# Racial and Ethnic Differences in Rehabilitation Outcomes for Medicare Patients with Stroke and Brain Injury

5th Annual Brain Injury Rehabilitation Conference
Rehabilitation Center at Scripps Memorial Hospital Encinitas

Anne Deutsch, RN, PhD, CRRN

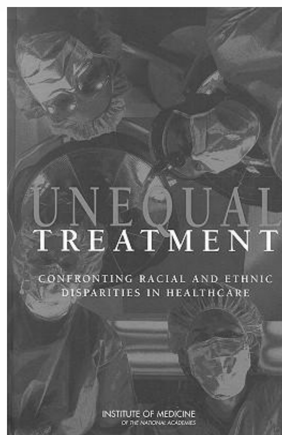
## Healthcare Quality

- The United States offers advanced health care services; however, the care is not always accessible, effective, safe, and efficient.
- Quality problems include:
  - wide variation in health care service utilization
  - underuse of some services
  - overuse of some services
  - an unacceptable level of errors

2

## Unequal Treatment, 2003

…research demonstrates **significant variation** in the rates of medical procedures by race, even when insurance status, income, age, and severity of conditions are comparable….U.S. **racial and ethnic minorities** are less likely to receive even routine medical procedures and experience a **lower quality of health services**.




3

## Estimating the Cost of Racial and Ethnic Health Disparities

**Timothy Waidmann**
*The Urban Institute*

**September 2009**

- Disparities among Blacks, Hispanics, and non-Hispanic whites will cost the healthcare system $23.9 billion dollars.
- Medicare will spend an extra $15.6 billion, and private insurers will incur $5.1 billion in additional costs due to elevated rates of chronic illness among Blacks and Hispanics.
- Over the 10-year period from 2009 through 2018, we estimate that the total cost of these disparities is approximately $337 billion, including $220 billion for Medicare.

4

## Disparities in Stroke Rehabilitation: Results of a Study in an Integrated Health System in Northern California

M. Elizabeth Sandel, MD, Hua Wang, PhD, Joseph Terdiman, MD, PhD, Jeanne M. Hoffman, PhD, Marcia A. Ciol, PhD, Steven Sidney, MD, Charles Quesenberry, PhD, Qi Lu, MS, Leighton Chan, MD, MPH

**Results:** Patients discharged to an IRH had longer lengths of stay in acute care. Patients with hemorrhagic stroke were less likely to be treated in an IRH. Patients whose highest level of rehabilitation was SNF were older and more likely to be women. After adjusting for age and other covariates, women were less likely to go to an IRH than men. Asian and black patients were more likely than white patients to be treated in an IRH or SNF. Also more likely to go to an IRH were patients from higher socioeconomic groups, from urban areas, and from geographic areas close to the regional rehabilitation hospital.
**Conclusions:** These results suggest variation in care delivery and extent of postacute care based on differences in patient demographics and geographic factors. Results also varied over time. Some minority populations in this cohort appeared to be more likely to receive IRH care, possibly because of disease severity, family support systems, cultural factors, or differences in referral patterns.

5

## Do Racial Disparities Exist in Access to Inpatient Stroke Rehabilitation in the State of Maryland?

**ABSTRACT**

Gregory PC, Han E, Morozova O, Kuhlemeier KV: Do racial disparities exist in access to inpatient stroke rehabilitation in the state of Maryland? Am J Med Phys Rehabil 2006;85:814–819.

**Results:** There were a total of 12,208 patients hospitalized with stroke in the year 2000. Compared with urban-dwelling white patients, black patients who lived in urban dwellings were more likely to be discharged to IRF, OR 1.42, 95% CI (1.06, 1.91).

**Conclusion:** In the state of Maryland, urban-dwelling black stroke patients were more likely to be discharged to IRF acutely after stroke. Future studies should assess whether this trend persists in states that have larger rural populations.

