

Variation in PSA Screening Among Primary Care Physicians

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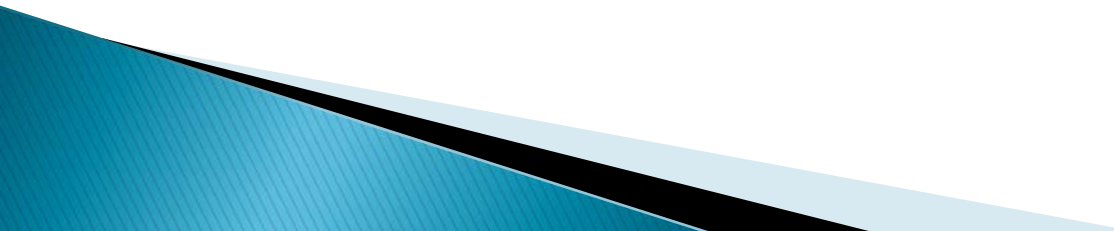
University of Texas Medical Branch

Variation

- ▶ There are different types of variation:
 - Geographic (Country, State, County)
 - Hospital level
 - Physician level

- ▶ Physician level:
 - Between physician specialties
 - Within physician specialties

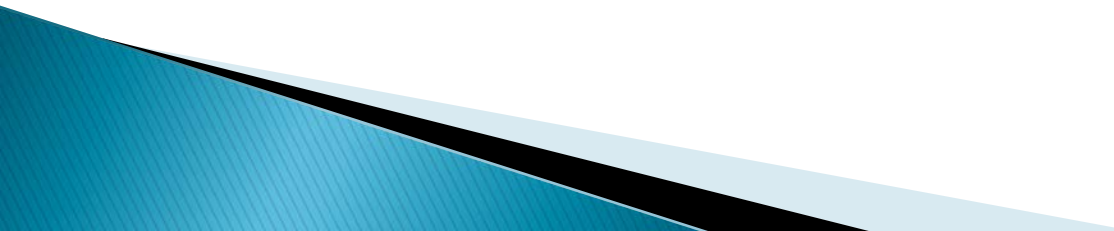
Variation

- ▶ A certain amount of physician variation is normal
 - ▶ No two people, or physicians, are the same
 - ▶ Why do physicians vary?
 - ▶ Belief system, persistent pattern
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Variation

- ▶ Physician variation is global
 - ▶ Over 1000 articles have been published on variation in health care
 - ▶ 41 years ago this month: Wennberg and Gittelsohn
 - ▶ Small area variations in health care delivery
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Wennberg and Gittelsohn

- ▶ They were expecting to find areas where there was much underuse
 - ▶ They analyzed data from 13 hospital service areas
 - ▶ They found vast variation in resource use
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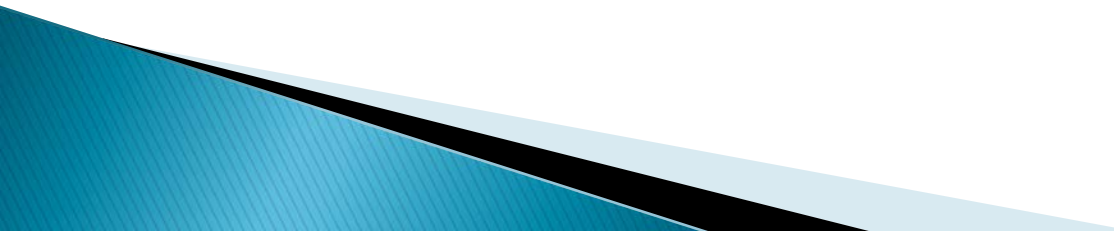
Wennberg and Gittelsohn

- ▶ The variation occurred among across the spectrum
 - Hospitals
 - Nursing homes
 - Physicians
 - ▶ Hospitalization rates varied 2-3 fold
 - ▶ Common surgical procedures varied 10 fold
 - ▶ The variation could not be explained on the basis of illness, patient preference, or medical science
- 


