Barriers and Breakthroughs: Diabetes Self-Management Training in Primary Care

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Diabetes Self-Management Training: Utilization

- Despite availability of formal DSMT programs, these programs are underutilized.
- Only 1/3 to 1/2 of those with diabetes attend DSMT programs.
- Attendance is associated with higher SES and treatment modality (insulin users).
- There is an unfulfilled need to find alternate ways of delivering DSMT in order to reach more individuals.

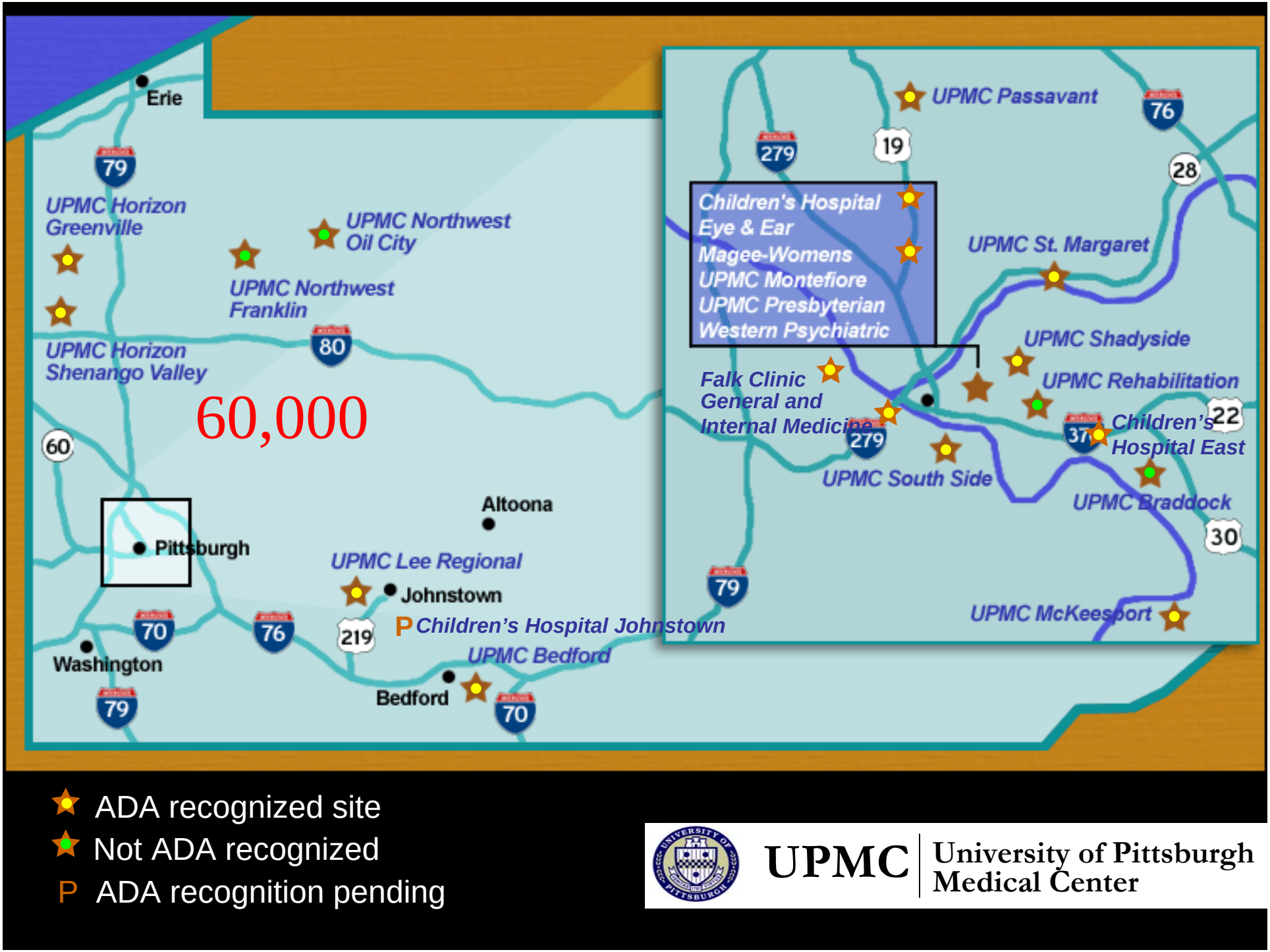
What is known?

- Controlling risk factors will decrease complication incidence
- Adherence to clinical guidelines (process and outcome) by clinicians is sub optimal
- Multifaceted interventions (eg. patient, provider or system oriented) are most successful. *Renders, et.al. Diabetes Care. 2001*

The Setting

The University of Pittsburgh Medical Center (UPMC)

- Components
  - Hospitals
  - Health System managed physician practices
  - Diversified services
    - Home care
    - Pharmacy
    - Information systems
    - Rehabilitation
  - Community Health Services
  - Insurer



ADA recognized site

Not ADA recognized

P ADA recognition pending

UPMC | University of Pittsburgh Medical Center

University of Pittsburgh Diabetes Institute (UPDI)

Goals:

- Promote and provide outstanding diabetes care to those served by our Health System.
- Integrate improved clinical care throughout the Health System.
- Facilitate access for patients with diabetes to Health System sites.

Achieved by collaborations with:

- Communities
- Academia
- Philanthropic Organizations
- Health care providers

DSMT within the Health System

- Despite wide availability of DSMT programs utilization is low
- Gaps in access
  - Due to
    - Under or poor reporting by the program
    - Lack of referral to DSMT programs by providers
    - Poor provider and patient awareness of the value and availability of DSMT
    - Marketing strategies may not be targeted

The Target Study Community

- Suburb of Pittsburgh
- Former home to the steel industry
- Victim of industrial downsizing
  - Unemployment
  - Out-migration of young and more affluent
- Result
  - Elderly community
  - Socioeconomically depressed area
  - High risk community for chronic disease