6

## Racial and Ethnic Differences in Postacute Rehabilitation Outcomes After Stroke in the United States

Kenneth J. Ottenbacher, PhD; Joanna Campbell, PhD; Yong-Fang Kuo, PhD; Anne Deutsch, CRRN, PhD, RN; Glenn V. Ostir, PhD; Carl V. Granger, MD

***Results***—The mean age was 70.97 years (SD=12.87), 53% were female, and 76% were non-Hispanic white. Mean length of stay was similar for all groups ranging from 17.39 days (SD=10.86) to 17.93 (SD=10.59). Non-Hispanic white patients had higher admission and discharge functional status ratings compared with patients in the minority groups ($P<0.01$). Differences in functional status across racial/ethnic groups were related to age ($F=20.49$, $P<0.001$); the older the comparison group, the greater the difference in functional status. Non-Hispanic whites were discharged home less often than blacks (OR=0.64, 95% CI=0.62 to 0.66), Hispanics (OR=0.58, 95% CI=0.55 to 0.62), or other minority groups (OR=0.67, 95% CI=0.57 to 0.67).

***Conclusions***—The findings suggest racial and ethnic disparities exist in postacute care outcomes for persons with stroke. **(*Stroke*. 2008;39:1514-1519.)**

7

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## Racial/ethnic variation in recovery of motor function in stroke survivors: Role of informal caregivers

**Melanie Sberna Hinojosa, PhD;[1–2*] Maude Rittman, RN, PhD;[3] Ramon Hinojosa, PhD;[1,4] William Rodriguez, MD[5]**
*[1]North Florida/South Georgia Veterans Health System, Rehabilitation Outcomes Research Center, Gainesville, FL; [2]Medical College of Wisconsin, Milwaukee, WI; [3]College of Nursing, University of Florida, Gainesville, FL; [4]Department of Social and Cultural Sciences, Marquette University, Milwaukee, WI; [5]Department of Veterans Affairs Caribbean Health System, San Juan, PR*

Results indicate that Puerto Ricans show greater impairment and African Americans show less impairment at discharge from the hospital compared with Caucasians. Caregiver characteristics mediate the racial/ethnic differences in impairment at discharge and motor recovery across time.

8

## Functional Outcomes From Inpatient Rehabilitation After Traumatic Brain Injury: How Do Hispanics Fare?

*Juan Carlos Arango-Lasprilla, PhD, Mitchell Rosenthal, PhD, John DeLuca, PhD, David X. Cifu, MD, Robin Hanks, PhD, Eugene Komaroff, PhD*

**Results:** At admission, Hispanics were less educated ($P \leq .001$), earned less money ($P \leq .05$), and were younger ($P \leq .001$) than whites. Hispanics had lower GOS-E scores ($P \leq .01$) at acute hospital admission compared with whites. Despite similar functional status at inpatient rehabilitation discharge, Hispanic ethnicity was associated with poorer functional outcomes at 1 year postinjury (DRS, FIM, CIQ), after controlling for age, length of posttraumatic amnesia, injury severity, DRS score at admission, FIM score at admission, and preinjury educational level ($P < .05$).

**Conclusions:** Hispanics showed significantly reduced long-term functional outcome after rehabilitation relative to whites. Rehabilitation professionals should recognize the possible impact of individual differences and diverse sociodemographic, injury, and rehabilitation characteristics so that differential health outcomes among TBI survivors can be reduced or eliminated.

9

## Traumatic brain injury and functional outcomes: Does minority status matter?

JUAN CARLOS ARANGO-LASPRILLA[1,2], MITCHELL ROSENTHAL[1,2], JOHN DELUCA[1,2], EUGENE KOMAROFF[1,2], MARK SHERER[3], DAVID CIFU[4], & ROBIN HANKS[5]

*Results*: At discharge and 1-year post-injury, minorities had poorer functional outcomes compared with Caucasians on all measures. After controlling for sociodemographic, injury and functional characteristics at admission, Hispanics and African-Americans still showed worse functional outcomes at 1-year post-injury compared with Whites on the DRS, FIM and CIQ. There were no significant differences between African Americans and Hispanics.
*Conclusions*: Minorities had significantly reduced long-term functional outcome after rehabilitation relative to Whites. It is imperative that rehabilitation professionals' consider factors related to poorer long-term functional outcome and work to improve the quality of life of minorities with TBI.

