

Linking Pharmacy Practice Research to Education

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Objectives

- ③ **Honestly assess the relationship between pharmacy practice and education**
- ③ **Determine the role research has to play in informing practice and education**
- ③ **Understand how research data from practice needs to influence educational content and methods**

What is the relationship ?

Pharmacy

Practice

?

Education

Research

Successful change starts with seeing and understanding reality

- 1. Six, seven, eight, nine or ten years of university/training yet 80% only count and pour**
- 2. Dispensing does not meet the criteria for professional behavior.**
- 3. Dispensing systems are faster and more accurate when pharmacists are not involved**
- 4. Less than 1% of patients on any given day are inpatients, yet we teach to prepare for acute care settings**

Realities (continued)

- 5. We prepare students to implement and administer clinical pharmacy services that are not based on patient need.**
- 6. Counseling patients does not have a lasting impact on patient behavior.**
- 7. We teach students to increase compliance in patients before we assure the medication is appropriate, effective and safe.**
- 8. Practice is a physical setting, personality dependent, anything we want it to be.**

“If that is where I was going, I certainly wouldn’t be starting from here.”

RULE # 1

**YOU HAVE TO HAVE A
PRACTICE TO
UNDERSTAND THE
RELATIONSHIP
BETWEEN PRACTICE
RESEARCH AND
EDUCATION**

Healthcare System

Product
\$\$

Patient Care Services
\$\$\$\$\$\$

Capitalism

Patient Care Practice

Competition

Pharmacy

Documentation

Marketing

Evaluation

Technology

Reimbursement

Pharmaceutical Care Practice

Think like a practitioner

Pharmacotherapy Workup

Act like a practitioner

Standards of Practice

Speak like a practitioner

Practice Vocabulary

TERMINOLOGY

**Counseling
Generalist
Specialist
Practice
Care**

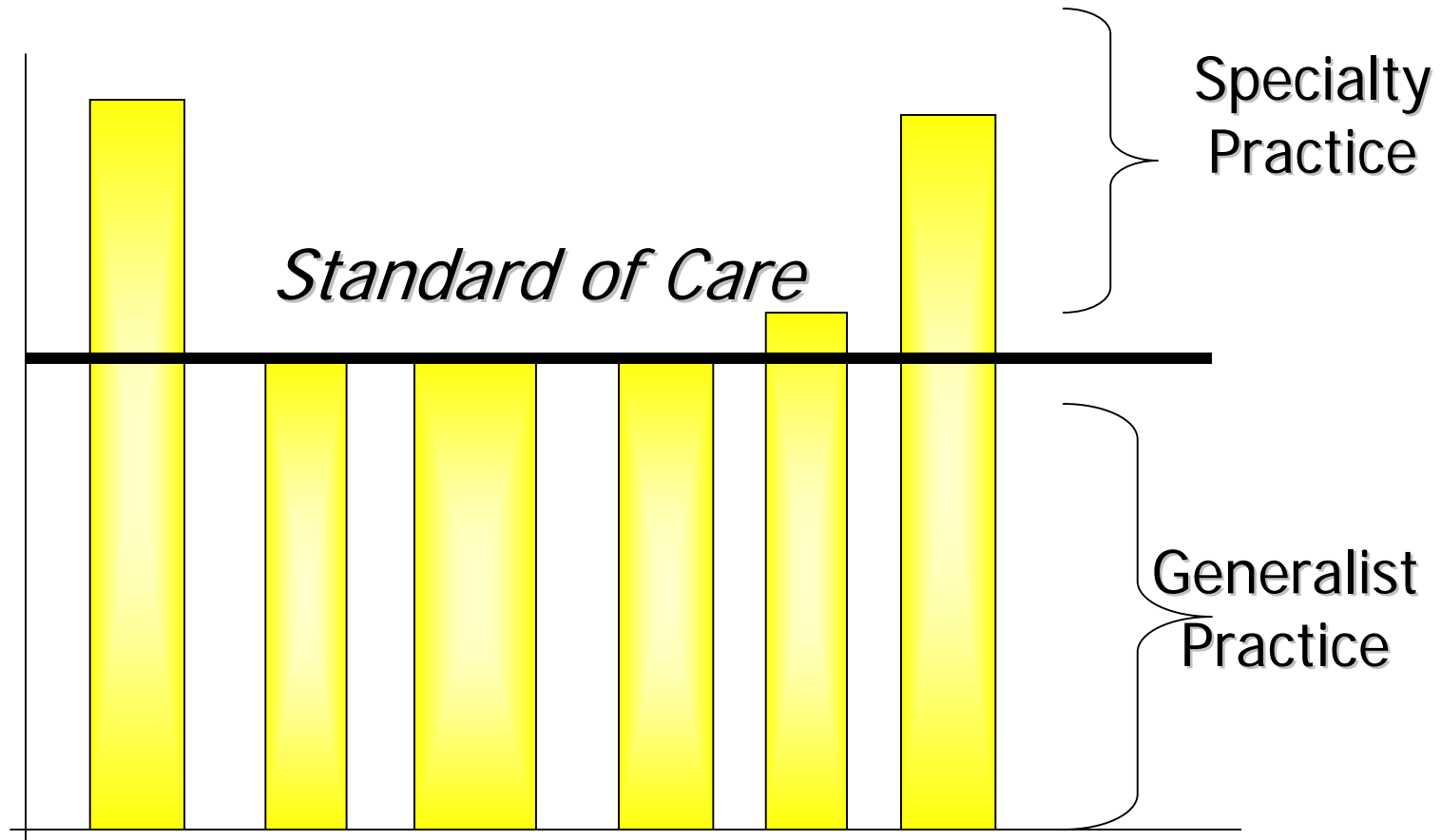
GENERALIST PRACTITIONER

A practitioner who provides continuing, comprehensive, and coordinated care to a population undifferentiated by gender, disease, or organ system.

American Boards of Family Practice and Internal Medicine
(ABFP and ABIM)

Patient Care Practice

Patient
Complexity
(Need)



