Racial Disparities in Pain Management in Patients Referred to Hospice

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Objectives

- Quick Overview
  - Disparities
  - Healthcare services
  - Hospice
- Racial disparities in pain management
- What about Hospice
- "Snapshot"
- Current HPCC research

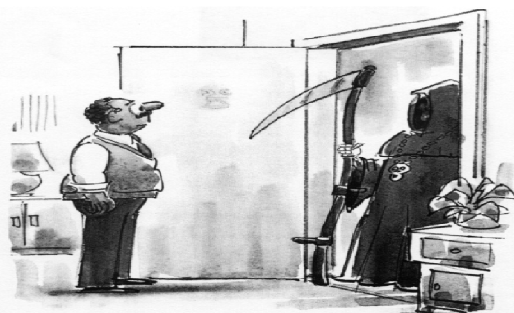
Disparities

- National Institutes of Health (NIH)
  "…differences in the incidence, prevalence, mortality, and burden of disease and other adverse health conditions existing among specific population groups in the US"
- Institute of Medicine (IOM)
  "racial and ethnic differences in the quality of care that are not due to access-related factors or clinical needs, preferences, and appropriateness of intervention"

Disparities exist because of…

1) Health care systems and the legal and regulatory climate in which they operate and
2) *Discrimination* (e.g., biases, stereotyping, and uncertainties in clinical communication and decision-making)

Death does not discriminate…

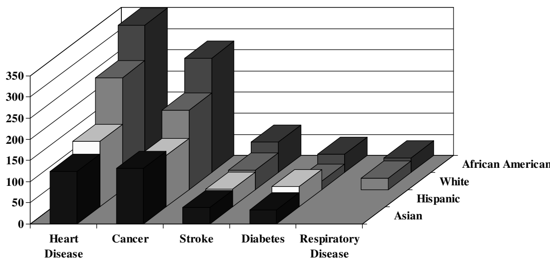


You'll be happy to know that race played no part in this decision

Maybe…How we die - 2002

African Americans	Whites
1. Heart disease	1. Heart disease
2. Cancer	2. Cancer
3. Cerebrovascular	3. Cerebrovascular
4. Diabetes	4. COPD
5. Accidents	5. Accidents
6. Homicide	6. Diabetes
7. HIV/AIDS	7. Influenza and Pneumonia
8. COPD	8. Alzheimer's Disease
9. ESRD	9. ESRD
10. Septicemia	10. Suicide

Death Rates for Chronic Diseases by Race 2003



Source: R Payne

Pub Med Search…3/12/09 "Racial disparities in HC Services"

- 216 hits
- OT
- Tobacco-cessation
- Rx dementia
- Cancer screening
- Cancer care
- Detoxification
- Mental health
- Cardiac revasc
- Asthma
- Diabetes
- Surgical care
- Pediatric hosp
- Hip replacement
- Childhood vacc
- New tech = ICD
- Perforated app
- Transplant

B & W Differences in Specialty Procedure Utilization – Medicare > 65 - 1993

Procedure	B	W	Ratio
Angioplasty (procedures per 1,000)	2.5	5.4	0.46
CABG Surgery (procedures per 1,000)	1.9	4.8	0.40
Mammography (procedures per 100 women/year)	17.1	26	0.66
Hip Fracture Repair (procedures per 100 women/year)	2.9	7.0	0.42
Amputation of All or Part of Limb (procedures per 1,000)	6.7	1.9	3.64
Bilateral Orchiectomy (procedures per 1,000)	2.0	0.8	2.45

