

Northwestern University Feinberg School of Medicine

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# What Patients Think Doctors Know: Beliefs About Provider Knowledge as Barriers to Safe Medication Use

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# Background

- One half of all US adults take daily prescription medications
- Medication non-adherence, misunderstanding and misuse are extremely common
- Patients at highest risk for adverse medication events are older adults and those with low health literacy



# Background

Safe medication use starts at the point of prescribing and depends on:

- 1) *Patient* disclosure of all medications in their regimen to the physician
- 2) *Physician* counseling on proper use and side effects
- 3) Effective two-way *patient* and *physician* communication



# Background

- Known gaps in patient-provider communication about medications
- Precise reasons for the gaps are not well-known

Patient and/or provider behavior

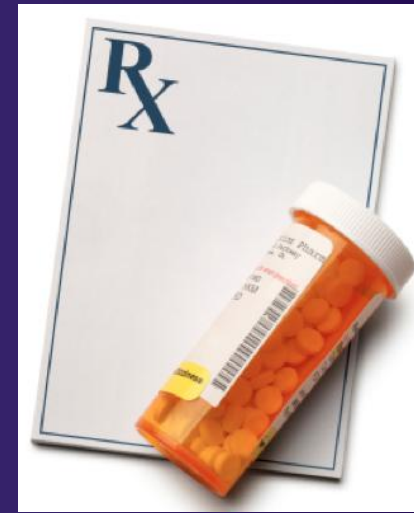
Patient preferences and beliefs

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# Objective

To assess:

- 1) Patient beliefs about provider knowledge of their medication regimen
- 2) Patient-reported rates of communication about medications with physicians and pharmacists
- 3) *The impact of electronic health record (EHR) on these outcomes*

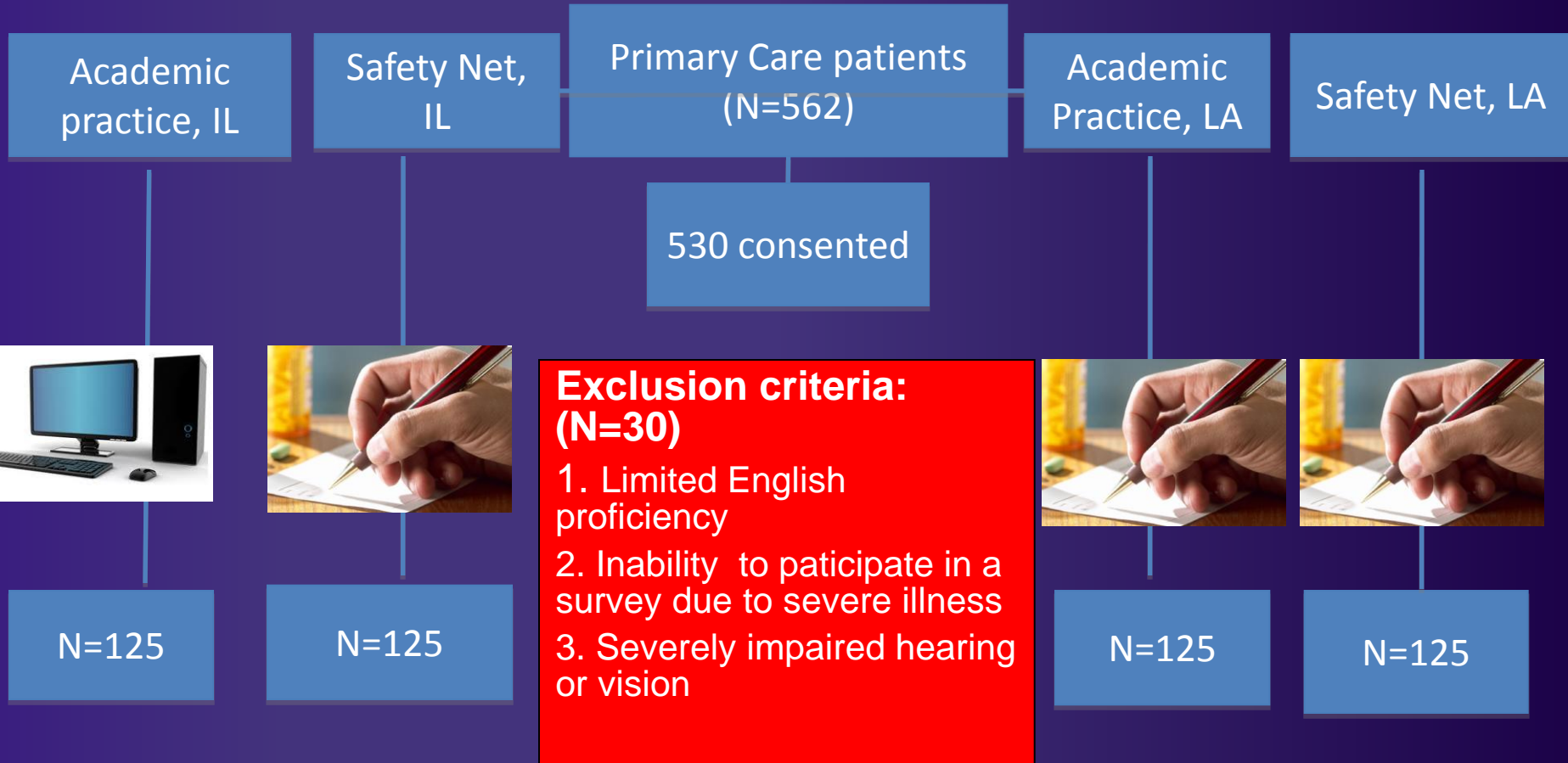




# Study Design

- Cross-sectional study of adult patients who attended one of four outpatient primary care clinics in Shreveport, LA and and Chicago, IL
- Participants were recruited between June and August of 2007

