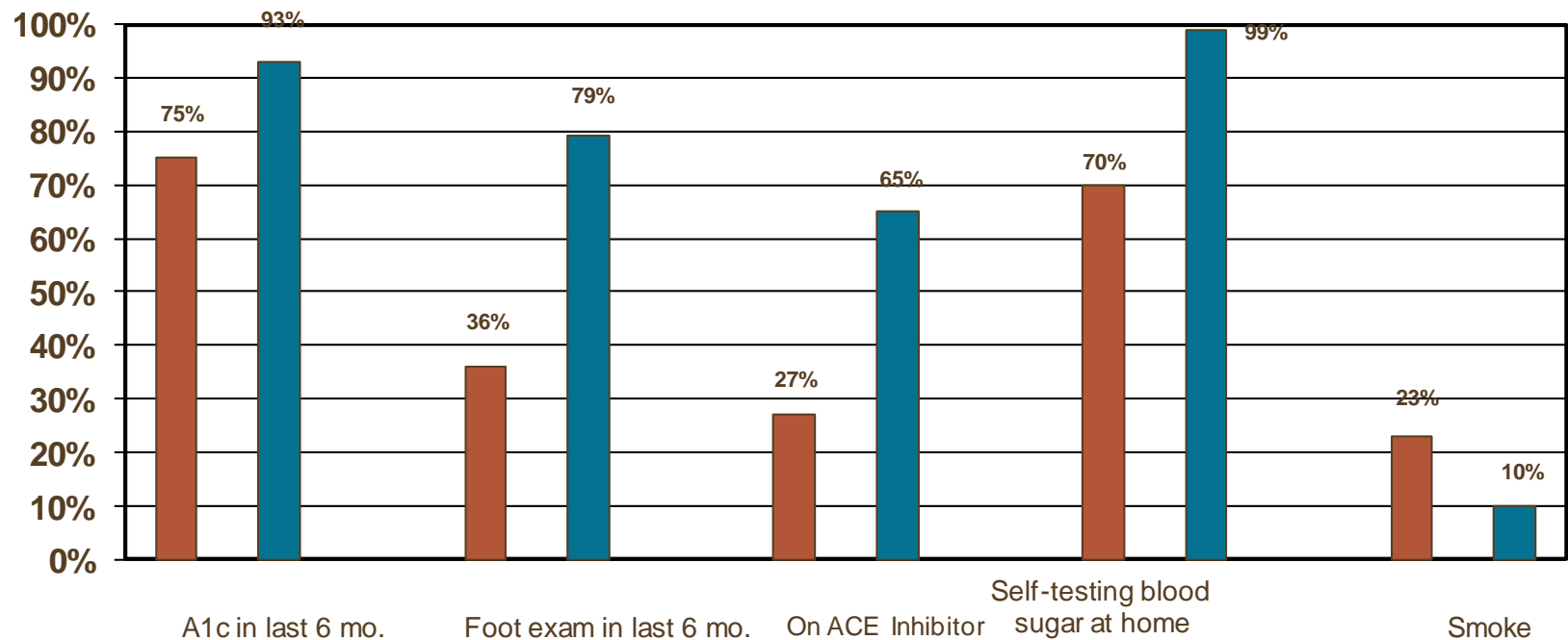
Ashville Project Results – Asthma, Diabetes, & CV

	Before	After 1 Year
Asthma Action Plans	63%	99%
PT c Asthma ER visits	9.9%	1.3%
Missed / Unproductive Workdays	10.8	2.6
A1c	8	6.6
LDL	123	108
Diabetic Pt Savings		\$1200-1872 / year
Systolic BP	137	126
Diastolic BP	83	78
CV events / 1000	77	38
CV event risk		Down 53%
CV related costs		Down 48%
Number in Study		207/187/423