DEFINING PHARMACEUTICAL CARE

Defined as a practice¹ in 1997

Pharmaceutical care is a patient-centered practice in which the practitioner assumes responsibility for a patient's drug-related needs and is held accountable for this commitment.²

¹Cipolle, R.J., Strand, L.M., Morley, P.C. (1998). Pharmaceutical Care Practice. New York: McGraw Hill.

²Cipolle, R.J., Strand, L.M., Morley, P.C. (2004). Pharmaceutical Care Practice: The Clinicians Guide New York: McGraw Hill.

Pharmaceutical Care Practice

Patient



Today's wants
and needs

Responsibilities

Medication
Experience

Assessment

Care Plan

Follow-up
Evaluation

Pharmacotherapy
Workup

Practitioner



Philosophy of Practice

Social Obligation

Responsibilities

Patient-centered
approach

Caring

Therapeutic Relationship

THE CURRENT STATE OF PHARMACEUTICAL CARE IN THE USA

**The profession accepted it as its
future**

(1990)

**All colleges of pharmacy must teach
to it**

(2000)

Reimbursement is realized

(2006)

PRACTICES DEVELOPED IN THE USA

(ACCORDING TO THE LEGISLATED DEFINITION OF MTM)

- 1. Must meet training credentials**
- 2. Service must be provided separate from dispensing**
- 3. Must have private, separate space devoted to patient**

PRACTICES DEVELOPED IN THE USA

(ACCORDING TO THE LEGISLATED DEFINITION OF MTM)

- 4. Service must include an assessment, identification of drug therapy problems, care plan, and follow-up evaluation.**
- 5. Services must be documented according to established standards**
- 6. Billing must be based on the resource-based relative value scale (RBRVS) and use current procedural codes (CPT)**

PRACTICES DEVELOPED

- ◎ **Over 100 different practices in the state of Minnesota**
- ◎ **Soon there will be 50 practices in the state of North Dakota**
- ◎ **Practices in Mississippi, North Carolina, Texas, Utah, Michigan, Wisconsin, Kentucky, Pennsylvania, New Jersey**
- ◎ **Canada, Puerto Rico, Brazil, Chile, Iceland, Spain**

SOME PRACTICE FACTS

- ③ **24% of the medications taken by patients in the ambulatory care settings is associated with a drug therapy problem**
- ③ **70% of the patients seen in ambulatory care have a drug therapy problem preventing them from achieving the desired goals of therapy**
- ③ **80% of patients' drug therapy problems have nothing to do with adherence problems**