Wennberg and Gittelsohn

- ▶ Physician supply seemed to influence demand
 - ▶ Areas with more surgeons per 10,000 had higher surgery rates
 - ▶ Areas with more GPs led to higher rates of less complicated surgery
 - ▶ Areas with more internists had higher rates of diagnostic testing
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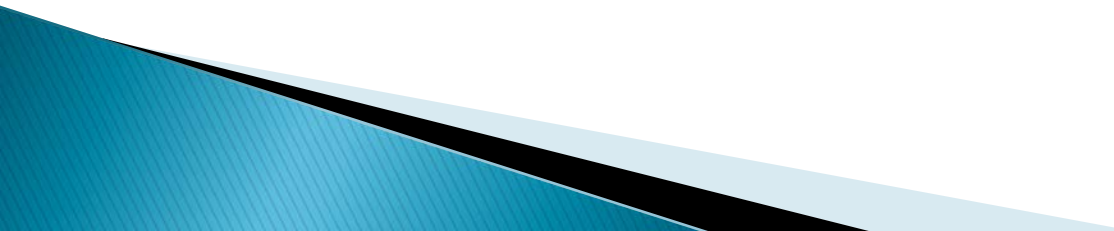
Wennberg and Gittelsohn

- ▶ They dug deeper
 - ▶ Practice variations were associated with professional uncertainty
 - ▶ He continued his research
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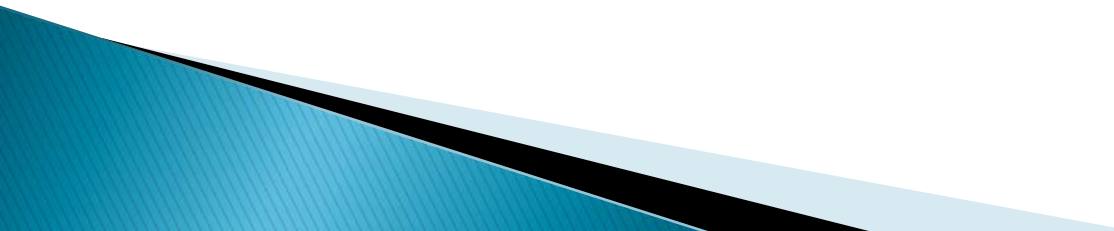
Wennberg

- ▶ Used clinical vignettes
 - ▶ Little variation in scenarios where the supporting evidence was clear
 - ▶ Considerable variation where the supporting evidence was poor
 - ▶ Uncertainty about best practices were related to poor clinical science
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PSA Screening

- ▶ About 14 year after Wennberg's first article the PSA test was introduced
 - ▶ Quickly gained widespread use
 - ▶ Incidence of prostate cancer greatly increased
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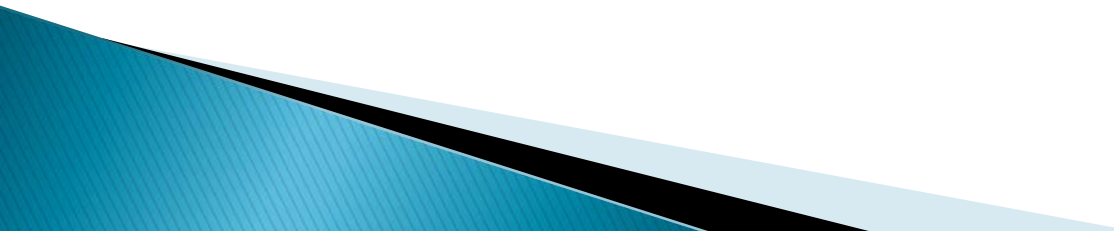
PSA Screening

- ▶ Many skeptics as the PSA test is a very poor screening test
 - ▶ More earlier stage 1 cancers were being detected
 - ▶ But this did not seem to be influencing the mortality rate
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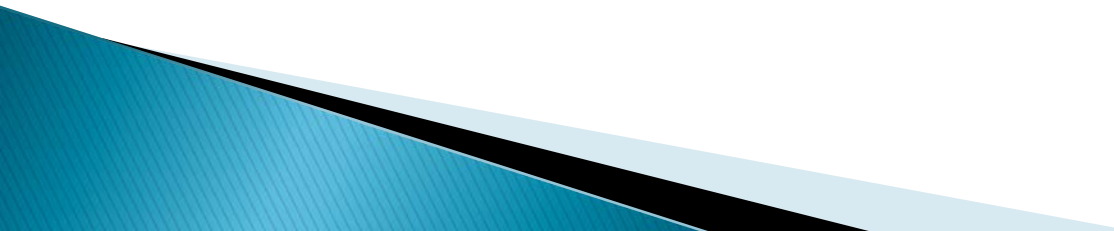
PSA Screening