The Scope of the Problem within the Community

Unanswered questions…

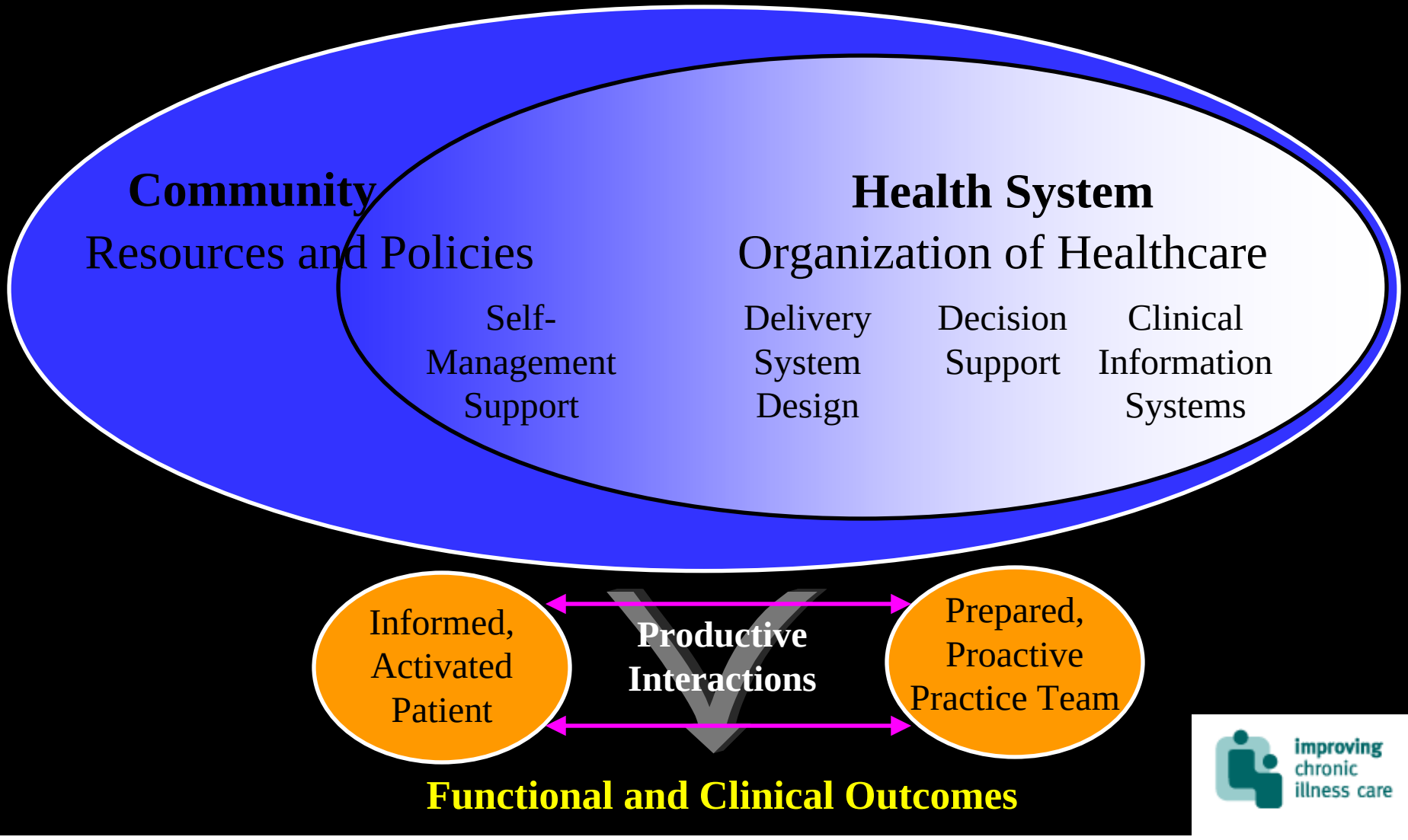
Among those with diabetes:

- What was the prevalence of complications?
- What were the patterns of preventive service utilization?
- What was provider adherence to ADA Standards of Care?
- Could care/outcomes be improved by partnering providers and patients together using a multifaceted approach?

Project Objective

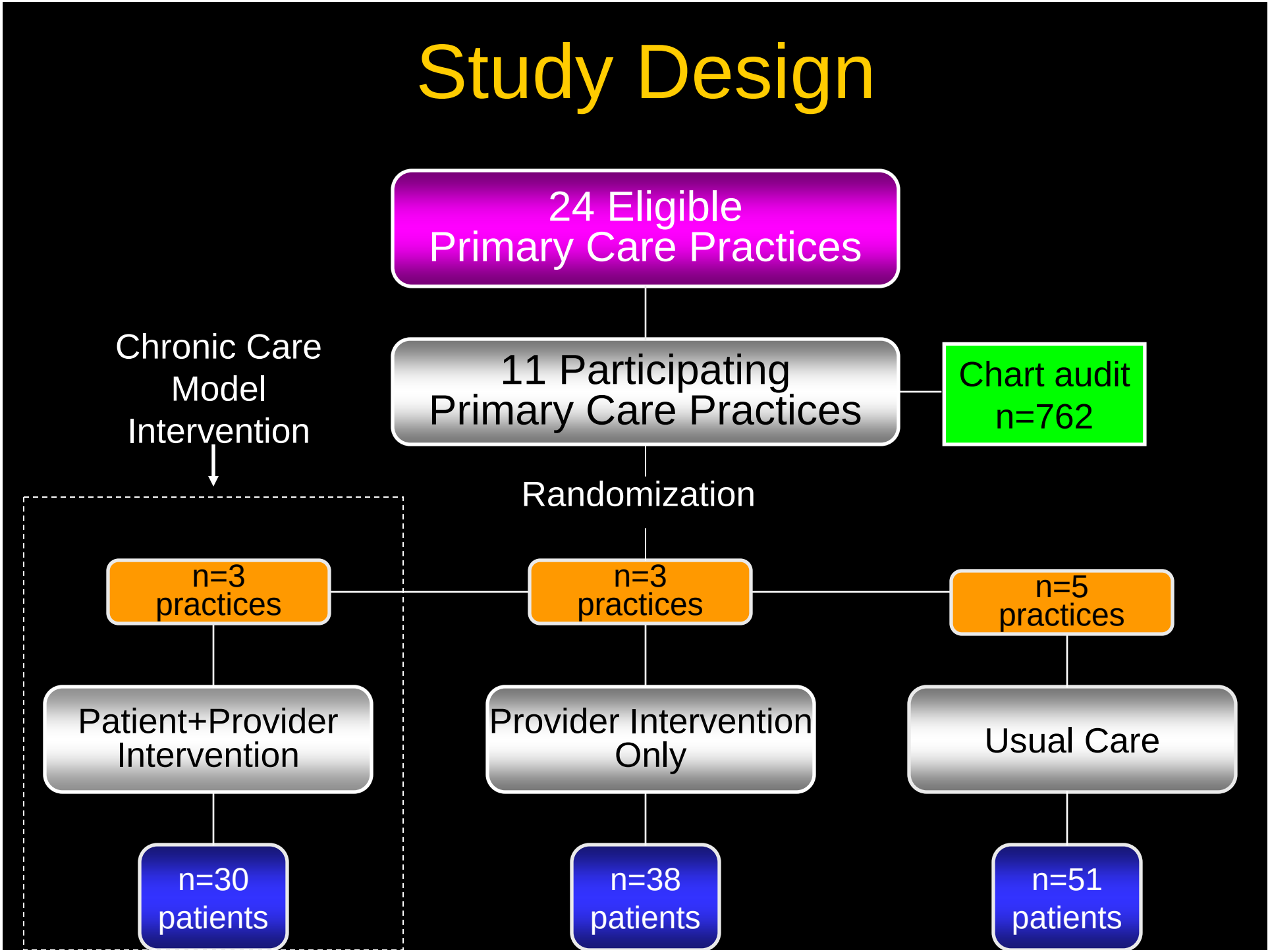
To improve health outcomes in people with diabetes who receive care in the primary care setting, through implementation of a model of care focused on provider education, patient empowerment, and enhancement of the *patient-provider partnership.*

Chronic Care Model



improving chronic illness care

Study Design



Patient and Provider Intervention

Intervention: Providers

Goal: Provider appreciation of DSMT and patient empowerment

- Physicians (in the provider intervention groups) attended one session. Education format was problem-based learning (PBL).
- All providers received their chart audit data in the form of a report card together with the ADA Standards of Care.
- A diabetes educator was present in the offices on designated “diabetes days” or “diabetes mini-clinics” (for 6 months).