Pharmaceutical Care Process

Documented with Assurance Pharmaceutical Care system

patent pending 600.645



Continuous Follow-up

PATIENTS RECEIVING PHARMACEUTICAL CARE SERVICES

JANUARY 2003 - DECEMBER 2004

3506 Patients

6987 Documented Visits

66% Female and 34% Males

Average Age = 64 years (5 to 96 years old)

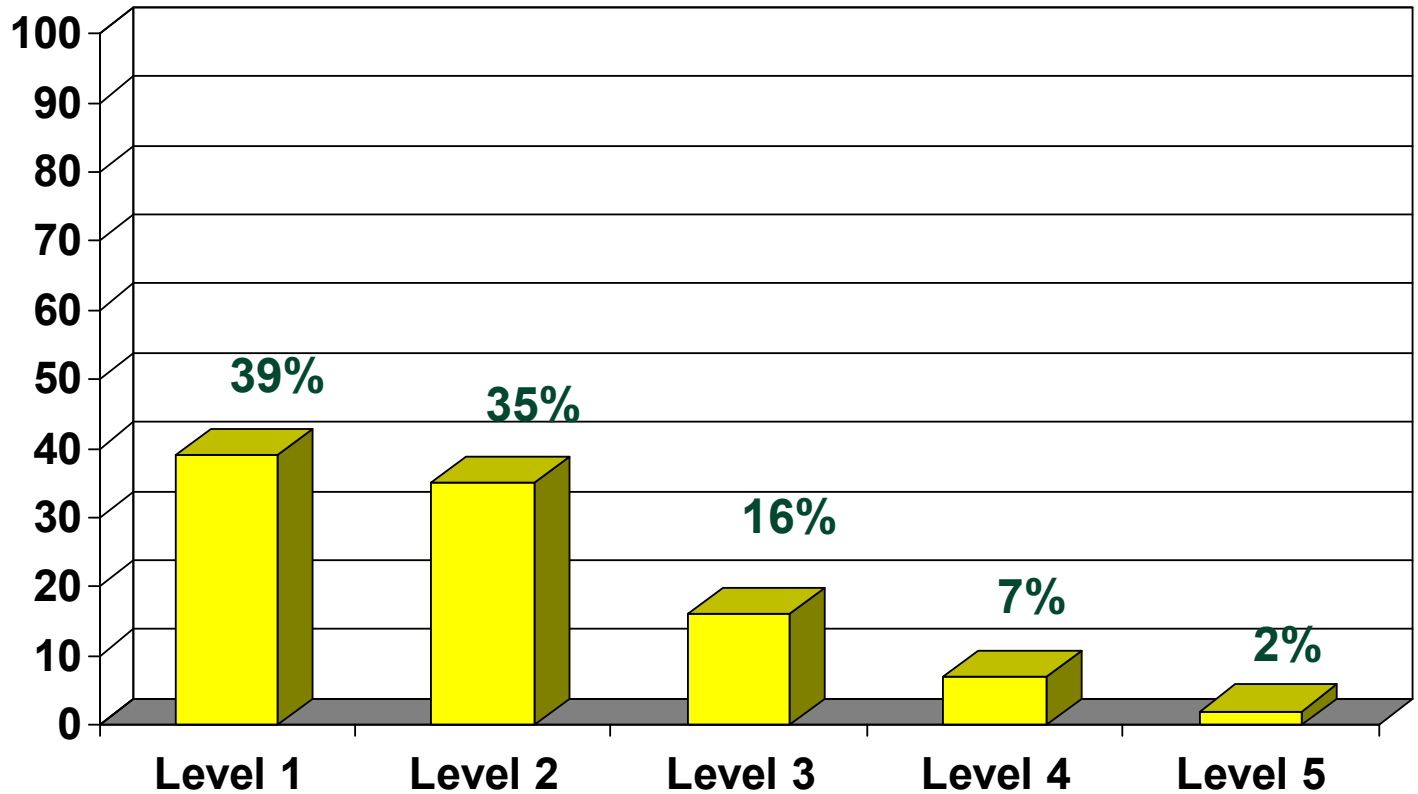
Average Number of Medical Conditions = 7

Average Number of Active Medications = 12

WORKLOAD BASED ON PATIENT COMPLEXITY

(CONDITIONS, MEDICATIONS, DRUG THERAPY PROBLEMS)