- ▶ Screening may lead to diagnostic studies
- ▶ Diagnostic studies include biopsies
- ▶ This leads to patient harm, including side effects from biopsy procedures
 - bleeding, infection, psychological distress, and impotence

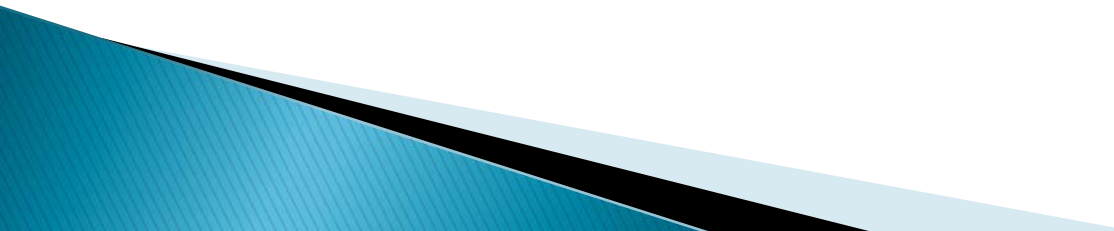
PSA Screening

- ▶ 2008 USPTF recommended against using the PSA test in men over 75
 - ▶ Despite those recommendations it appeared the testing continued in older men
 - ▶ Controversy persisted
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PSA Screening

- ▶ 75% physicians reported their patients expected them to continue testing despite the recommendations
 - ▶ About half agreed with the recommendations
 - ▶ Less than 2% reported they would follow them
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PSA Screening

- ▶ Uncertainty about best practices were related to poor clinical science
 - ▶ More evidence, less variation
 - ▶ Did the 2008 USPTF guidelines lead to decreased physician variation?
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Methods

Complete Medicare A and B data for Texas years 2007 and 2010



Men chosen for each cohort were at least 75 years old, had no prior diagnosis of prostate cancer and had continuous Medicare A and B enrollment



PCPs were defined as seeing a man at least 2 times in an outpatient setting for evaluation or management and had a specialty code in FM, GP, IM, or Geri




PCPs with panels of at least 20 men 75 years or older were chosen

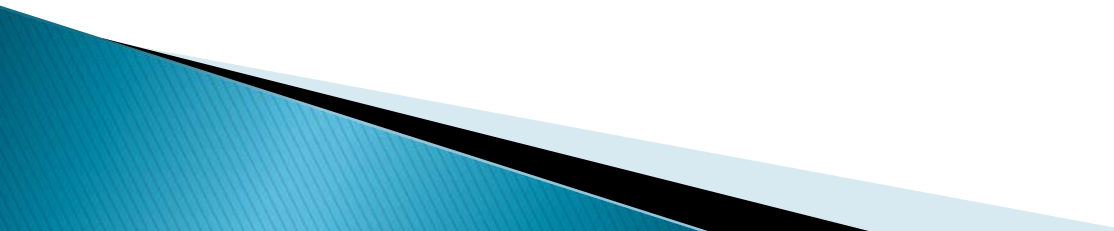


37,264 men in the 2007 cohort, 45,692 in the 2010 cohort, and 1,083 PCPs were identified