Patient-Provider Partnership:

Improving Diabetes Care in the Community

Results of Your Practice's Diabetes Chart Audit

Calendar Year 1999

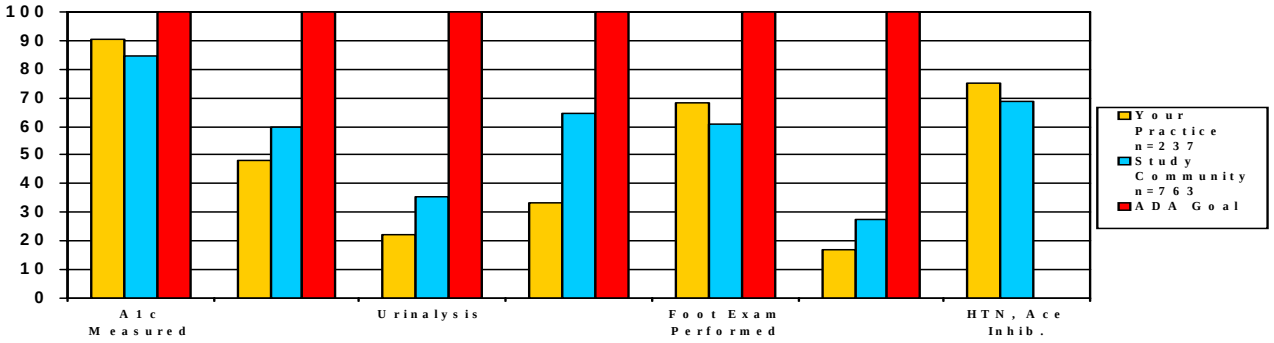
n = 237

Your Practice's Demographics Compared to Other Practices in the Study Community

	Your Practice (n=237)	Study Community (n=763)
% Male	54.2	53.1
% Non-White	4.0	8.2
% Smoker	7.6	11.4
Average Age	69.9	65.0

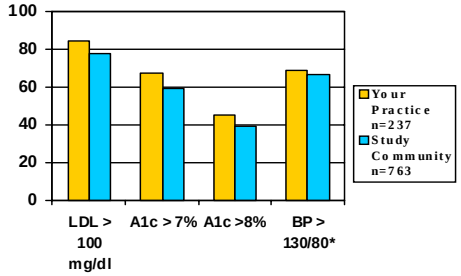
How Does Your Practice Compare to the ADA's Standards of Care?

Process Outcomes based on the ADA's Standards of Care

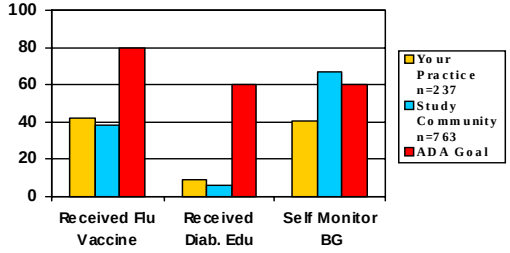


Is Your Practice Meeting the ADA's Therapeutic Goals and Standards of Practice?

The ADA currently recommends the following therapeutic goals: LDL<100 mg/dl, HbA1c < 7%, and BP < 130/80



Percent of Your Patients Adhering to the ADA's Standards of Practice Compared to Other Patients in the Study Community



An A1c of > 8% indicates an **ACTION LEVEL**

The ADA goal for BP at the time of chart audit was 130/85

Intervention: Patients

- Education sessions were held for 6 sessions, followed by monthly support groups for the remainder of study follow-up.
- Education format was based on the ADA content areas.
- Empowerment Approach

Empowerment

"Helping people discover and use their innate ability to gain mastery over their diabetes."

Anderson, B. and Funnell, M.: The Art of Empowerment. Alexandria, VA, American Diabetes Association ,2000, pg xvii.

Provider Intervention

Intervention: Providers
(no patient intervention)

- Physicians attended one session. Education format was problem-based learning.
- All providers received their chart audit data in the form of a report card together with the ADA Standards of Care.
- *A diabetes educator was available for consultation*

Study Outcomes

Subjects with diabetes n=119

- Clinical
  - A1C, Blood Pressure, Lipids, BMI, Microalbuminuria
  - Measured according to standard research protocol
- Behavioral
  - Empowerment
- Psychosocial
  - Quality of well-being, barriers to diabetes care
- Diabetes knowledge
- Health care utilization and self-care behaviors

Provider Participants n=20

- Attitudes toward diabetes
- Barriers to diabetes care

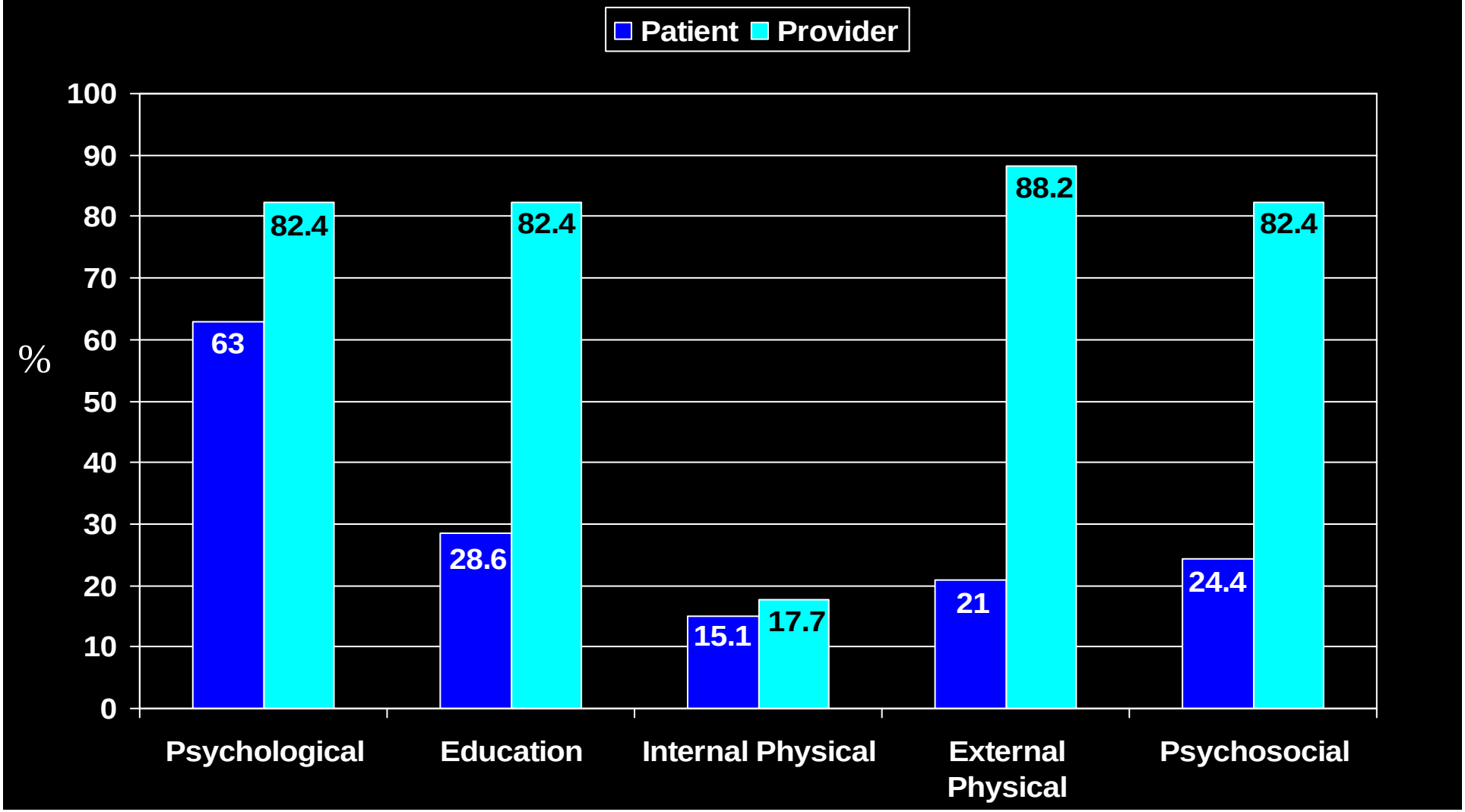
Barriers to Diabetes Care

Barriers to Diabetes Care

- Barriers to diabetes care were assessed using the Barriers to Diabetes Care instrument
  - 30 barriers grouped into the following 5 barrier categories:
    - Psychological
    - Educational
    - Internal physical
    - External physical
    - Psycho-social