% of Patient Visits



Resource-based Relative Value Scale

NUMBER OF MEDICAL CONDITIONS (N=1122 PATIENTS)

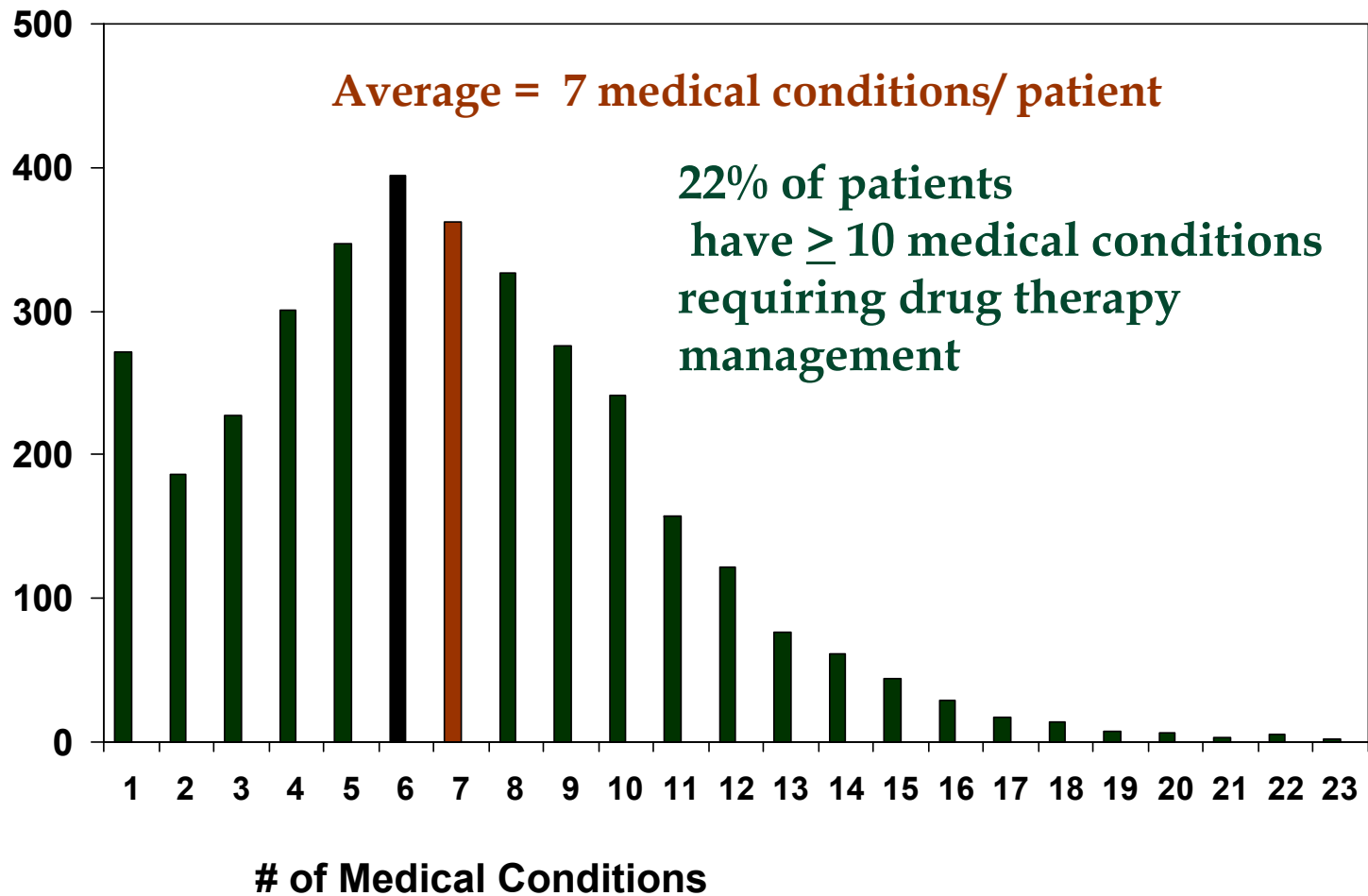
Varied from 1 to 23

Average = 7

Median = 7

NUMBER OF MEDICAL CONDITIONS PER PATIENT

of Patients



MOST FREQUENT INDICATIONS FOR DRUG THERAPY

(N=3506 PATIENTS)

1. Hypertension
2. Hyperlipidemia
3. Diabetes
4. Osteoporosis
5. Esophagitis
6. Depression
7. Prevention of MI or Stroke
8. Allergic Rhinitis
9. Arthritis Pain
10. Insomnia

The 10 most frequent indications represent 51% of the conditions being managed with drug therapies.