# Study Design and Population



Subset of patients (N=190) with recent prescriptions asked additional communication outcomes





# Assessment

- Baseline and Demographic Information (N=500)
    - Age
    - Gender
    - Race
    - Education
    - Number of current prescriptions and prescribing physicians
  - Health Literacy (N=500)
    - Test of Functional Health Literacy in Adults
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# Assessment

- 1) Beliefs about provider knowledge of their medication regimen (N=500)
- 2) Medication-related communication with physicians and pharmacists (N=190)



# Analysis

- Descriptive statistics calculated for each variable
- Chi-square tests were used to evaluate the association between sample characteristics and item responses
- Multivariable logistic regression models performed for each belief and communication outcome found in bivariate analyses to be significant at  $p < 0.10$



# Sample Characteristics

Variable		All Patients (N=500)	Patients with Recent Prescription (N=190)
Age, Mean (SD)		48.9 (14.4)	48.0 (14.2)
Male, %		39.6	35.1
Race, %			
	Black	63.6	58.4
	White	32.8	36.8
	Other	3.6	4.8
Years of Education, %			
	< High School	19.4	22.0
	High School	33.2	31.3
	Some College	20.4	20.9
	College Graduate	26.6	25.8
Literacy Level, %			
	Inadequate ( $\leq 6^{\text{th}}$ grade)	20.9	19.5
	Marginal ( $7^{\text{th}} - 8^{\text{th}}$ grade)	31.6	26.5
	Adequate ( $\geq 9^{\text{th}}$ grade)	47.5	54.0



# Sample Characteristics

Variable		All Patients (N=500)	Patients with Recent Prescription (N=190)
Daily Medications, Mean (SD)		2.9 (3.1)	4.0 (3.6)
<b># of Prescribing Physicians</b>			
0		11.4*	1.6**
1		65.6	67.0
2		16.3	20.5
≥ 3		6.7	10.8
<b>Clinic Type, %</b>			
Academic		50.0	35.1
Safety Net		50.0	64.9

\*no regularly prescribing physician, \*\*no prescription medications



## Patient Beliefs About Provider Medication Awareness (N=500)

Item		Total %
	Doctor is aware of all medicines I am taking	90.2
	Doctor is aware of all OTC drugs I am taking	85.4
	Doctor is aware of medicines prescribed by other doctors	91.3

OTC=over the counter



# Medication-Related Communications as Reported by Patients (N=190)

Patient Communication		Physician Communication		Pharmacist Communication	
Item	%	Item	%	Item	%
Told doctor about OTC drugs currently taking	46.0	Reviewed medication list	51.3	Explained how to take medicine	43.3
Told doctor about supplements or vitamins currently taking	34.1	Explained how to take medicine	77.4	Described side effects	25.8
		Described side effects	42.9		



## Factors Associated with Believing Physicians Knew About All Current Medications:

- Higher number of physicians ( $p=0.01$ )
- Higher number of daily medications ( $p=0.004$ )
- Receiving care at academic practices ( $p=0.04$ )

## Factors Associated with Low Rates of Patient Reporting of Over-the-Counter (OTC) Drugs:

- Younger Age ( $p<0.001$ )
  - Black Race ( $p<0.01$ )
  - Inadequate Health Literacy ( $p<0.001$ )
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## Factors Associated with Medication-Related Communications with Physicians:

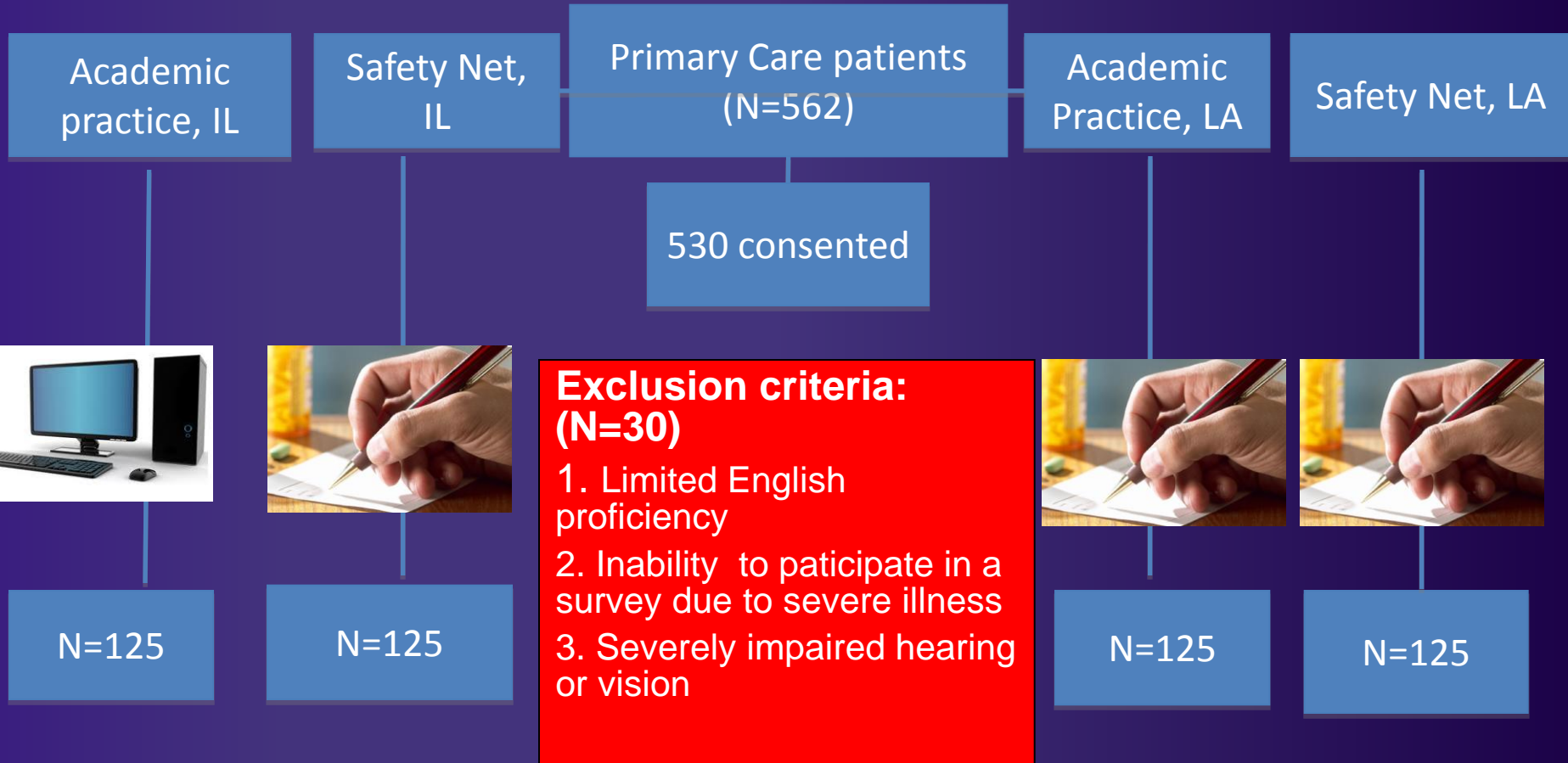
- **Academic clinic patients** more likely to report medication list review ( $p < 0.001$ )
- **Academic clinic patients** ( $p = 0.01$ ) and those taking **multiple medications** ( $p = 0.03$ ) more likely to report that the doctor explained how to take medicine
- No significant predictors of medication-related communication with pharmacists



# Multivariable Analysis

- **Patients age < 45** (OR 0.6,  $p=0.05$ ) and with **Inadequate Health Literacy** (OR 0.5,  $p=0.02$ ) less likely to report use of OTC medications to the physician
- **Females** more likely to believe physicians knew all of their medications (OR 2.8,  $p=0.02$ )
- **Safety net clinic patients** less likely to believe physicians knew all of their medications (OR 0.2,  $p=0.006$ )

# Study Design and Population



Subset of patients (N=190) with recent prescriptions were asked additional communication outcomes



# Exploratory Analysis: Presence of Electronic Health Record (EHR)

**EHR-equipped clinic patients with a new  
prescription more likely to believe:**

Doctor was aware of:

- **all medications** (97.6% vs. 87.7%,  $p=0.001$ )
- **OTC drugs** (91.7% vs. 83.4%,  $p=0.03$ )
- **medications from other physicians** (95.8% vs. 89.8%,  
 $p=0.04$ )





# Exploratory Analysis: Presence of Electronic Health Record (EHR)

- Medication list review (78.9% vs. 42.3%,  $p < 0.001$ )
- Physician instructions on proper use (90.8% vs. 70.4%,  $p < 0.001$ )





# Summary

- Wide gap between what patient *believe* physicians know about their medications and what they *actually report* to the physicians
- Patients reported low rates of medication list review, instructions on proper use, and discussion of side effects



# Summary

- Inadequate health literacy was a risk factor for low rates of reporting OTC medications
- EHR had positive effects on medication list review and discussion of side effects, however, more likely for patients to believe that physicians knew all of the medications



# Limitations

- Cross sectional study
- Unable to establish causality
- Patient recall, did not actually record encounters
- No data on provider beliefs





# Practice Implications

- Room for improvement in patient-provider communication
- EHR may facilitate medication list review but does not obviate the need for a thorough in-person discussion
- Future studies should further explore impact of EHR on patient-provider communication



# Thank You

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