10

## Ethnic Disparities in Long-Term Functional Outcomes After Traumatic Brain Injury

*Kristan L. Staudenmayer, MD, Ramon Diaz-Arrastia, MD, PhD, Ana de Oliveira, BS, Larry M. Gentilello, MD, and Shahid Shafi, MD, MPH*

***Results:*** The two groups had similar injury severity (head Abbreviated Injury Scale score, initial Glasgow Coma Scale score, Injury Severity Score) and were equally likely to be placed in rehabilitation after trauma center discharge (minorities 51%, whites 46%, $p = 0.28$). Minority patients experienced worse long-term functional outcomes in all domains, which reached statistical significance in post-TBI standard of living, engagement in leisure activities, and return to work or school.

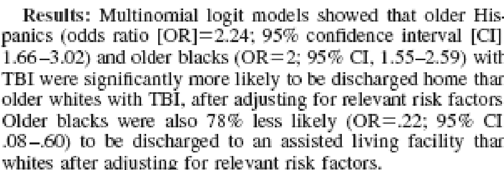
***Conclusions:*** Ethnic minorities with TBI suffer worse long-term deficits in three specific functional domains. TBI rehabilitation programs should target these specific areas to reduce disparities in functional outcomes in ethnic minorities.

11

*ORIGINAL ARTICLE*

## Ethnic Differences in Discharge Destination Among Older Patients With Traumatic Brain Injury

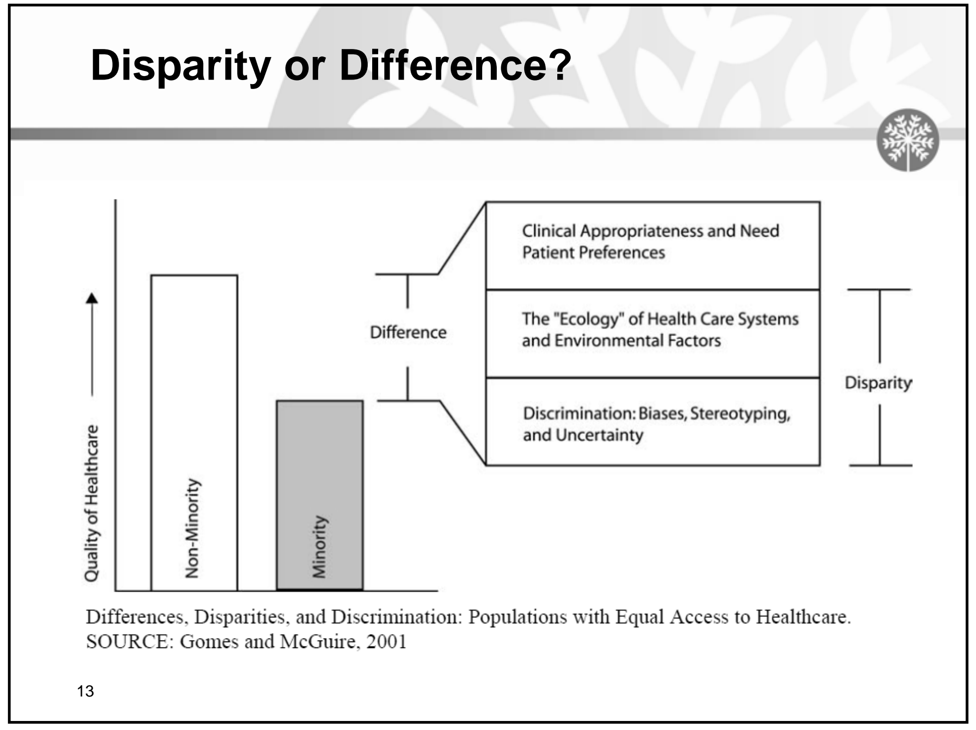
***Pei-Fen J. Chang, PhD, OTR, Glenn V. Ostir, PhD, Yong-Fang Kuo, PhD, Carl V. Granger, MD, Kenneth J. Ottenbacher, PhD, OTR***



**Results:** Multinomial logit models showed that older Hispanics (odds ratio [OR]=2.24; 95% confidence interval [CI], 1.66–3.02) and older blacks (OR=2; 95% CI, 1.55–2.59) with TBI were significantly more likely to be discharged home than older whites with TBI, after adjusting for relevant risk factors. Older blacks were also 78% less likely (OR=.22; 95% CI, .08–.60) to be discharged to an assisted living facility than whites after adjusting for relevant risk factors.