Issues in Palliative and End of Life Care in Medically Underserved Communities

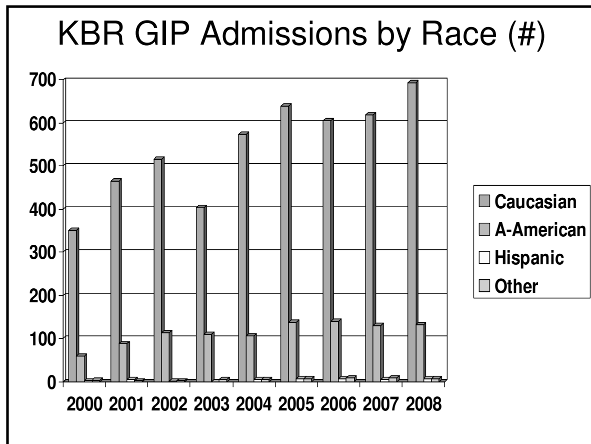
- **Underutilization of hospice and other palliative care services**
  (Facts and Figures on Hospice Care in America: The National Hospice and Palliative Care Organization, 2003)
- **Underutilization of advance directives and other types of advanced care planning**
  (McKinley ED et al. J Gen Int Med 1996;11:651-6)
- **Patient & physician preferences for resource intensive care: aggressive interventions over withdrawing or withholding treatments**
  (Mebane et al. J Am Geriatr Soc 1999;47:579-91)

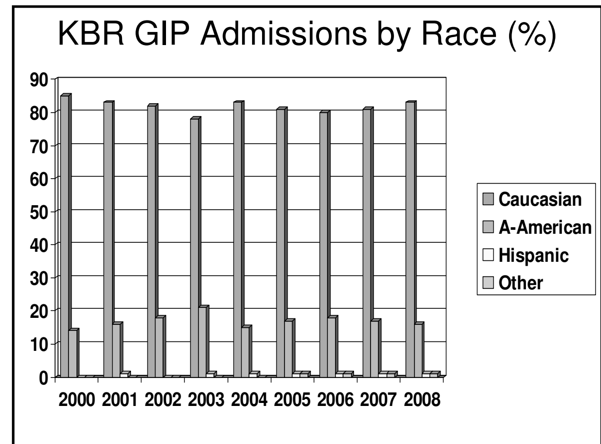
Hospice Utilization by Race

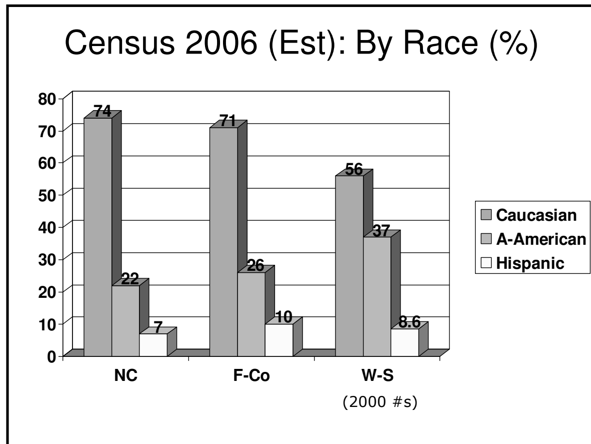
(NHPCO)

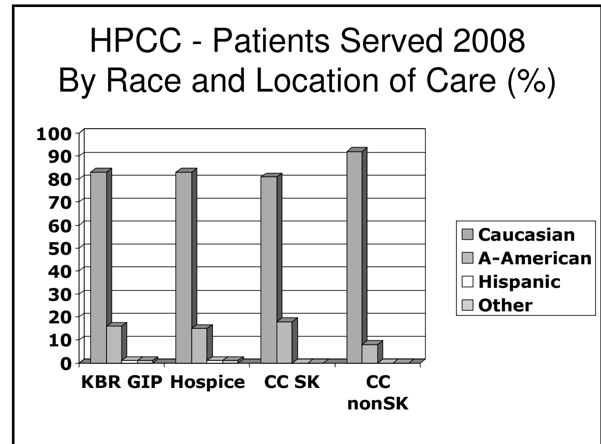
Patient Race	2009	2008	2007	2006	*US pop 2006*
Caucasian	80.5	81.9	81.8	80.9	*74*
Multi or (H)	8.7	9.5	7.8	8.8	*14.8*
Afr Amer	8.7	7.2	9.0	8.2	*13.4*
Asian	1.9	1.1	1.6	1.8	*4.4*

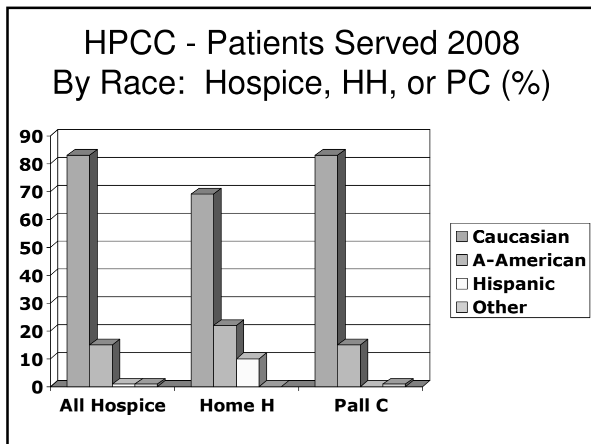
Do we know what's going on at HPCC?