Methods

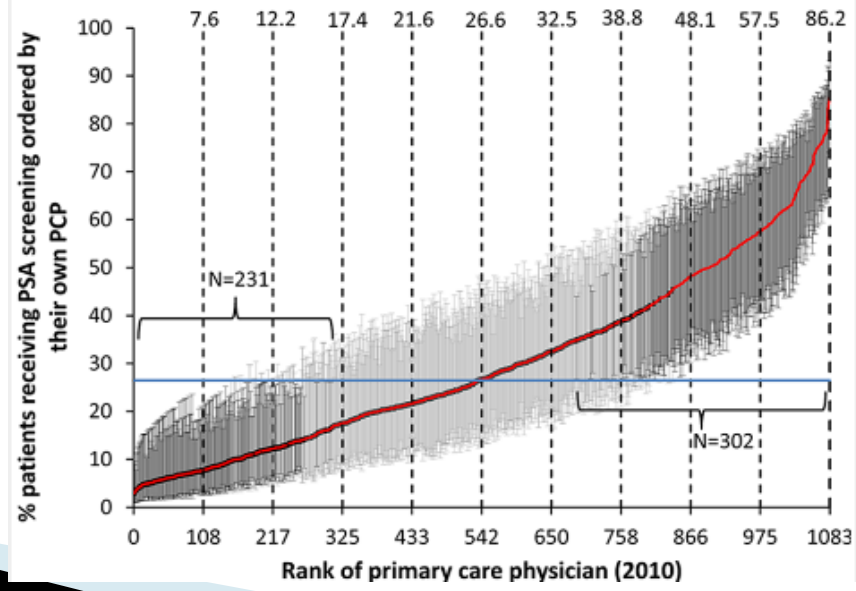
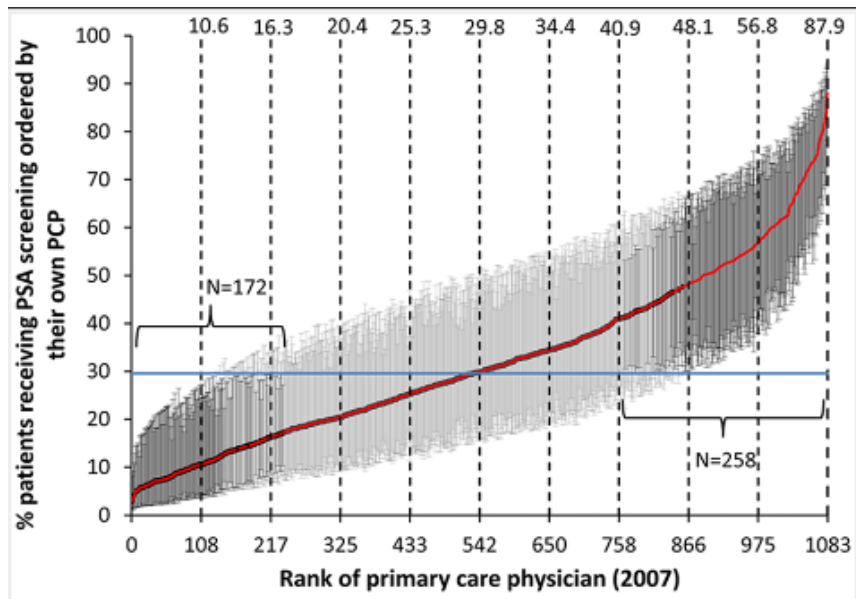
- ▶ Estimated PSA screening rate in 2007 and 2010 for men 75 or older
 - ▶ Looked for associations with PCP characteristics, adjusted for patient characteristics
 - ▶ Estimated PSA rates and adjusted for patient characteristics and within-PCP clustering
 - ▶ Identified PCPs with significantly higher or lower PSA screening rates
 - ▶ PCPs ranked on adjusted PSA screening rates in each cohort from lowest to highest
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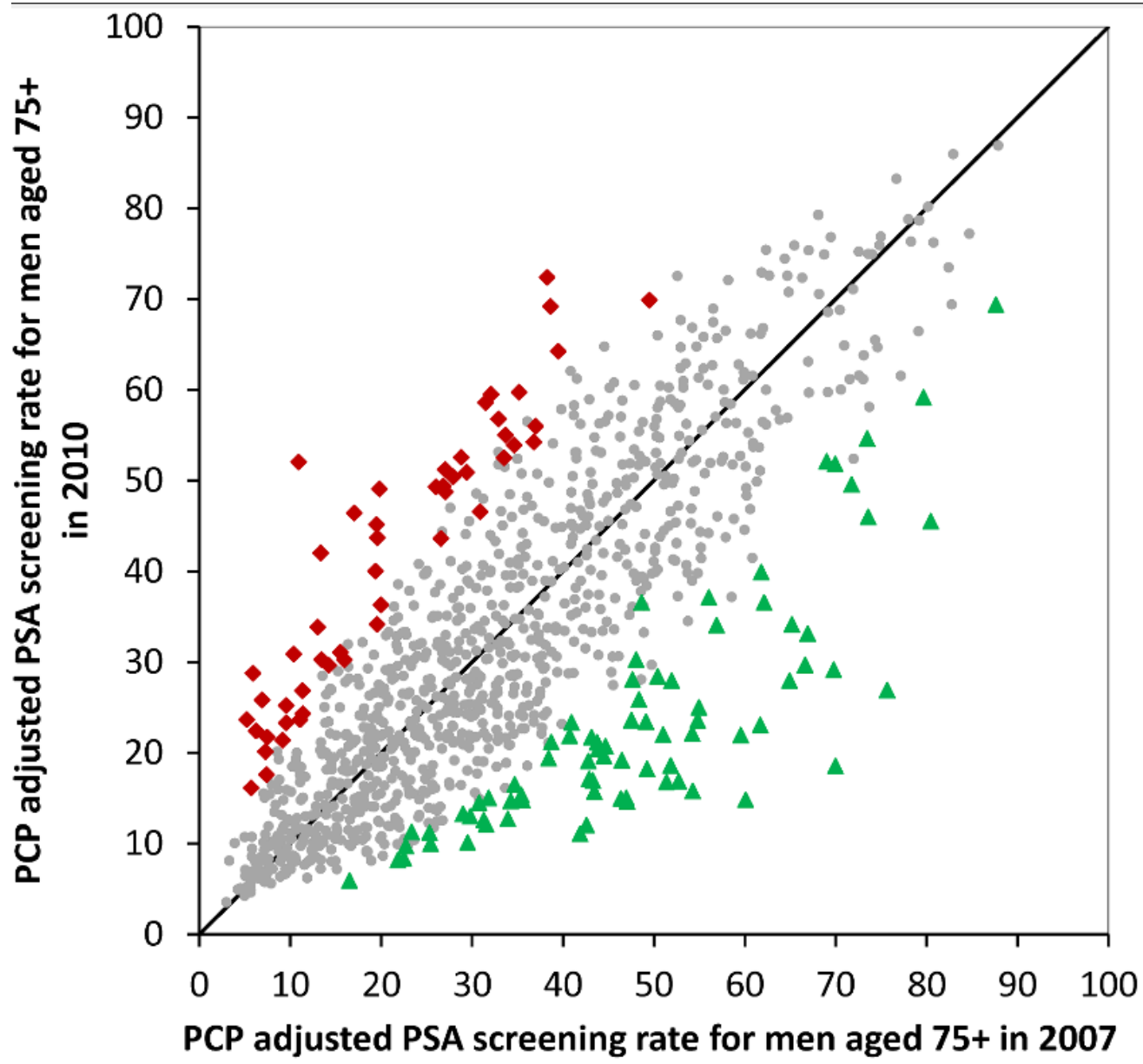
Methods