**Conclusions:** Our findings indicate that older minority patients with TBI were significantly more likely to be discharged home than white patients with TBI. Studies are needed to investigate underlying factors associated with this ethnic difference.

12




Differences, Disparities, and Discrimination: Populations with Equal Access to Healthcare.
SOURCE: Gomes and McGuire, 2001

## Possible Explanations….

Large racial/ethnic disparities in surgery may be driven more by geography than race/ethnicity, which result of high rates for White patients rather than low rates for Black patients…"policies should focus on getting the rates right, rather solely on racial differences." (Baicker et al., 2004)

Racial/ethnic differences may be a combination of:

- minorities receiving lower-quality healthcare than whites within the same facility (within-facility differences)
- minorities more likely to be treated (clustered) in lower-quality facilities (between-facility differences)

14

# Separate And Unequal: Racial Segregation And Disparities In Quality Across U.S. Nursing Homes

Residential segregation in U.S. cities disproportionately places blacks in poorer-performing nursing homes.

**by David Barton Smith, Zhanlian Feng, Mary L. Fennel, Jacqueline S. Zinn, and Vincent Mor**

**ABSTRACT:** We describe the racial segregation in U.S. nursing homes and its relationship to racial disparities in the quality of care. Nursing homes remain relatively segregated, roughly mirroring the residential segregation within metropolitan areas. As a result, blacks are much more likely than whites to be located in nursing homes that have serious deficiencies, lower staffing ratios, and greater financial vulnerability. Changing health care providers' behavior will not be sufficient to eliminate disparities in medical treatment in nursing homes. Persistent segregation among homes poses a substantial barrier to progress. [*Health Affairs* 26, no. 5 (2007): 1448–1458; 10.1377/hlthaff.26.5.1448]

15

# Relationship between State Medicaid Policies, Nursing Home Racial Composition, and the Risk of Hospitalization for Black and White Residents

*Andrea Gruneir, Susan C. Miller, Zhanlian Feng, Orna Intrator, and Vincent Mor*

**Principle Findings.** 18.5 percent of white and 24.1 percent of black residents were hospitalized. Residents in NHs with high concentrations of blacks had 20 percent higher odds (95 percent confidence interval [CI] = 1.15–1.25) of hospitalization than residents in NHs with no blacks. Ten-dollar increments in Medicaid rates reduced the odds of hospitalization by 4 percent (95 percent CI = 0.93–1.00) for white residents and 22 percent (95 percent CI = 0.69–0.87) for black residents.
**Conclusions.** Our findings illustrate the effect of contextual forces on racial disparities in NH care.

16

## Race/Ethnicity, Language, and Patients' Assessments of Care in Medicaid Managed Care

*Robert Weech-Maldonado, Leo S. Morales, Marc Elliott, Karen Spritzer, Grant Marshall, and Ron D. Hays*

**Principal Findings.** Racial/ethnic and linguistic minorities tended to report worse care than did whites. Linguistic minorities reported worse care than did racial and ethnic minorities.
**Conclusions.** This study suggests that racial and ethnic minorities and persons with limited English proficiency face barriers to care, despite Medicaid-enabled financial access. Health care organizations should address the observed disparities in access to care for racial/ethnic and linguistic minorities as part of their quality improvement efforts.