2 Employers – 12 pharmacies

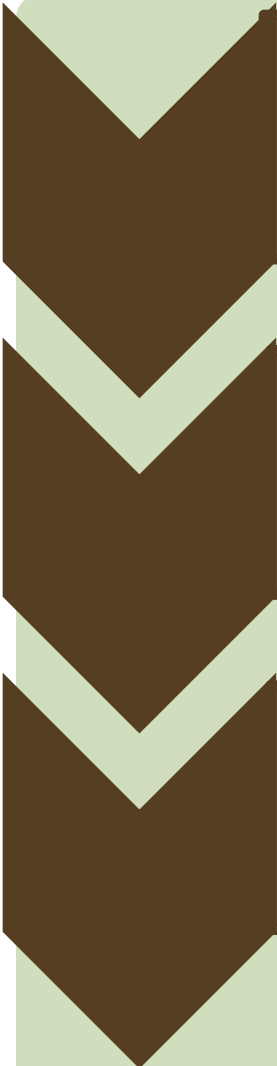
Outcomes: % Patients Meeting Goals

PATIENT RESPONSE TO QUESTIONS ABOUT THEIR DIABETES/BEHAVIOR **BEFORE** AND **AFTER** PARTICIPATION IN PROGRAM



- University of Kentucky
Owned & Operated
- Free Standing Pharmacist
Clinic
 - Within ambulatory care facility
 - 2.2 FTE Pharmacists / 1.6 FTE Adm
 - 417 square feet
- Comprehensive DM & MTM
 - DiabetesCARE (Remote & Distant)
 - CardioCARE
- Promotion – letters, brochures, newsletter, champions, word of mouth
- Referral – physician, pharmacist, CDE, UK H&W
- Communication
 - Standard visit report to PCP – developed by PCP – SOAP format
 - Quarterly visits to HR – annual program report
- Incentives – co-pay, co-insurance reduction
- IT Platform
 - home grown, documents / standardizes each visit
 - Integrates with claims, labs, Rx data
- March 2003 to present
 - 322 patients as of 9/2007

PharmacistCARE

- 
- Promotional activities
 - Fax, Phone, or email
 - Intake Survey Q 6 months

- Initial assessment with pharmacist (1 hour)
- Three 2 hour sessions on self management
- Take home Binder

- Q 1-3 monthly visits with pharmacist (30 minutes) – review against established goals & MTM
- Limited exam – BP, foot exam, weight
- Blood tests – A1c, lipids

PharmacistCARE – Patient Process

- Demographics
- Pharmacy use
- Referral source
- Learning barriers
- Diabetes history
- Social history
- Past medication history
- Present medication history
- Medication adherence
- Vaccination history
- Perception of diabetes knowledge and control
- SF – 12
- Diabetes Knowledge test
- Attainment of various ADA standards of care
- Nutritional history
- Physical activity
- Perception of stress & coping skills
- Perception of support services
- Self care behaviors
- Health resource use
- Patient satisfaction with education program
- Diabetes-specific quality of life

PharmacistCARE – Contents of Patient Survey

- Progress against goals
- Changes in diet and exercise
- Changes with social history
- Medication changes & adherence
- Medical updates
- Vitals including weight
- Foot exam including monofilament sensory
- Attainment of ADA standard activities – eye exam, vaccines
- Document any Hypo or hyper glycemic symptoms
- Download and review glucose monitor readings
- Perform and review relevant labs
- Referral to other providers
- Goal setting for next visit
- Documentation of clinical issues for report to PCP



PharmacistCARE Maintenance Visit

PharmacistCARE

	Before	After 1 Year
A1c screening	78%	100%
A1c > 9	26%	10%
Microalbumin screen	13%	39%
Flu Vac	55%	71%
LDL < 130	52%	81%
Pneumo Vac	28%	46%
Total Satisfaction		83%
PCP Satisfaction		75%