MOST FREQUENT INDICATIONS FOR DRUG THERAPY

(N=3506 PATIENTS)

11. Hypothyroidism

12. Pain-general

13. Constipation

14. Menopausal symptoms

15. Asthma

16. Anxiety

17. Osteoarthritis

18. Stroke - CVA

19. Back pain

20. Angina pectoris

The 20 most frequent indications represent 70% of the conditions being managed with drug therapies.

NUMBER OF MEDICATIONS

(N=3506 PATIENTS)

Varied from 0 to 35.

Average = 12

Median = 12

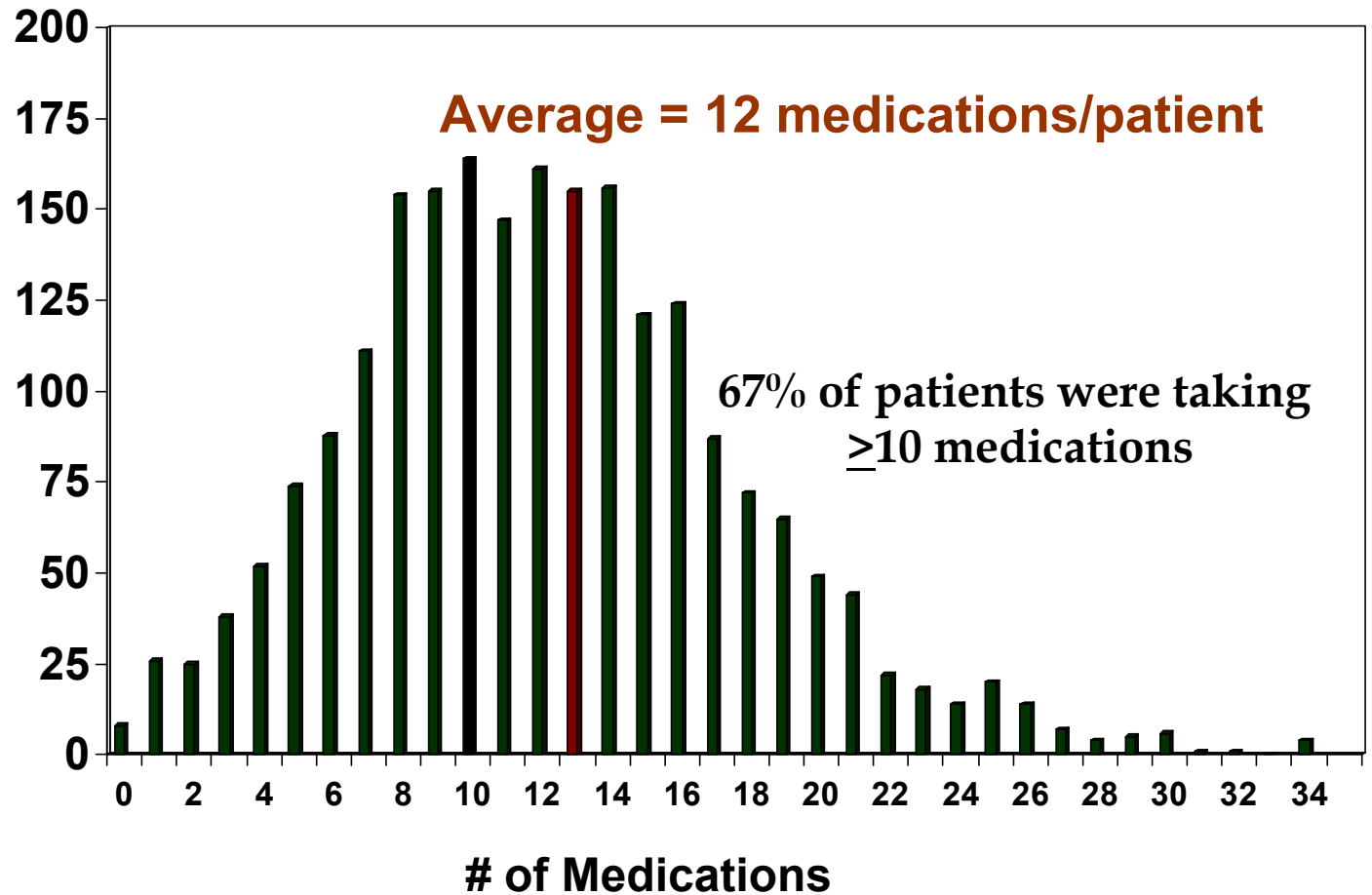
85% of patients were taking ≥ 5 meds

67% were taking ≥ 10 meds

31% were taking ≥ 15 meds

PHARMACEUTICAL CARE SERVICES FREQUENCY OF PATIENTS BY NUMBER OF MEDICATIONS (N=3506 PATIENTS)