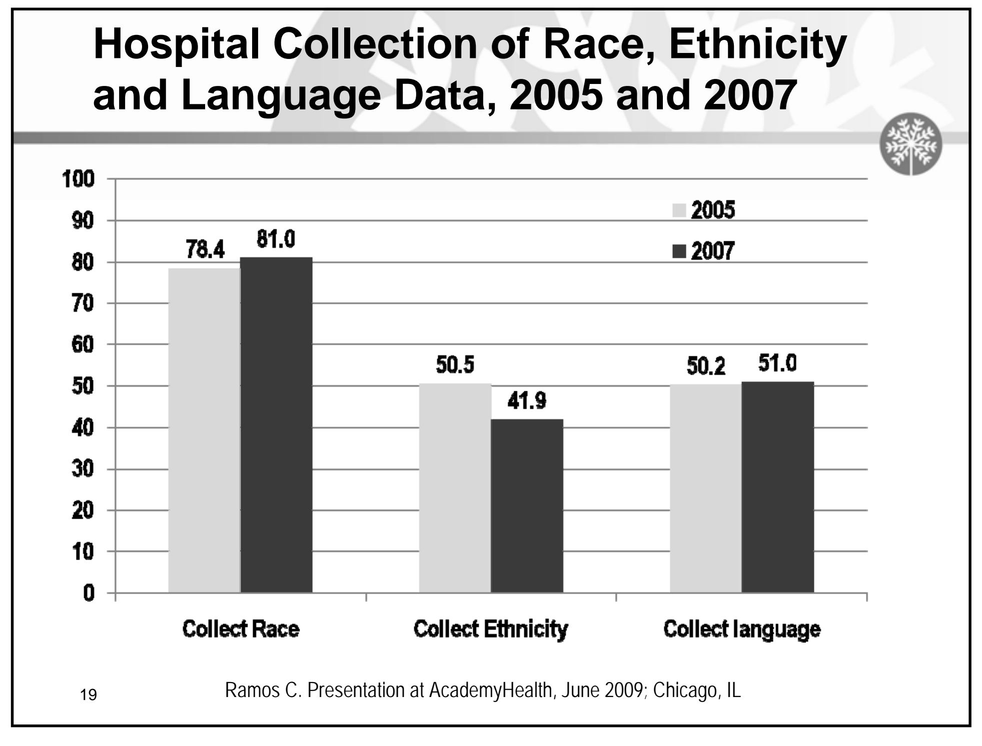
17

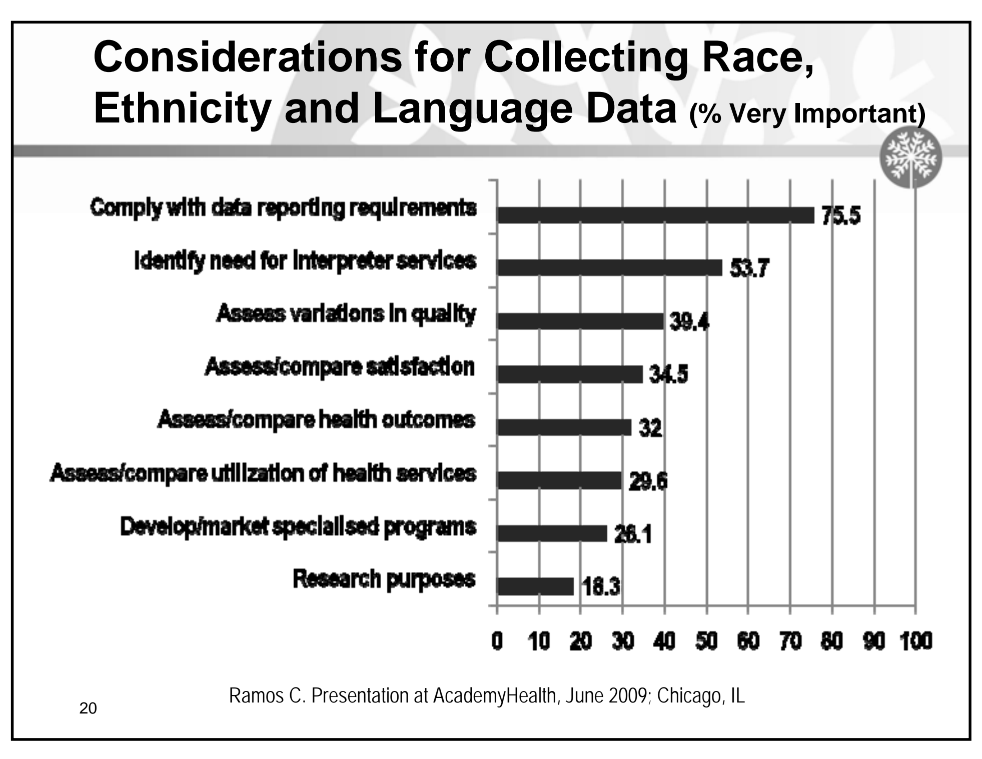
## Closing the Disparities Gap in Healthcare Quality With Performance Measurement and Public Reporting