Simmons D, et al. *Diabetic Medicine*. 1998

Frequency of Barriers to Care: Patient vs. Provider



Main Study Results

Intervention Group Participation Rates and Study Retention

Group Classes

> 75% of subjects attended at least 3/4 of classes

Support Group

> 50% of subjects attended at least 2/3 of available support groups

Patient/ provider intervention group

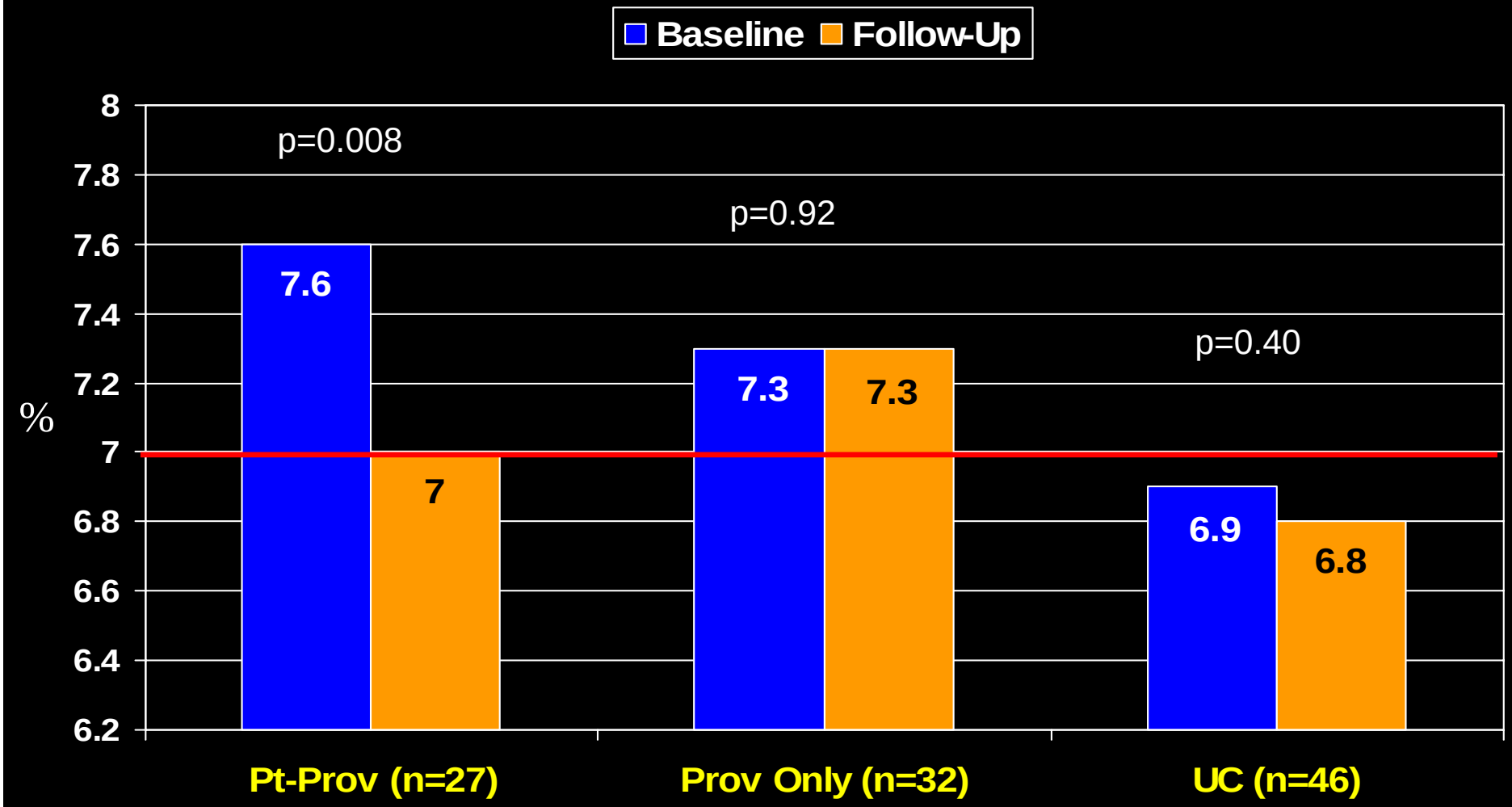
Study Retention (Overall)

91%

Baseline Characteristics

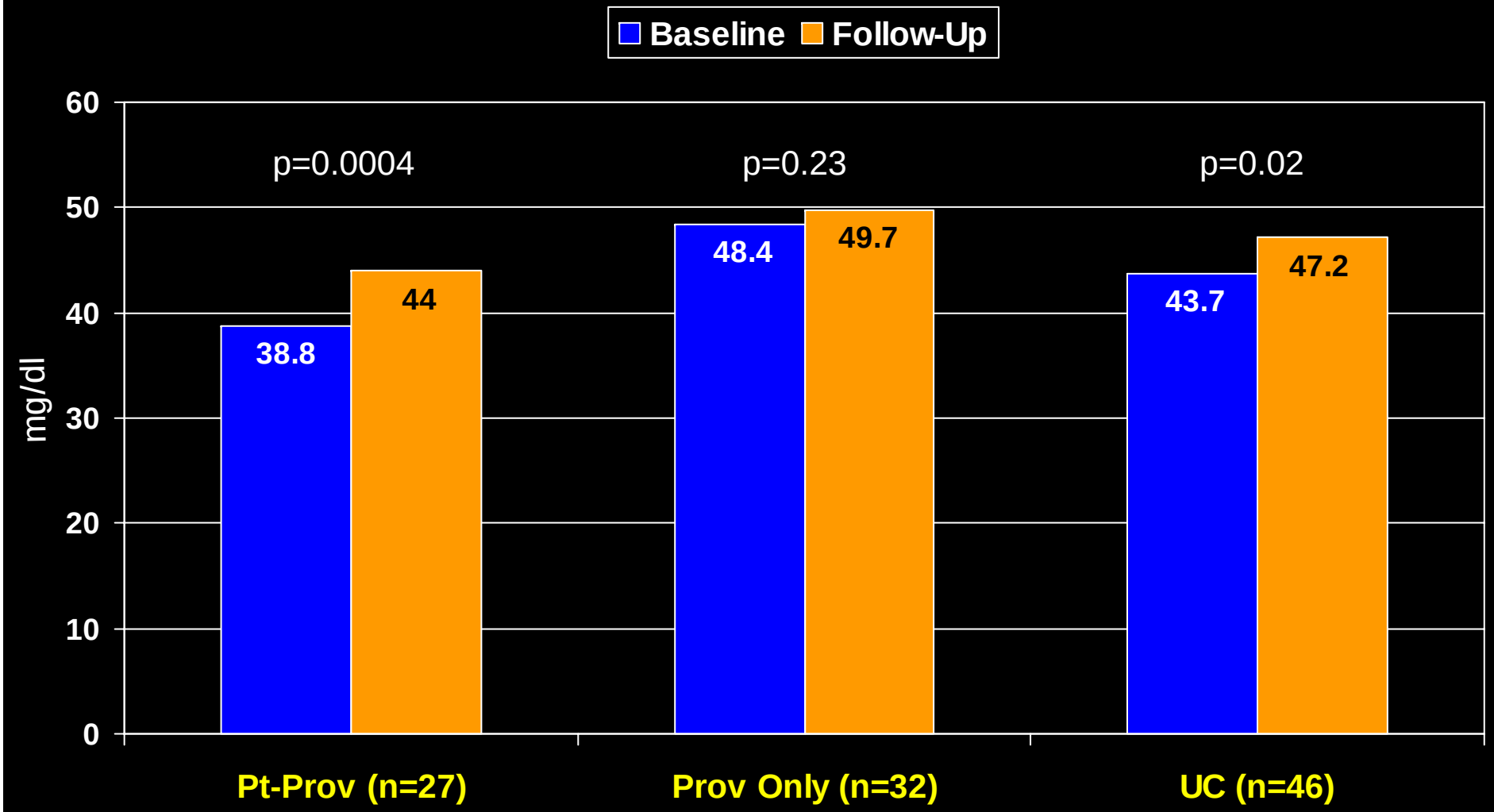
Characteristics	*Pt&Prov*	*Prov Only*	*UC*	*p value*
Age	69.7	64.4	68.6	0.04
Duration	10.3	11.3	13.1	0.45
Sex (% male)	50	39.5	58.8	0.20
Race (% non-white)	13.3	2.63	9.8	0.26
Insulin use	26.7	42.1	35.1	0.20
SES (% > HS)	50	42.1	39.2	0.63
Mean follow-up (months)	12.4 (9-18)	12.4 (11-18)	12.7 (11-18)	0.09
Microvascular Complications (%)	58.6	57.9	60.0	0.98
Macrovascular Complications (%)	75.9	60.5	63.3	0.39