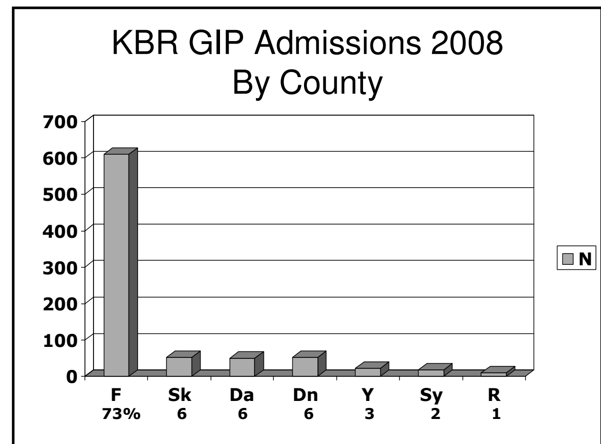

KBR GIP Admissions by Race (#)
700
600
500
400
300
200
100
0
2000 2001 2002 2003 2004 2005 2006 2007 2008
Caucasian
A-American
Hispanic
Other


KBR GIP Admissions by Race (%)
90
80
70
60
50
40
30
20
10
0
2000 2001 2002 2003 2004 2005 2006 2007 2008
Caucasian
A-American
Hispanic
Other


Census 2006 (Est): By Race (%)
80
70
60
50
40
30
20
10
0
74
22
7
71
26
10
56
37
8.6
NC
F-Co
W-S
(2000 #s)
Caucasian
A-American
Hispanic


HPCC - Patients Served 2008
By Race and Location of Care (%)
100
90
80
70
60
50
40
30
20
10
0
KBR GIP
Hospice
CC SK
CC nonSK
Caucasian
A-American
Hispanic
Other


HPCC - Patients Served 2008
By Race: Hospice, HH, or PC (%)
90
80
70
60
50
40
30
20
10
0
All Hospice
Home H
Pall C
Caucasian
A-American
Hispanic
Other


KBR GIP Admissions 2008
By County
700
600
500
400
300
200
100
0
F
73%
Sk
6
Da
6
Dn
6
Y
3
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2
R
1
N

Disparities in Pain Management

- Not just access to pain services
- Or, access to pain clinics
- Or, pain procedures, pumps, etc
- But basic pain management
  - Opioids prescribed
  - Outcomes
    - Pain Management Index (PMI)
  - Drug availability
    - Pharmacies in minority neighborhoods
- In all kinds of settings

Numerous Studies Over 2 Decades Indicate Racial Disparities

- Long bone fractures in the ER
- Nontraumatic low-back pain in the ER
- All pain visits in the ER
- Chronic nonmalignant pain
- Cancer pain in cancer centers
- Cancer pain in nursing homes
- Acute postoperative pain
- Epidural analgesia
- Chest pain

Pletcher MJ et al. Trends in opioid prescribing by race/ethnicity for patients seeking care in US emergency departments. *JAMA* 2008;299:70-78.

- Pain-related visits to US ERs 1993-2005
- Opioids prescribed at discharge
- National Hospital Ambulatory Medical Care Survey (huge database)
- Opioid prescribing has increased over time
- Disparities have not diminished
- Differences larger as pain severity increased
- Particularly low in black and Hispanic children

ARRGGHHHH! More details – Opioid prescribing averaged over 13 years

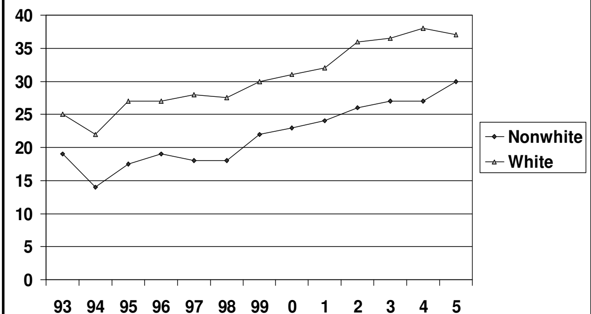
Race/Ethnicity	% Opioid Prescribed (for pain-related visit)
Whites	31%
Blacks	23%
Hispanics	24%
Asians/others	28%