- ▶ Intraclass correlation coefficient was calculated for each PCP for each year. And compared using Levine's test for equal variance
 - ▶ A model was constructed including both cohorts and tested for interactions between year 2007 or 2010 and PCP characteristics
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Patient Characteristics*	Number of patients (% receiving PSA screening ordered by PCP)		OR (95% CI)	
	2007	2010	2007	2010
Overall	37,264 (33.2)	45,692 (30.6)	—	—
Age (years)				
75–79	17,487 (39.1)	15,728 (37.8)	1.00	1.00
80–84	11,682 (31.8)	15,654 (31.6)	0.76 (0.72, 0.80)	0.75 (0.71, 0.79)
85+	8,095 (22.6)	14,310 (21.6)	0.42 (0.40, 0.45)	0.42 (0.39, 0.44)
Race/Ethnicity				
White	31,348 (34.0)	38,037 (31.0)	1.00	1.00
Black	905 (30.5)	1,165 (30.6)	0.96 (0.81, 1.14)	1.01 (0.87, 1.17)
Hispanic	4,603 (28.4)	5,922 (28.1)	0.99 (0.89, 1.11)	1.08 (0.97, 1.19)
Other	382 (34.0)	548 (29.9)	1.10 (0.84, 1.45)	0.83 (0.65, 1.06)
Numbers of comorbidities				
0	5,591 (35.2)	5,936 (33.9)	1.00	1.00
1	11,323 (37.2)	12,758 (34.8)	1.11 (1.03, 1.20)	1.07 (0.99, 1.15)
2	9,191 (33.5)	11,611 (31.5)	0.92 (0.85, 1.00)	0.90 (0.83, 0.98)
3	5,297 (31.6)	6,973 (27.8)	0.83 (0.76, 0.91)	0.74 (0.68, 0.81)
4+	5,462 (23.9)	8,414 (22.9)	0.56 (0.51, 0.62)	0.57 (0.52, 0.62)
Medicaid eligibility				
No	33,719 (33.9)	41,477 (31.0)	1.00	1.00
Yes	3,545 (27.0)	4,215 (27.1)	0.84 (0.75, 0.94)	0.93 (0.84, 1.04)
Urban/Rural				
Metro	28,882 (33.8)	35,104 (30.8)	1.00	1.00
Non-Metro	7,657 (31.3)	9,743 (29.7)	0.96 (0.88, 1.06)	1.07 (0.98, 1.17)
Rural	702 (30.5)	839 (30.3)	1.08 (0.87, 1.33)	1.13 (0.93, 1.39)
Percent high school graduates in the zip code area				
<75%	8,786 (30.8)	10,275 (28.4)	1.00	1.00
75–83%	8,642 (23.2)	10,757 (28.4)	0.96 (0.88, 1.04)	0.96 (0.88, 1.04)
84–90%	9,332 (25.0)	11,426 (30.9)	1.05 (0.96, 1.14)	1.03 (0.95, 1.12)
>90%	9,404 (25.2)	11,888 (34.1)	1.10 (1.01, 1.20)	1.06 (0.98, 1.15)