- 2002 in San Antonio / Corpus Christi TX
- Diabetes Program
 - Humana identifies patients and pitches RX based program to PCP's
 - Pharmacists deliver MTM and DM
 - Visits include abbreviated physical exam including foot exams
 - XL Health provides CM
- Results demonstrated ROI based largely on 50% reduction in amputation
- XL Health was unable to replicate results with other partners in another location

XL Health / Humana / Walgreens' IDM Pilot

Multi-site Ashville like Project - Diabetes

	Before	After 1 Year
A1c	7.9	7.1
LDL	113	104
Systolic BP	136	131
Flu Vac	52%	77%
Foot Exam	38%	80%
Care Good to Excellent	57%	87%
Satisfaction		95.7%
Annual Costs		\$918 lower than projected

**Several Employers – 256 patients -
Greensboro NC, Wilson NC, Dublin GA, Manitowoc County
WS, Columbus OH,**

Diabetes Ten City Challenge

	Before	After 1 Year
A1c	7.6	7.2
LDL	96	93
Systolic BP	131	129
Flu Vac	43%	61%
Foot Exam	38%	68%
Care Good to Excellent	39%	87%
Satisfaction		97.5%
Number in Study		914

**28 Employers – 10 cities –
Charleston, Chicago, Colorado Springs, Cumberland, Honolulu,
Milwaukee, Northwest GA, Pittsburgh, Los Angeles, Tampa Bay**

Pharmacist Interfaces with Retail Clinics

- Provide Vaccines
- Medication Therapeutic Management
- Disease Management Coaching





Inventing a Whole New Patient Experience

- Open seven days a week, including evenings and weekends
- No appointments necessary
- Staffed by Nurse Practitioners who are licensed to write prescriptions
 - Physician Assistants in Texas and Nevada
- Most insurance plans accepted
 - Cost of visit is co-payment
 - If uninsured, visits average \$59-74
- Services provided to patients 18 months and older
- Paperless registration and electronic medical record

Respiratory Illnesses

- Bronchitis
- Common Colds
- Coughs
- Ear Infections
- Flu
- Laryngitis
- Sinus Infections
- Sore Throat
- Strep Throat
- Upper Respiratory Infections

Additional Treatments

- Allergies – Seasonal
- Bladder Infections (Female, ages 12-65)
- Diarrhea, Nausea, and Vomiting
- Early Lyme Disease
- Fever (<72 hours)
- Head Lice
- Mononucleosis
- Pink Eye and Styes
- Scalp Rash
- Swimmer's Ear
- Swimmer's Itch

Skin Conditions

- Acne
- Athlete's Foot
- Cold Sores
- Dry Skin
- Impetigo
- Itchy Skin
- Poison Ivy/Poison Oak
- Rashes
- Ringworm
- Scabies
- Shingles
- Skin Infections
- Sunburn
- Tick/Insect Bites
- Wart Evaluation

Diagnostic Testing*

- Blood Pressure/Hypertension
- PPD/Tuberculosis
- Pregnancy

*Tests may be given as part of a paid clinic visit

Minor Injuries

- Abrasions
- Burns (minor)
- Splinters
- Sprains/Strains
- Staple/Suture Removal

Vaccinations*

- Flu (Seasonal)
- GARDASIL® (Females 11-26) – three dose series at \$165/each. Currently offered only in Chicago, St. Louis, and Pittsburgh
- Hepatitis B**
- Meningitis (Menactra)
- Tdap (Tetanus – Pertussis Booster)**
- Td (Tetanus Booster)**

*Vaccinations may be incremental to the cost of the visit.

**Administered to patients 11 years and older.

Physicals*

- Camp Physicals
- Sports Physicals
- Additional Physicals vary by area

*High-school level, pre-participation sports physicals are not available in Kansas.

*Physicals may not be covered by insurance. Please check your individual plan.

Patient care services provided by Take Care Health ServicesSM, an independently owned professional corporation whose licensed health care professionals are not employed by or agents of Walgreen Co. or Take Care Health Systems, LLC.