Pain of Increasing Severity

Circumstance	Wh	NonWh
Severe back pain (% opioid prescribed)	48%	38%
Severe headache	35	24
Severe abdominal pain	32	22
Long bone fracture	52	47
Nephrolithiasis	72	64
Nonopioid prescribed	26	32

Undiminished Over Time!

% opioid prescribed for pain-related ER visit

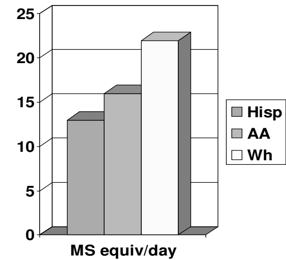


Cancer Pain

- Cleeland – national study of over 1300 outpatients in 54 centers
  - 42% prescribed inadequate analgesics
  - Nonwhites 3 times more likely to be undermedicated
- Bernabei – cancer patients in LTCFs
  - African Americans more likely to have no pain assessment on chart
  - and more likely to be on no analgesic

Ng B et al. **Ethnic differences in analgesic consumption for postoperative pain.** *Psychosom Med* 1996;58:125-129.

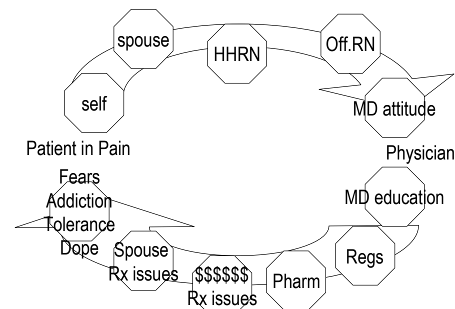
- Analgesic consumption
- 250 patients
- Post-op internal fixation limb fracture
- Morphine equivalents mg/day



Ng B et al. **The effect of ethnicity on prescriptions for PCA for post-operative pain.** *Pain* 1996;66:9-12

- Bernardo Ng persisted…
- Patient-controlled analgesia offers an intriguing model
- Compare prescription and consumption
- 454 patients on PCA post-op
- Found significant differences in prescription
  - Whites > African Americans > Hispanics
- No difference in pain-intensity ratings or consumption

Pain Management is Complex
Numerous Barriers Identified in Numerous Studies



Why Racial Disparities?

- Provider-related
  - Concerns about prescription abuse (AA actually less likely)
  - Inadequate assessment
  - Poor communication
    - Fluency (disparities persisted despite correction for language)
- System-related
  - Access to pain specialists
  - Pharmacy issues
  - Insurance
  - Reliance on ER vs. PCP
  - Barriers encountered
- Patient-related
  - Experience of pain (experimental pain)
  - Biological (pain threshold and/or tolerance)
  - Reluctance to c/o; stoicism; concerns about addiction

Culture?
Stereotype?
Bias?
Racism?

What About Hospice?

- Cintron A, Morrison RS. Pain and ethnicity in the United States: A systematic review. *JPM* 2006;9:1454-1473.
- Great article
- Systematic review of the literature
  - All of what we just looked at and more
- Concludes:

"No studies were found that evaluated the effect of patient race and ethnicity on pain assessment and management in the setting of hospice or palliative care."

Implications…

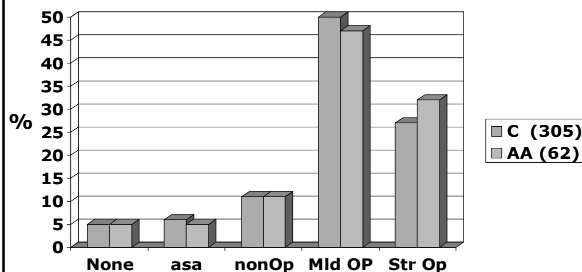
- Such a study would be important
- If there are disparities, "in a setting where relief of pain is a fundamental goal"
- What a disturbing message!
- If there aren't, what is hospice doing right? How could we model?
- **Hey! We can do this study!**

"Snapshot" of HPCC 1/12/2009

- Census

KBR	30
Home Hospice	211
Comfort Care	159
Total Hospice	400
Home Health	23
Palliative Care	53
Grand Total	***476***

Pain Medication by Race Snapshot 1/12/2009 (Home, NH, ALF)



WOW!