of
Patients



OTHER MEDICATION INFORMATION

(N=3506 PATIENTS)

- ◎ **2562 patients (73%) were taking 10,598 different OTC medications**
- ◎ **295 patients (8%) were also using 624 different sample products to manage their medical conditions**
 - 93 (15%) of samples were being used to manage diabetes**

DRUG THERAPY PROBLEMS

N=3506 PATIENTS

6383 were identified and resolved

2436 patients (69%) had ≥ 1 drug therapy problem

864 patients (25%) had ≥ 3 drug therapy problems

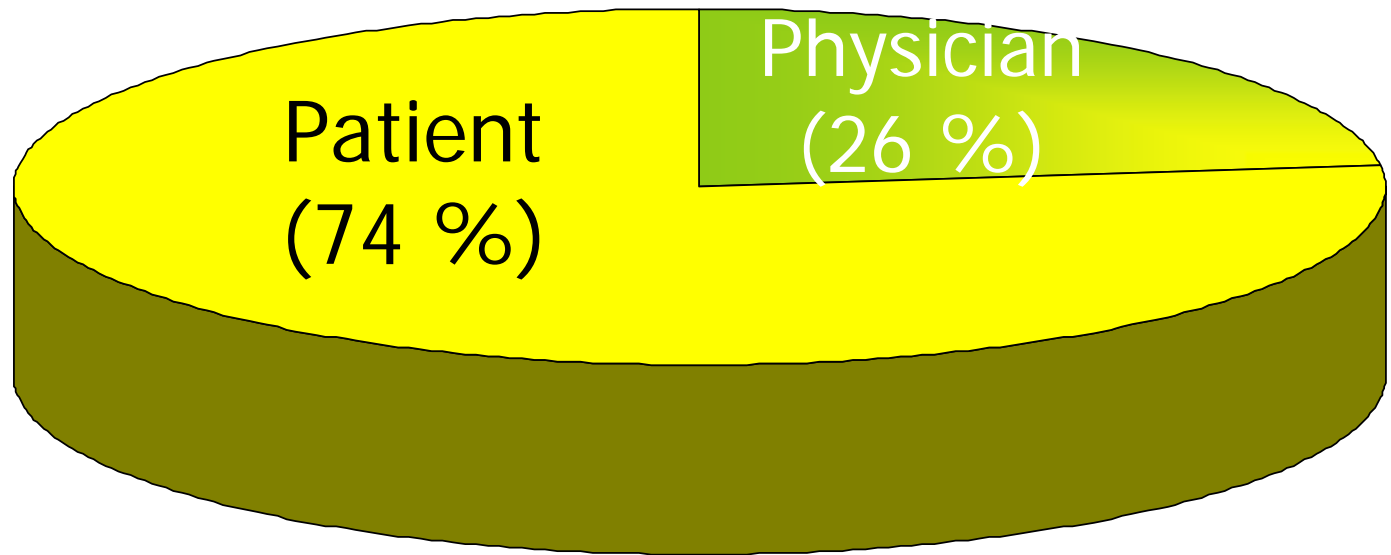
325 patients (9%) had ≥ 5 drug therapy problems

DRUG THERAPY PROBLEMS (DTP)

(N =3506 PATIENTS WITH DIABETES, 6987 ENCOUNTERS)