Change in Mean HbA1c



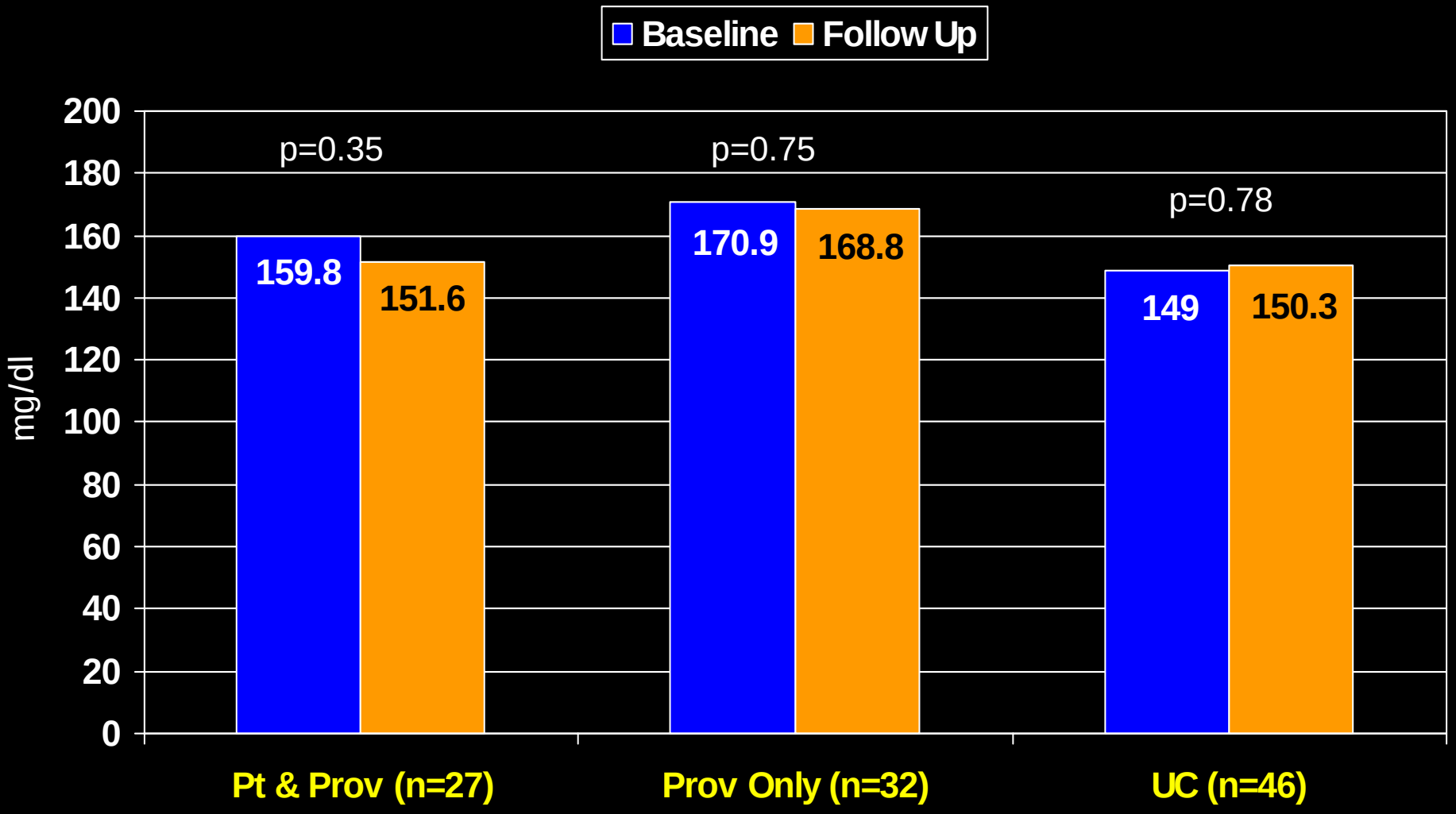
GLM results (effect of group): p=0.01
(effect of group is adjusted for clustering of patients within practice, age, insulin use, and baseline HbA1c)