### Efforts Under Way to Reduce Disparities

**A wide range of stakeholders** in the healthcare system, including governmental agencies, public health agencies, healthcare professionals, hospitals and health systems, ambulatory care providers, and researchers, is working to reduce disparities in health-care quality. They are working collaboratively at the national and regional levels to institute public reporting systems, collect health quality data, develop measures, implement targeted interventions, and provide education and training programs.

18


Hospital Collection of Race, Ethnicity and Language Data, 2005 and 2007
100
90
80
70
60
50
40
30
20
10
0
2005
2007
78.4
81.0
50.5
41.9
50.2
51.0
Collect Race
Collect Ethnicity
Collect language
19
Ramos C. Presentation at AcademyHealth, June 2009; Chicago, IL


Considerations for Collecting Race, Ethnicity and Language Data (% Very Important)
Comply with data reporting requirements
75.5
Identify need for interpreter services
53.7
Assess variations in quality
39.4
Assess/compare satisfaction
34.5
Assess/compare health outcomes
32
Assess/compare utilization of health services
29.6
Develop/market specialised programs
26.1
Research purposes
18.3
0 10 20 30 40 50 60 70 80 90 100
20
Ramos C. Presentation at AcademyHealth, June 2009; Chicago, IL

## Attitudes Toward Health Care Providers, Collecting Information About Patients' Race, Ethnicity, and Language

*David W. Baker, MD, MPH,*† Romana Hasnain-Wynia, PhD,‡ Namratha R. Kandula, MD, MPH,*† Jason A. Thompson, BA,* and E. Richard Brown, PhD§*

**Results:** Most (87.8%) somewhat or strongly agreed that HCPs should collect race/ethnicity information and use this to monitor disparities, and 73.6% supported state legislation requiring this. Support for collection of patients' preferred language was even higher. However, 17.2% were uncomfortable (score 1–4 on 10-point scale) reporting their own race/ethnicity, and 46.3% of participants were somewhat or very worried that providing information could be used to discriminate against them. In addition, 35.9% of Hispanics were uncomfortable reporting their English proficiency. All statements explaining the rationale for data collection modestly increased participants' comfort level; the statement that this would be used for staff training increased comfort the most.

**Conclusions:** Although most surveyed believe that HCPs should collect information about race/ethnicity and language, many feel uncomfortable giving this information and worry it could be misused. Statements explaining the rationale for collecting data may assuage concerns, but community engagement and legislation to prevent misuse may be needed to gain more widespread trust and comfort.

21

## http://www.hretdisparities.org/

**HRET Disparities Toolkit**
A Toolkit for Collecting Race, Ethnicity, and Primary Language Information from Patients

**Welcome**

The Health Research and Educational Trust Disparities Toolkit team is proud to release this updated Toolkit. The Toolkit is a Web-based tool that provides hospitals, health systems, clinics, and health plans information and resources for systematically collecting race, ethnicity, and primary language data from patients.

We trust you will find this Toolkit useful for educating and informing your staff about the importance of data collection, how to implement a framework to collect race, ethnicity, and primary language data at your organization, and ultimately how to use these data to improve quality of care for all populations. For more information on how to use this Toolkit, click here.