		<u># of DTP</u>	<u>%</u>
INDICATION	○ Unnecessary Drug Therapy	369	6%
	○ Needs Additional Drug Therapy	2184	34%
EFFECTIVE	○ Ineffective Drug	548	9%
	○ Dosage Too Low	1278	20%
SAFETY	○ Adverse Drug Reaction	508	8%
	○ Dosage Too High	373	6%
ADHERENCE	○ Noncompliance	1123	17%
	Total	6383	100%

PRIMARY CONTACT TO RESOLVE DRUG THERAPY PROBLEMS

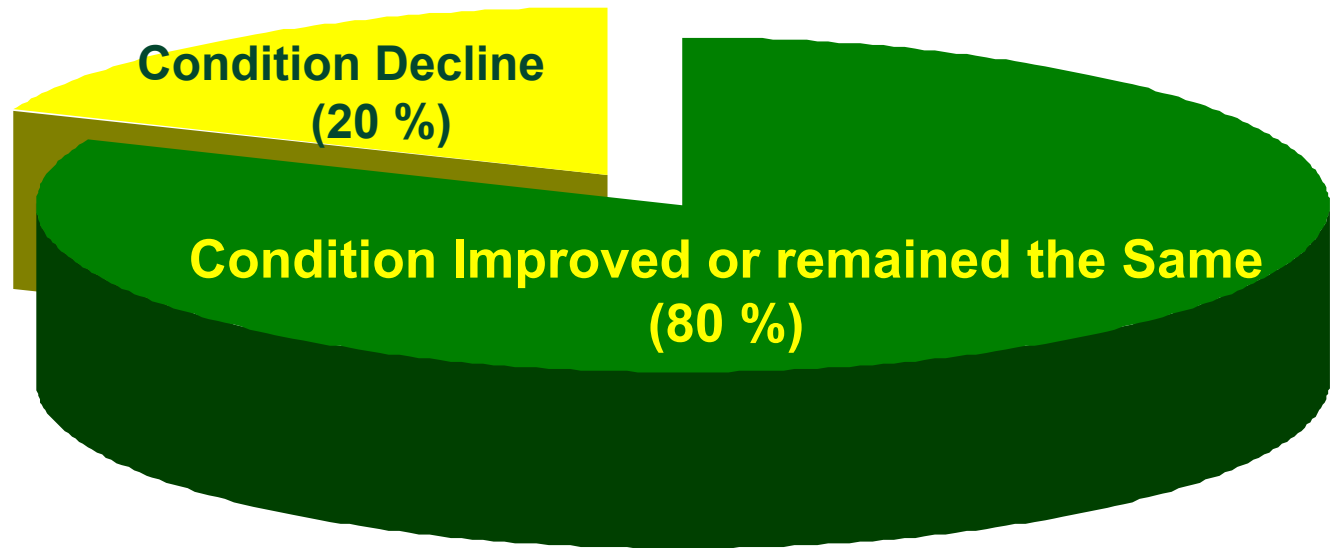


Actions Required to Resolve Drug Therapy Problems with Physicians

Initiate new drug therapy	37%
Change drug dosage regimens	26 %
Change drug product	17 %
Discontinue drug therapy	12 %
Initiated monitoring plan	4 %
Other	5 %

CHANGE IN CLINICAL STATUS AT FOLLOW-UP

4414 MEDICAL CONDITIONS NOT AT GOAL WHEN ENROLLED IN PROGRAM
(1385 PATIENTS)



MTM: HEALTH CARE SAVINGS

Health Care Savings	3506 Patients with Diabetes 6987 encounters January 2003 - December 2004	
	# of events	\$\$\$
Laboratory service avoided	105	\$
Urgent care visit avoided	29	\$\$
Employee work days saved	87	\$\$
Clinic outpatient visit avoided	1809	\$\$\$
Specialty office visit avoided	341	\$\$\$\$
Emergency department visit avoided	31	\$\$\$\$\$\$
Hospital admission avoided	3	\$\$\$\$\$\$\$
Total	2405	\$\$\$\$\$\$\$\$



SUMMARY

- **Understand the basics of pharmacy practice in order to optimize educational goals**
- **Look to pharmacy practice research data to inform the educational process**
- **Let the rules of patient care be the focus of the curriculum**