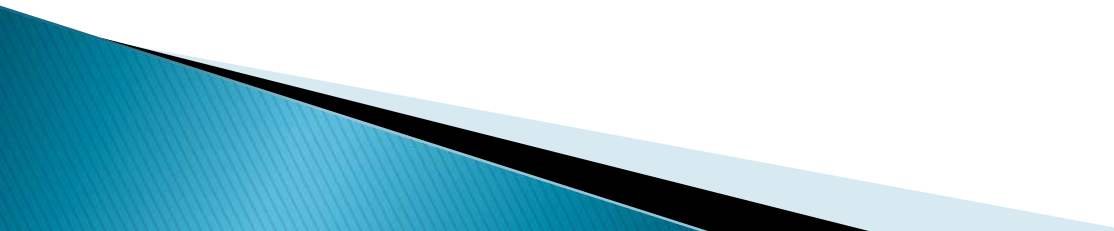
PCP Characteristics	Number of PCPs (% of their patients receiving PSA ordered by PCP)		OR (95% CI)	
	2007	2010	2007	2010
Overall	1,083 (33.2%)	1083 (30.6%)	—	—
Age (years)				
< = 50	432 (31.0%)	(29.6%)	1.00	1.00
50–60	438 (33.8%)	(30.4%)	1.03 (0.89, 1.19)	0.95 (0.81, 1.11)
>60	202 (36.5%)	(32.2%)	1.15 (0.95, 1.39)	1.03 (0.84, 1.27)
Gender				
Female	45 (26.3%)	45 (23.8%)	1.00	1.00
Male	1,027 (33.5%)	1,027 (30.6%)	1.31 (0.93, 1.84)	1.30 (0.89, 1.89)
Number of Male Patients 75+ in 2007/2010 in their patient panel				
20–25	345 (29.3%)	139 (24.7%)	1.00	1.00
26–35	365 (31.7%)	344 (28.8%)	1.10 (0.93, 1.30)	1.29 (1.01, 1.65)
36–50	243 (35.4%)	336 (35.4%)	1.35 (1.12, 1.62)	1.47 (1.15, 1.88)
>50	130 (36.2%)	264 (31.4%)	1.30 (1.04, 1.63)	1.36 (1.05, 1.76)
Specialty				
Family Medicine	442 (31.2%)	442 (28.9%)	1.00	1.00
Internal Medicine	641 (34.4%)	641 (31.6%)	1.13 (0.98, 1.30)	1.16 (1.00, 1.35)
Board Certified in 2007/2010				
Yes	828 (33.6%)	790 (30.5%)	1.00	1.00
No	70 (29.6%)	108 (29.0%)	0.92 (0.70, 1.22)	0.94 (0.74, 1.20)