- "Snapshot" shows no significant racial disparities in pain management at HPCC!
- Only a snapshot
  - Nice little QAPI project
- But, don't roll the Quad yet!
- We can do a bigger, better study!

Current Research

- A hospice/academic partnership with:
  - Department of Social Sciences and Health Policy
  - Division of Public Health Sciences
  - Wake Forest University School of Medicine
  - Translational Science Institute
- Doug Easterling, Mike O'Shea, and others
- Dick Stephenson, Med Staff, and Sean Burchette
- Current project…

An evaluation of the effect of race on pain management in a community hospice

- We reviewed of all outpatients who died in our care 2001-2008
- Hypothesis
  - Blacks would be less likely to be prescribed opioids prior to hospice admission
  - The process of Hospice care would make a difference
  - Race would be a significant predictor of opioid prescription on the day of admission, but not on the day of death
- We also looked at whether emergency medicine kits (containing morphine) were less likely to prescribed for Blacks during their hospice stay.

Study Sample & Methods

- Data source
  - Two files from Allscripts
    - Patient demographic data (Race, Age, Dx, MD, Adm, Death, etc.)
    - Prescription data
  - Files then merged
- Patients included
  - Admitted between 1/1/02 and 12/31/08
  - Died during first admission prior to 1/1/09
  - At least 21 years old
  - Residing at home, NH, ALF (No KBR patients)
- 5261 patients
  - 4389 non-Hispanic whites, 818 blacks, 54 others (excluded)
  - Final sample of 5207
    - 84% whites and 16% blacks

Analgesia

- Master list of all medications prescribed to any patient in the sample
  - What a long list!!!!
- 2 MDs classified roughly based on WHO ladder into:
  - Non-analgesic (included adjuvants)
  - Non-opioid analgesic (NSAIDs, ASA, APAP)
  - Mild opioid (short-acting and APAP combos)
  - Strong opioid (long-acting, parenteral, and methadone)

Demographics

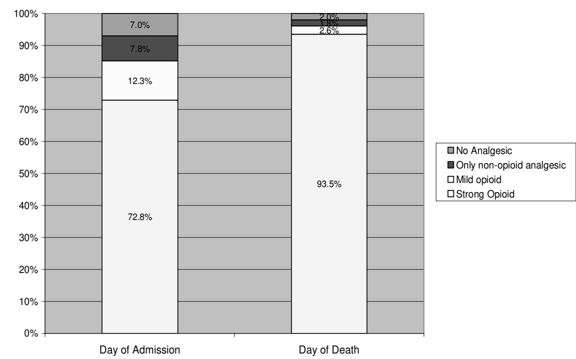
	Total (5207)	Black (818)	White (4389)
Gender			
Male	2121		
Female	3086		
Age			
21-64	605 (11.6%)	143 (17.5%)	462 (10.5%)
65-84	2075 (39.9%)	347(42.4%)	1728(39.4%)
> 85	2527 (48.5%)	328 (40.1%)	2199 (50.1%)
Cancer			
Yes	2496 (47.9%)	440 (53.8%)	2056 (46.8%)
No	2711 (52.1%)	378 (46.2%)	2333 (53.2%)

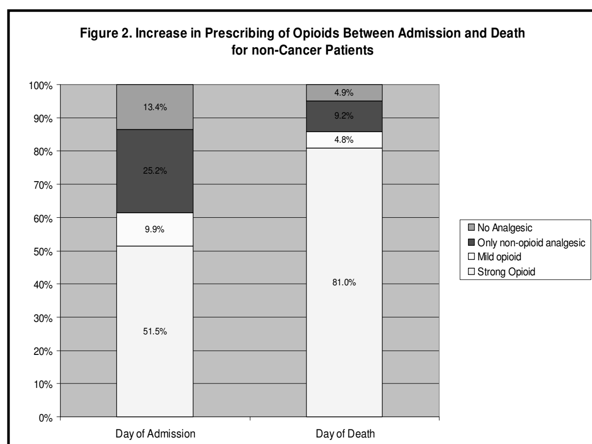
Demographics (cont)

