

Clinician Medication Preferences in a Complex Patient

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Background

Clinical Practice Guidelines

- Common, chronic diseases
- Basis for quality measures
- Developed for single diseases¹
- Rarely address comorbidities

¹ Allison. Medical Care. 2003; 41(5): 575-8.

Background

- Multiple chronic diseases are common
 - Half of Medicare patients >65yo with ≥ 3 chronic medical problems, 20% with $\geq 5^2$
 - 125 million with one chronic medical condition and 44% with $\geq 2^2$
- Comorbidities make it difficult to apply multiple guidelines to one patient

² Anderson. *Chronic Conditions: Making the Case for Ongoing Care*. Princeton, NJ: Robert Wood Johnson Foundation's Partnership for Solutions, 2002

Background

- Boyd et al, JAMA 2005³
 - 79yo with COPD, DM-2, OA, osteoporosis, & hyperlipidemia
 - 19 doses, 12 medicines, 5 times/day, \$4877/year; multiple doctors visits and lifestyle modifications
- Generalist physicians must prioritize treatment of complex patients

³Boyd. JAMA. 2005; 294(6): 716-724.

Purpose

To examine clinician medication preferences for a patient with hypertension, diabetes, osteoporosis and hyperlipidemia.

Methods

- Participants
 - Interns, residents and attending physicians from Internal Medicine and Family Medicine training programs
- Instrument
 - Patient vignette with hypothetical patient
 - Clinicians prioritized medication therapy

Methods

- Analysis
 - Analytic Hierarchy Process
 - Step 1: Pair-wise comparisons
 - Step 2: Medication preference ratings
 - Latent Class Analysis
 - Step 3: Group responses into clusters

Patient Vignette

- 69 Year old female presents for routine care
- Doing well, no new complaints
- Adherent to lifestyle recommendations
- Problems
 - HTN
 - DM-2
 - Hyperlipidemia
 - Osteoporosis

Patient Vignette

- Current medications at optimal doses
 - Metformin
 - Lisinopril
 - Aspirin
 - Calcium & vitamin D
- Data
 - Blood pressure: 145/85 mmHg
 - HbA1c: 8.7%
 - LDL: 122 mg%
 - T-score for hip bone density: – 2.6

Patient Vignette

Which additional medication is most important to this patient's overall health?

- Glyburide
- Alendronate
- Simvastatin
- Hydrochlorothiazide

Null Hypothesis

Clinicians will uniformly prioritize treatment for this patient.

Analytic Hierarchy Process

Most Important

Equal

Most Important

Alendronate	9	8	7	6	5	4	3	2	0	2	3	4	5	6	7	8	9	Glyburide
Alendronate	9	8	7	6	5	4	3	2	0	2	3	4	5	6	7	8	9	Simvastatin
Alendronate	9	8	7	6	5	4	3	2	0	2	3	4	5	6	7	8	9	HCTZ
Glyburide	9	8	7	6	5	4	3	2	0	2	3	4	5	6	7	8	9	Simvastatin
Glyburide	9	8	7	6	5	4	3	2	0	2	3	4	5	6	7	8	9	HCTZ
HCTZ	9	8	7	6	5	4	3	2	0	2	3	4	5	6	7	8	9	Simvastatin

Clinician A

Most Important

Equal

Most Important

Alendronate

9 8 7 6 5 4 3 2 0 2 3 4 5 6 7 8 9

Glyburide

Alendronate

9 8 7 6 5 4 3 2 0 2 3 4 5 6 7 8 9

Simvastatin

Alendronate

9 8 7 6 5 4 3 2 0 2 3 4 5 6 7 8 9

HCTZ

Glyburide

9 8 7 6 5 4 3 2 0 2 3 4 5 6 7 8 9

Simvastatin

Glyburide

9 8 7 6 5 4 3 2 0 2 3 4 5 6 7 8 9

HCTZ

HCTZ

9 8 7 6 5 4 3 2 0 2 3 4 5 6 7 8 9

Simvastatin

Clinician A

	Most Important					Equal					Most Important							
Alendronate	9	8	7	6	5	4	3	2	0	2	3	4	5	6	7	8	9	Glyburide
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HCTZ	9	8	7	6	5	4	3	2	0	2	3	4	5	6	7	8	9	Simvastatin

Medication Preference Rating:

Alendronate 0.04, Glyburide 0.57, Simvastatin 0.15, HCTZ 0.24

Results

Characteristics by Training Level

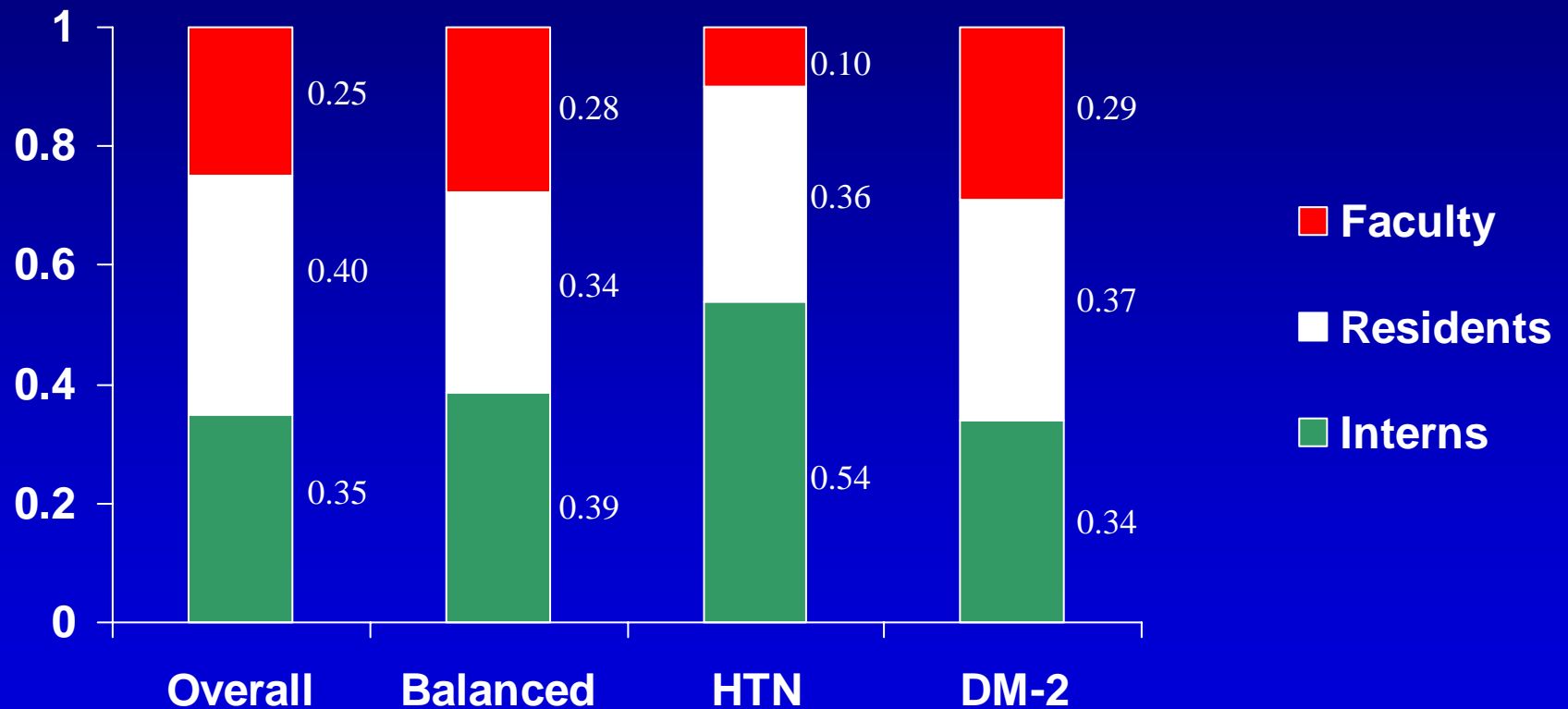
	Interns	Residents	Faculty	p-value
N (%)	33 (35)	37 (40)	23(25)	-----
Age, mean years	27	29	41	0.00
Female, %	40	45	45	0.87
Internal Medicine, %	86	78	87	0.56
Family Medicine, %	13	21	10	

Mean Preference Ratings*

	Cluster Emphasis		
	Balanced N=32	Hypertension N=31	Diabetes N=30
Alendronate	0.24	0.06	0.07
Glyburide	0.26	0.26	0.56
Simvastatin	0.33	0.16	0.16
Hydrochlorothiazide	0.18	0.53	0.21