Change in Mean HDLc



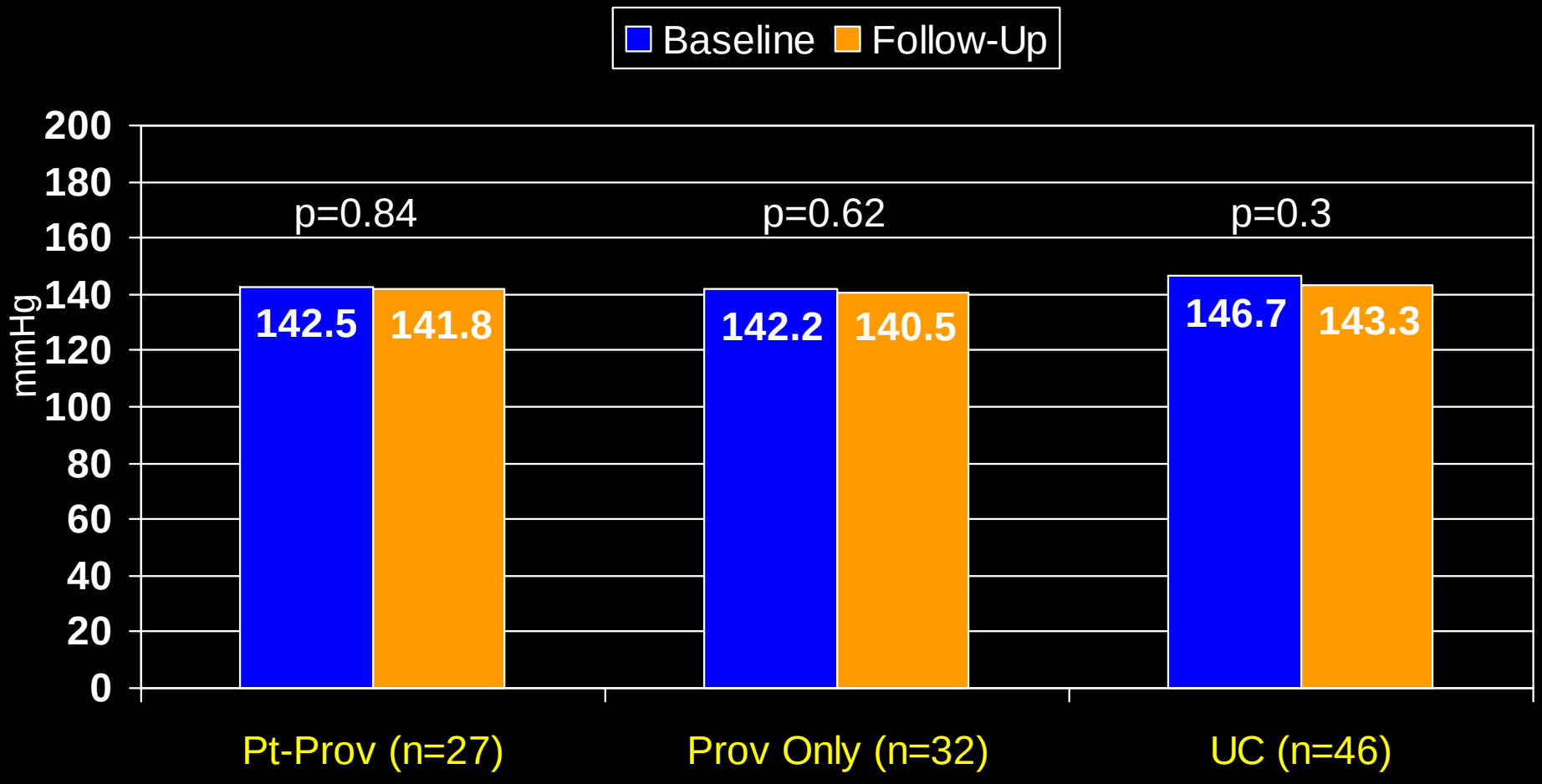
GLM results (effect of group): p=0.12
(effect of group is adjusted for clustering of patients within practice, age, insulin use, and baseline HDL)

Change in Mean Non-HDLc



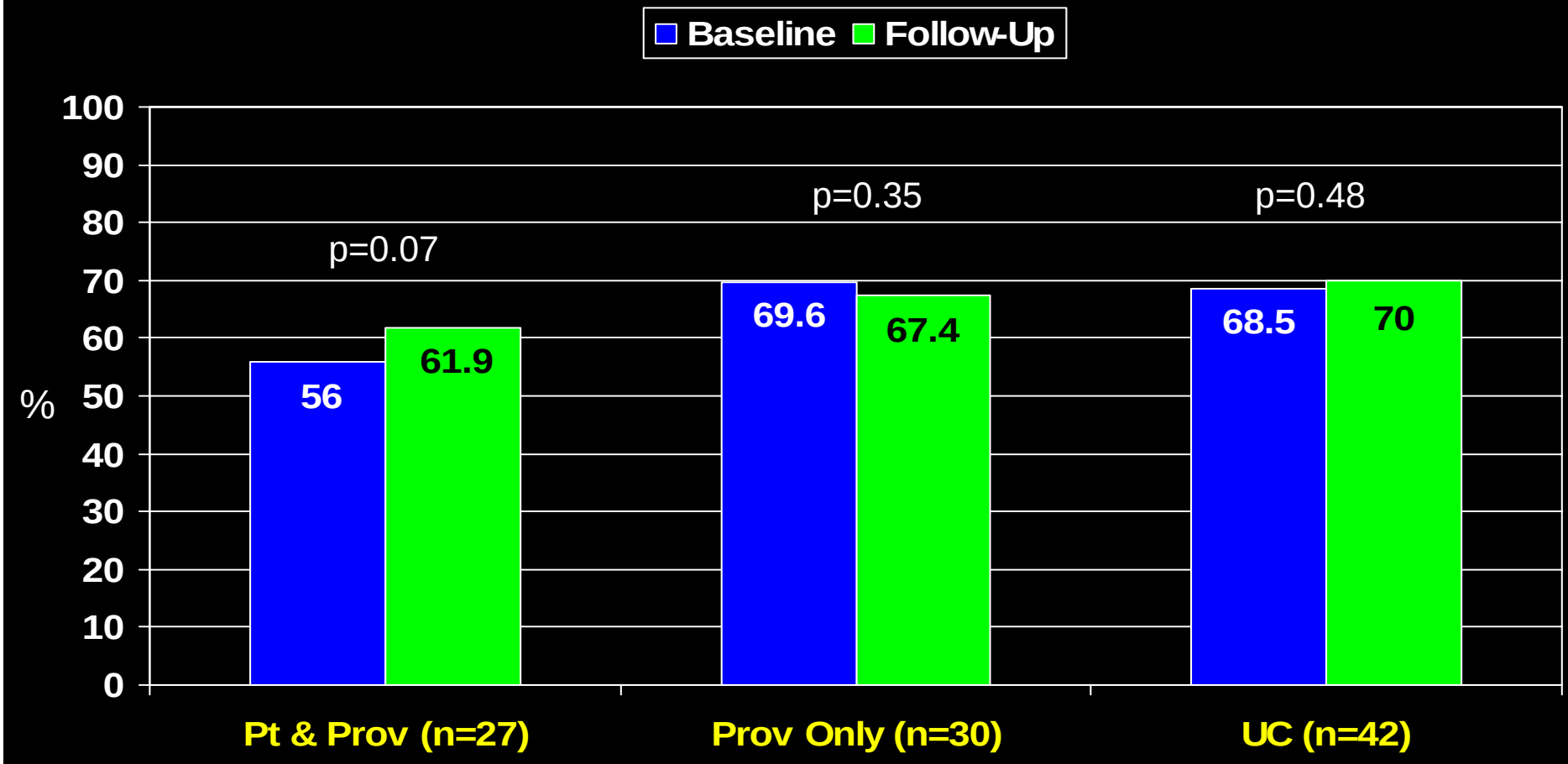
GLM results (effect of group): p=0.008
(effect of group is adjusted for clustering of patients within practice, age, insulin use, and baseline Non-HDL)

Change in Mean Systolic Blood Pressure by Group



GLM results (effect of group): p=0.31
(effect of group is adjusted for clustering of patients within practice, age, and insulin use)