**Acknowledgments**

Special thanks to the National Advisory Panel members and the Consortium Members for their input, and to David Baker, MD, MPH, and colleagues at Northwestern University Feinberg School of Medicine for their contribution to the research that informs this work.

Many thanks to the Robert Wood Johnson Foundation for their support of the work for collecting race, ethnicity, and primary language data in hospitals under the Expecting Success: Excellence in Cardiac Care program and for their on-going grant support to improve data collection. We would also like to thank the Commonwealth Fund for their support of research projects that continue to inform this work.

Toolkit Home

**Toolkit Links**

- How to Use the Toolkit
- Who Should Use the Toolkit
- Why Collect Race, Ethnicity, and Primary Language
- Why Collect Data Using a Uniform Framework
- Collecting the Data - The Nuts and Bolts
- How to Ask the Questions
- How to Use the Data
- Staff Training
- Informing and Engaging the Community
- Deaf and Hard of Hearing Populations

22

## Improving Healthcare Quality

Current efforts to **improve healthcare quality overall** include:

- increased attention to patient preferences
- public reporting of quality data
- pay-for-performance ("P4P")

However, current strategies for these efforts may **exacerbate disparities**….

23

## Crossing the Quality Chasm, 2001

The Institute of Medicine's book "Crossing the Quality Chasm" provides 10 recommendations for improving the quality of health care

24

## Health Care Quality & Patient Involvement

1. Care based on continuous healing relationships.
2. Customization based on patient needs and values.
3. Patient as source of control.
4. Shared knowledge and free flow of information.
5. Evidence-based decision making.
6. Safety as a system property.
7. The need for transparency.
8. Anticipation of needs.
9. Continuous decrease in waste.
10. Cooperation among clinicians.

25

## Patient Choices and Preferences

Recommendation 2
Customization Based on Patient Needs and Values

> "The system of care should be designed to meet the most common types of needs, but have the capability to respond to individual patient choices and preferences." (p. 61)

Source: Crossing the Quality Chasm, IOM, 2001

26

## Shared Decision Making

Recommendation 3

The Patient as the Source of Control

> "Patients should be given the necessary information and the opportunity to exercise the degree of control they choose over health care decisions that affect them. The health system should be able to accommodate differences in patient preferences and encourage shared decision making." (p. 61)

Source: Crossing the Quality Chasm, IOM, 2001

27

## Shared Information

Recommendation 4

Shared Knowledge and the Free Flow of Information

> "Patients should have unfettered access to their own medical information and to clinical knowledge. Clinicians and patients should communicate effectively and share information." (p. 62)

Source: Crossing the Quality Chasm, IOM, 2001

28

## The Transparency Initiative

Recommendation 7
The Need for Transparency

"The health care system should make information available to patients and their families that allows them to make informed decisions when selecting a health plan, hospital, or clinical practice, or choosing among alternative treatments" (p. 62)

Source: Crossing the Quality Chasm, IOM, 2001

29

## Patient Preferences

- "The preference model fulfills a fundamental tenet of high-quality care – that the patient should be involved in the decisions concerning the care processes" (Katz, 2001)
- "…..but some apparent differences in preferences may actually reflect problems with the healthcare system that are worthy of remediation." (Armstrong et al., 2006)

30

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DOI: 10.1111/j.1475-6773.2006.00504.x

## Editorial Column

### Is Evidence-Based Medicine Patient-Centered and Is Patient-Centered Care Evidence-Based?

Are achieving evidence-based medicine (EBM) and cultural competence in medicine (CCM) contradictory goals? In some ways, EBM and CCM are complementary means to improve quality; but it can also appear that, by virtue of their methods of changing medical practice, they are fundamentally at odds. Yet each is an important area for exploration in health services research and both are evolving from marginal to mainstream considerations in changing health policy and as potential strategies to improve quality. It is, therefore, critical that we understand how and when these emerging subfields might be perceived as conflicting and when they can work together.