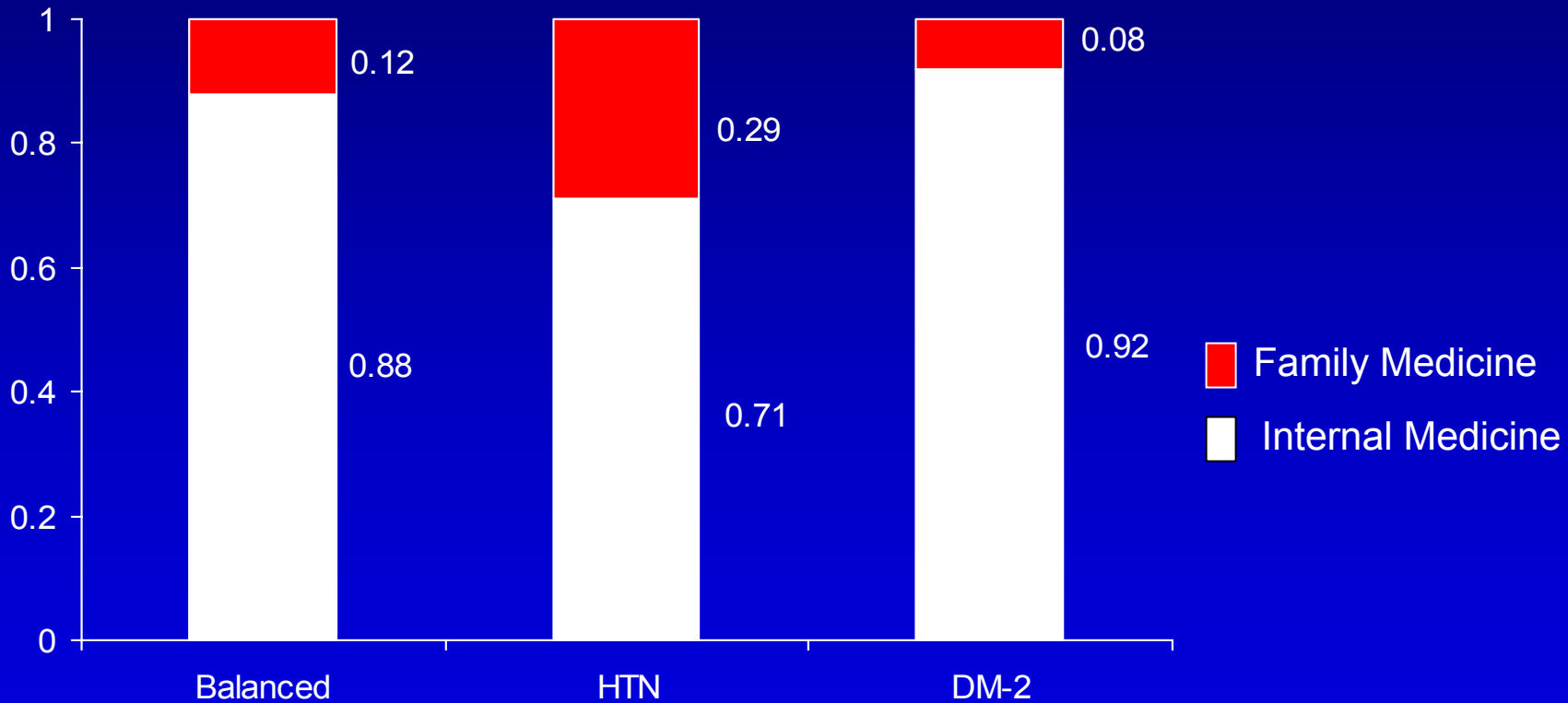
*p < 0.001 for differences in distribution of mean preference ratings across all clusters

Cluster Composition by Training Level



$p=0.034$ for differences within HTN cluster

Cluster Composition by Training Program



$p = 0.016$ for differences within HTN Cluster

Summary

- Clinician preferences fell into three clusters
- Differences in composition of clusters
 - Training programs
 - Level of training

Limitations

- Sample Size
- Generalizability
 - Academic physicians
 - Regional biases
- Hypothetical patient survey

Conclusions

- Feasible to apply this methodology to complex patients
- Clinicians are not uniform
 - Complicates quality assessment
 - Suggests lack of evidence
- Need to explicitly consider patient complexity



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