Change in Diabetes Knowledge Score by Group



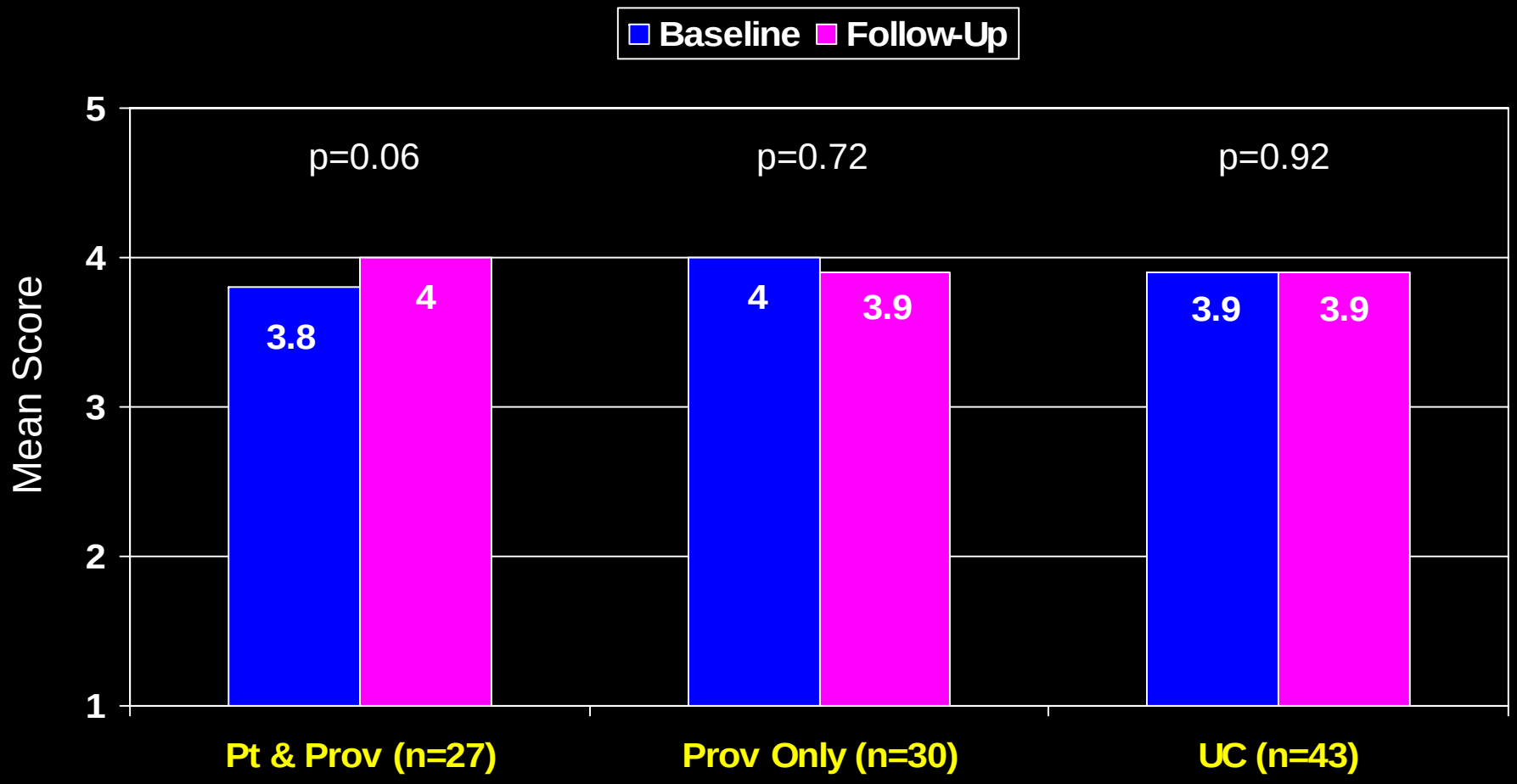
GLM results (effect of group): p=0.88
(effect of group is adjusted for clustering of patients within practice, age, insulin use, and baseline DKT 14 score)

Diabetes Empowerment Scale

- Measure of diabetes-related psychosocial self-efficacy
  - Managing Psychosocial aspects of diabetes
  - Assessing dissatisfaction and readiness to change
  - Setting and achieving diabetes goals

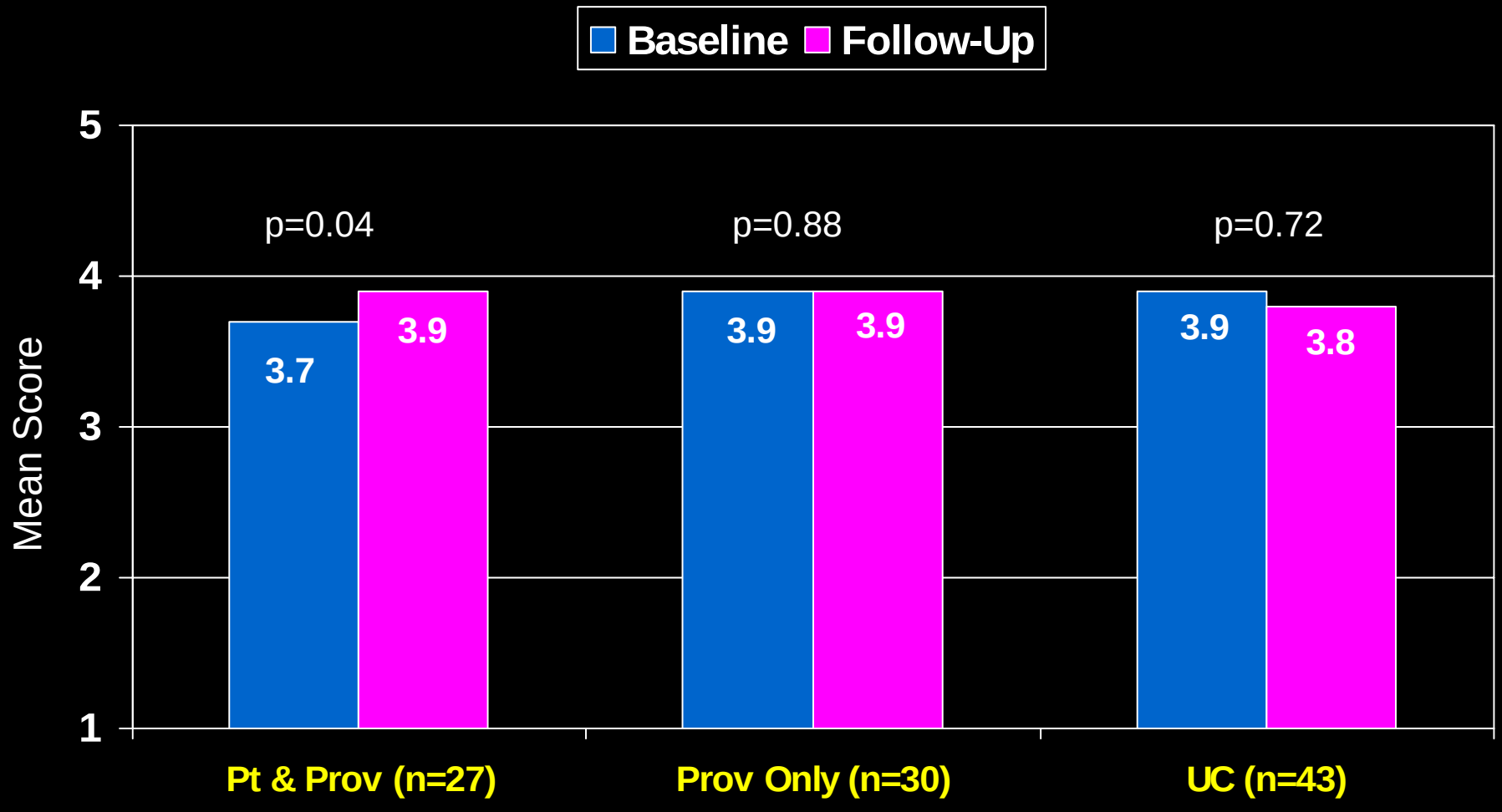
Anderson, et al. Diabetes Care. 2000.