	Total (5207)	Black (818)	White (4389)
Dementia			
Yes	737		
No	3086		
Setting			
Home	3143 (60.4%)	537 (65.5%)	2606 (59.4%)
LTCF	1536 (29.5%)	242 (29.6%)	1294 (29.5%)
ALF	528 (10.1%)	39 (4.8%)	489 (11.1%)
LOS			
0-6 days	1458 (28.0%)	198 (24.2%)	1260 (28.7%)
7-29 days	1644 (31.6%)	270 (33.0%)	1374 (31.3%)
> 30 days	2105 (40.4%)	350 (42.8%)	1755 (40.0%)

Opioids Prescription Increases During Hospice Stay (all patients)

HIGHEST LEVEL OF ANALGESIC PRESCRIBED	Day of Adm	Day of Death
No Analgesic	10.3%	3.6%
Only Non-Opioid Analgesics	16.9%	5.7%
Mild Opiold Analgesic	11.1%	3.7%
Strong Opiold	61.7%	87.0%





Initial Analysis Suggests No Significant Differences Based on Race

Rx	Day of Adm			Day of Death		
	Black 818	White 4389	Total 5207	Black 818	White 4389	Total 5207
None	11.4%	10.1%	10.3%	3.3%	3.6%	3.6%
NonOp	17.8	16.7	16.9	5.7	5.7	5.7
MildOp	11.0	11.1	11.1	4.3	3.6	3.7
StrgOp	59.8	62.1	61.7	86.7	87.1	87.0

Racial Disparity **Underestimated**

- Confounded by other factors
- Particularly cancer diagnosis
  - Disproportionate number of Blacks were younger, lived at home, and had CA
- Logistic regression analysis done to test the effect of race controlling for other covariates

Covariates

- Diagnosis – cancer and dementia
- Age – 21-64, 65-84, 85 and older
- Setting – home, NH, ALF
- LOS - < 7 days, 7-20 days, 21-63, and longer than 63 days
- **Blacks are then significantly less likely to be prescribed an opioid on admission (OR=0.74, p=0.001)**
- **And, BY THE DAY OF DEATH, RACE IS NO LONGER A SIGNIFICANT predictor of opioid prescribing (OR=0.86, p=0.262)**

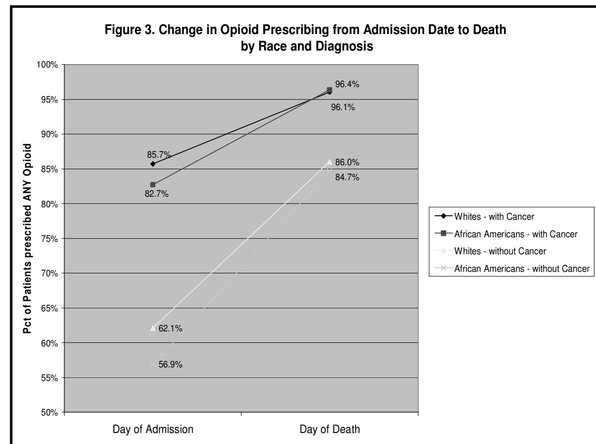
Multivariate Logistic Regression

PREDICTOR		**Day of Admission**		**Day of Death**	
		OR(95CI)	P-value	OR(95CI)	P-value
Race:			0.0011		0.2625
	Black	0.74		0.86	
	White	REF		REF	
Cancer diagnosis			<0.0001		<0.0001
	Yes	2.97		2.55	
	No	REF		REF	
LOS (days A to D)			<0.0001		0.0622
	0-6	2.85		0.80	
	7-20	1.77		0.99	
	21-63	1.38		1.15	
	64-1024	REF		REF	

PREDICTOR		**Day of Admission**		**Day of Death**	
		OR(95CI)	P-value	OR(95CI)	P-value
Age group:			<0.0001		0.2625
	21-64 years	REF		REF	
	65-84	0.36		1.16	
	85+	0.56		0.98	
Alzheimer's diagnosis			<0.0001		<0.0001
	Yes	0.66		0.63	
	No	REF		REF	
Gender:			0.0001		0.2466
	Male	1.31		0.63	
	Female	REF		REF	
Setting of care:			<0.0001		0.0622
	Long-term	1.14		0.80	
	Asst Living	0.73		0.99	
	Home	REF		1.15	

In other words…

- A Black patient admitted to hospice is only ¾ as likely to be prescribed an opioid for pain as a comparable white.
- <u>This racial disparity decreased (essentially disappeared) during the time that patients were treated by hospice.</u>



Now you can roll the Quad! Victory for Hospice!