31

## Disparities in Health Care Are Driven by Where Minority Patients Seek Care

***Examination of the Hospital Quality Alliance Measures***

*Romana Hasnain-Wynia, PhD; David W. Baker, MD, MPH; David Nerenz, PhD; Joe Feinglass, PhD; Anne C. Beal, MD, MPH; Mary Beth Landrum, PhD; Raj Behal, MD, MPH; Joel S. Weissman, PhD*

**Conclusions:** Disparities in clinical process of care measures are largely the result of differences in where minority and nonminority patients seek care. However, disparities in services requiring counseling exist within hospitals after controlling for site of care. Policies to reduce disparities should consider the underlying reasons for the disparities.

*Arch Intern Med. 2007;167:1233-1239*

32

## Pay-for-Performance: Potential Unintended Consequences?

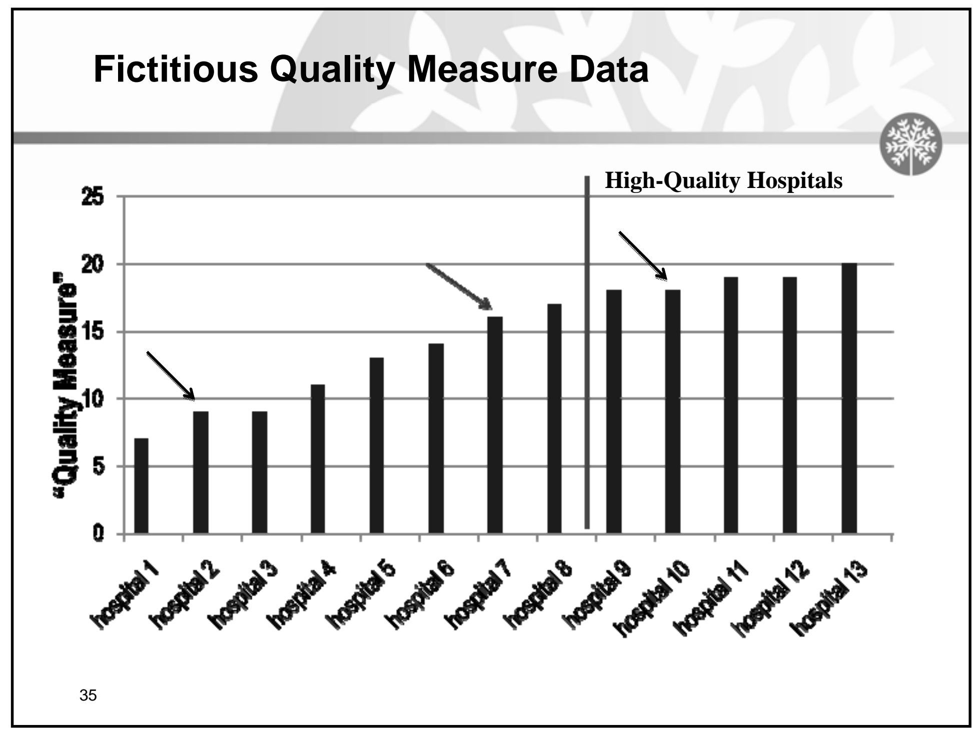
- **patient avoidance or "cherry-picking":** providers avoid admitting patients who are likely to reduce provider performance data or financial incentives (Dranove et al., 2003; Epstein, 2006; Narins et al., 2005)
- Patients who are racial and ethnic minorities may be considered higher risk for poor outcomes compared to white patients (public reporting - Warner et al., 2005)

33

## Pay-for-Performance: Potential Unintended Consequences? (cont'd)

- Clustering of minority patients may occur in low-quality hospitals/facilities.
- Improving the quality of care to meet a quality measure target threshold may be very costly for low-quality hospitals/facilities.

34




## Summary

- Disparities and differences by race and ethnicity exist in rehabilitation care provided to patients with stroke and patients with traumatic brain injury.
- Disparities and differences by language have been documented.
- Efforts to improve healthcare quality overall, may exacerbate disparities/differences.
- Addressing these disparities is challenging, but efforts to reduce the disparities gap are under way.

36

Acknowledgment

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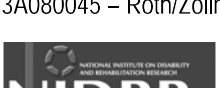


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37