Change in Mean Total Empowerment Score by Group



GLM results (effect of group): p=0.72
(effect of group is adjusted for clustering of patients within practice, age, and insulin)

Change in Assessing Dissatisfaction and Readiness to Change Score by Group



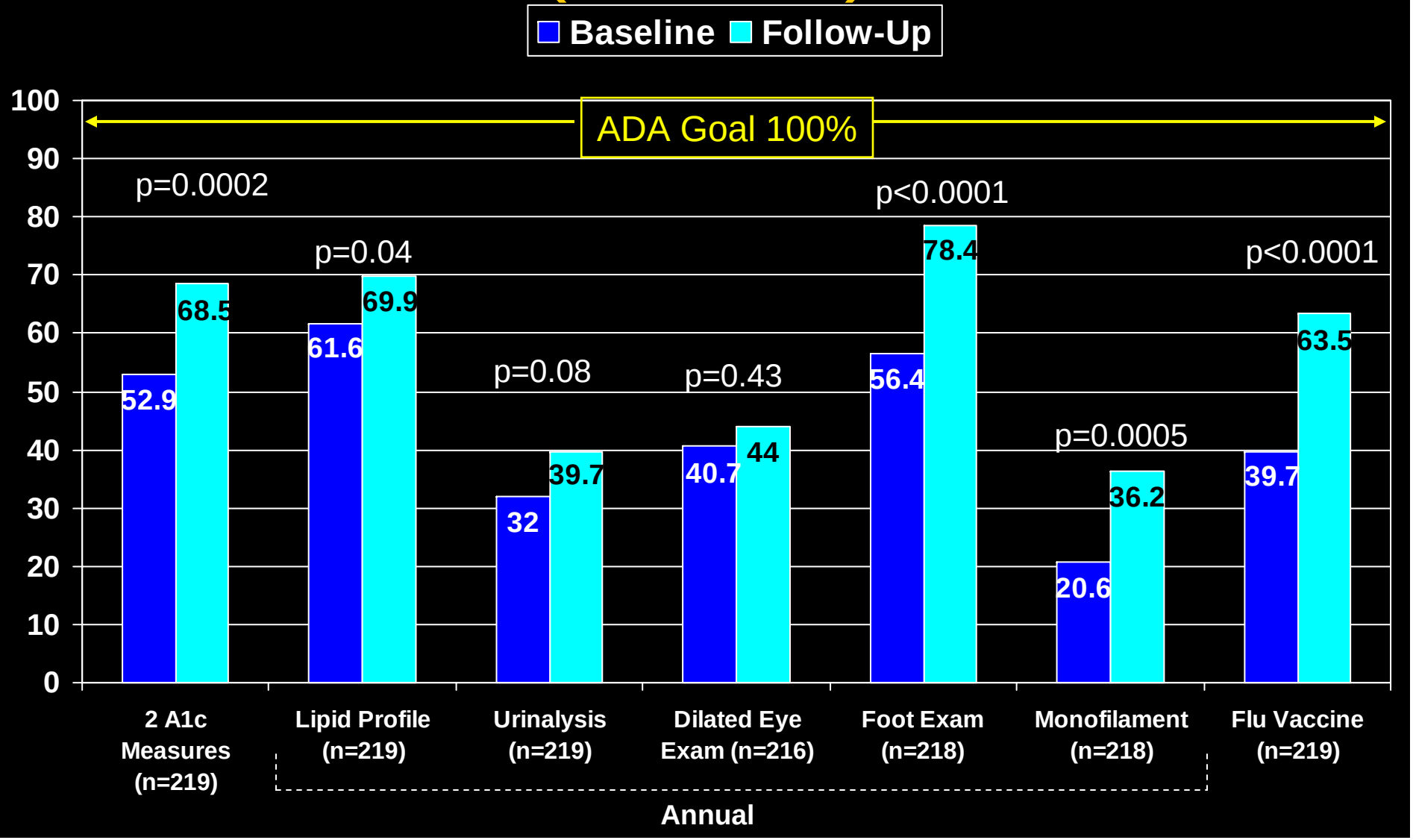
GLM results (effect of group): p=0.83
(effect of group is adjusted for clustering of patients within practice, age, and insulin)

Primary Care Practice Results

CDE Utilization in Clinical Practices Over 6 months

Intervention Practices n=3	Subjects Eligible from Chart Audit	Subjects who took part in clinical trial	Patients Seen at Point of Service (diabetes days)
Practice 1 (Hospital-based clinic)	56	1 (1.8%)	36 (64%)
Practice 2 (Group practice)	238	26 (11%)	36 (15%)
Practice 3 (Solo practitioner)	39	3 (9%)	34 (87%)

Change in Provider Behavior (Overall)



Summary of Clinical Trial Results

- Patients (intervention group)
  - ↓ in mean A1c
  - ↑ in mean HDLc
  - ↑ in mean Diabetes Knowledge score
  - ↑ in mean Empowerment (total and subscales) score
- Providers (overall)
  - Improvement in all processes of care

Limitations

- Small sample size
- Limited by volunteer participation of providers and patients (inherently may be more motivated)
- Chart audit results may be limited by recording bias
- Chart audit data may not reflect full impact of diabetes educator due to short follow-up

Mrs. M

- Age : 77
- Caucasian
- Completed high school
- Low income(<20,000/year)
- Widowed
- Saw PCP regularly for hypertension follow-up
- Duration of diabetes: 2 years
- No diabetes complications

Did Mrs. M Change?

Baseline		***Follow-Up***
Clinical		Clinical
HbA1c (%):	12.2	8.5 (addition of glyburide)
HDL (mg/dL):	41	47
Blood Pressure: (mm/Hg)	166/70	146/67 (addition of amlodipine)
Utilization		Utilization
Podiatrist	no	yes
Dietitian	no	yes
Educator	no	yes
Knowledge		Knowledge
Diabetes Knowledge Test:	57%	57%
Behavior		Behavior
Self monitor	no	yes monitors: 5 days/week
Empowerment		Empowerment
Psychosocial	2.3	3.9
Change	3.6	4.0
Goals	3.2	3.9

Translation of the Model

Breaking through the Barriers

Collaborations

- Community
  - Community stakeholders hold the key to access and implementation
- Providers
  - Peer leaders

Know the Community

- Define the community
- Understand the characteristics of the community
- Develop relationships with stakeholders
- Work within the community
  - Understand resources available
    - What is working
    - Identify gaps
    - Enhance access

Be Flexible

- Maintain an open mind
- Develop an intervention that can be adapted to both the practice and community.
- Collaborate with the provider to meet their needs
  - Identify what *they* see as barriers to diabetes care and attempt to address them
- Recognize patient needs
- Assist providers in developing *their* own targets
  - Using information systems to identify gaps
- Offer service to enhance and/or add to what they are already doing

Be Patient

- Developing collaborative relationships takes time.
- Long term benefit for patients and providers is the reward.
- Sustainability
  - Maintain collaborative relationships
  - Be creative (practice redesign)
  - Explore mechanisms to assure fiscal responsibility

Investigators and Staff

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