Take Care Health Clinics

Quality: Progress against HEDIS Measures

Take Care Average
National Goal

HEDIS	HEDIS	HEDIS
95.4%	94.2%	91.5%
71.3%	82.8%	72.0%
Avoidance of Antibiotic Treatment in Adults (18-64) with Acute Bronchitis	Appropriate Treatment for Children (<14) diagnosed with URI	Appropriate Testing for Children (<17) with Pharyngitis

- Have opened over 300 clinics in 30 markets in first couple of years
 - Will have over 400 in next several months
- Have seen over **600,000 patients in 2 years**
 - More mature sites averaging almost 30 patients per day
- Over 1/3 of Take Care visits would have been in an ER/Urgent Care setting
 - 10% would not have sought care
 - 55% could not get into see physician
- **Over 40% of patients cannot name a regular primary care provider**
- 10-20% of patients referred to other providers
 - Over 90% to primary care
- 5-10% of Take Care patients being driven by referrals from physicians

Early Results of Retail Model

Hospital Pharmacist

- Member of Rounding Team
 - Advises prescribers / patients
- Assisting in Therapeutic Management
 - Drug to drug
 - Drug to disease
- Monitoring Drug Regimens
 - Heparin
 - Chemotherapy
 - Renal Failure Adjustments
- Preparation of Infusion Therapy

Pharmacist as Clinical Partner

- Partnership with Prescribing Clinician
 - Family Physician
 - Internal Medicine
- Medication Therapeutic Management
 - Medication optimization
 - Poly-pharmacy
 - Medication Safety
 - Prevention
 - Lipid control
 - Osteoporosis
 - Vaccination
 - Key conditions
 - Chronic illness - adherence
 - Allergic rhinitis
 - Smoking cessation

Future Shock: Enabling Personalized Medicine

- Early disease detection / risk stratification techniques ... genomics, proteomics, biomarkers, targeted imaging
- Personalized Medication –moving beyond “one size fits all”
- “Late therapy” to “early health” will require reimbursement / insurance / enterprise re-engineering to work with us to define this

Building Communities of Health

Healthy (Unknown)	At Risk	Acute / Episodic	Chronically Ill	Catastrophic
<ul style="list-style-type: none"> • HRA/ Biometric Testing and Administration • Lunch and Learns • Immunizations • Screenings 	<ul style="list-style-type: none"> • Health Coaching • Patient Education • Program Management • Health Advocacy 	<ul style="list-style-type: none"> • Scheduled/ Walk-in Visits • Emergency Responses • Referral Management • Pharmacy Care Management 	<ul style="list-style-type: none"> • On-Site Disease Management • Integrated DM • Health Coaching • Patient Education • Referral Management • Pharmacy Care Management 	<ul style="list-style-type: none"> • Emergency Response • Case Management • Pharmacy Care Management • Rehabilitation Management
Face to Face with Trusted Clinicians				
Telephonic Coaching & Care Management				
Provider / Member Portal Content & Tools				

Population Health Management Approach

Illness

Drug Management
Behavioral Health
Disease/Case Management

Wellness

Screenings
Immunizations
Health Coaching
Health Assessment

Managing the Medical Community

Specialists
Tests
Hospitals
Treatment Options

Fitness

Work Readiness
Ergonomics
Work Hardening
Return to Work

Environment

Smoking Ban
Traditional Occ Health
Safe Workplace
Cafeteria



The Promise of a Medical Home: Integrating Care by "Trusted Clinicians"

Educate & Motivate



The Nurse
in the neighborhood

Diagnose & Treat



The Doctor
at the workplace

Keep Fit & Rehab



The Therapist at
the workplace

Reinforce & Coach



The Pharmacist
in the neighborhood

**Multiple Trusted Clinicians Working in Concert on Behalf of
the Consumer**

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The Future of Pharmacists