We also looked at E-Kits

- Looking across the entire time that patients were enrolled in hospice
- Physicians prescribed E-Kits to:
  - 5.6% of Black patients
  - 6.9% of White patients

Logistic regression analysis showed race to have a modest effect on E-Kits (OR=0.72, CI=[0.52-0.99], p=0.040)

Comment

- This is the first study to explore whether racial disparities in pain management persist in a hospice or palliative care setting
- Our analysis demonstrates:

1. Racial disparities in pain management do exist at the time patients are referred to hospice
   - Disparity is less than in other settings
2. The observed disparity resolves by day of death under hospice care

- and suggests a, "Hospice Effect"

Perhaps no, "Hospice Effect"

- Possible nonHospice patients analgesic Rx improves by death
  - Lack of comparison group
- Confounded by other factors
  - Socioeconomic status, alcohol or drugs
- Prescription drug or other information may have been miscoded
- This study can only detect differences in analgesic practice, not explain reasons

Causes of racial disparities in pain management:

Provider-related

- **Suspicion of abuse** – perhaps reflected by E-Kit disparity
- **Inadequate assessment** – whole hospice team does pain assessment – mandated
- **Provider education** – extensive hospice team education for RN, CNA, SW, Ch, Vol
- **Provider race** – HPCC clinical staff ~27% black (2004-2008)

Causes of racial disparities in pain management:

System-related

- **Access to pain specialists** – HPCC includes specialist MDs & NPs who regularly make housecalls
- **Access to analgesics** – HPCC operates its own open-formulary pharmacy with equal access to medications, pharmacists, and home delivery
- (Lack of) **oversight** – hospice subject to rules, regulations, certification, accreditation, and licensure that mandate pain assessment and management

Causes of racial disparities in pain management:

Patient-related

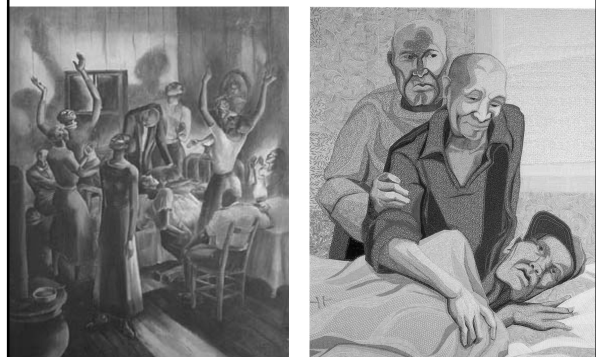
- **Financial constraints** – hospice financing eliminates cost of Rx concerns for pt/family
- **Reluctance to complain, stoicism, concerns about addiction** – hospice interdisciplinary team holistically addresses pt/family concerns
  - Black providers may be better able to address

Next Steps

- Publication, discussion, dissemination
- **Review other significant covariates**
- Grant support for a broader study
  - Allscripts users in other parts of the country
- Matched study (non-hospice users)
- Palliative Care based study (hospice-lite)
- Planned interventions

PREDICTOR		Day of Admission		Day of Death	
		OR(95CI)	P-value	OR(95CI)	P-value
Age group:			<0.0001		0.2625
	21-64 years	REF		REF	
	65-84	0.36		1.16	
	85+	0.56		0.98	
Alzheimer's diagnosis			<0.0001		<0.0001
	Yes	0.66		0.63	
	No	REF		REF	
Gender:			0.0001		0.2466
	Male	1.31		0.63	
	Female	REF		REF	
Setting of care:			<0.0001		0.0622
	Long-term	1.14		0.80	
	Asst Living	0.73		0.99	
	Home	REF		1.15	

Questions & Comments



Charles H Alston

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