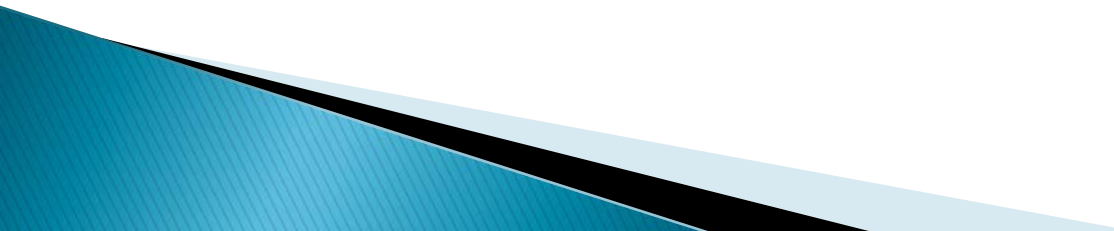


PCP Characteristics	OR (95% CI) of receiving PSA screening, 2010 vs. 2007
Age (years)	
<= 50	1.04 (0.96, 1.12)
51-60	0.97 (0.90, 1.04)
>60	0.91 (0.83, 0.99)
Number of Patients 75+	
20-25	1.03 (0.95, 1.12)
26-35	0.97 (0.90, 1.05)
36-60	1.00 (0.92, 1.08)
>50	0.88 (0.80, 0.96)
Board Certified	
Yes	0.88 (0.84, 0.92)
No	1.02 (0.89, 1.18)

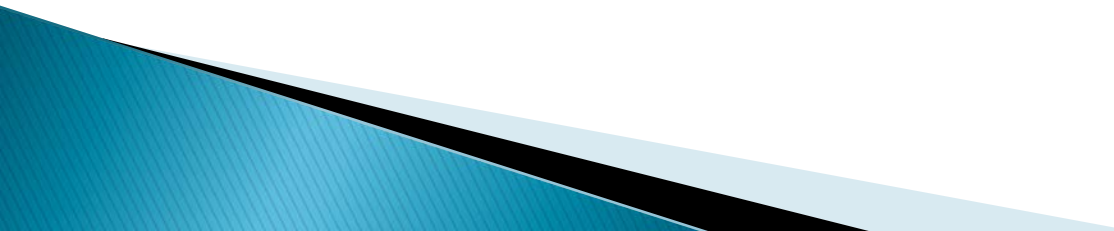
Discussion

- ▶ Variation between PCPs in lowest decile to highest decile is 9-10 fold
 - ▶ Extremely high compared to other cancer screening tests
 - Mammography in older women: 0.10
 - Colonoscopy in older men and women: 0.09
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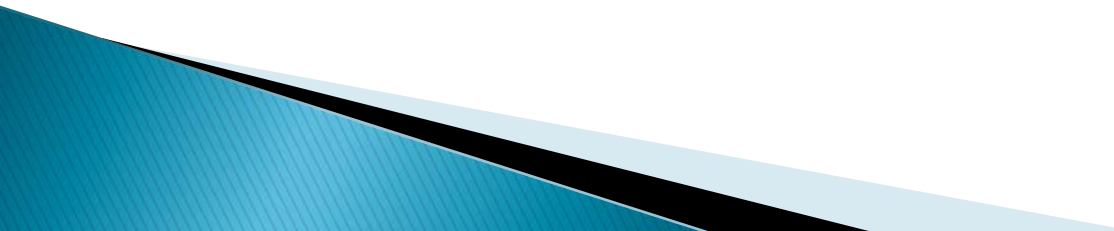
Discussion

- ▶ Overall decrease in testing rates: 33.2% to 30.6%
 - ▶ But the number of physicians in the upper decile of PSA testing actually increased
 - ▶ The overall decrease in rates was driven by increases in the number of PCPs with lower rates
 - ▶ This is what caused the significant variation
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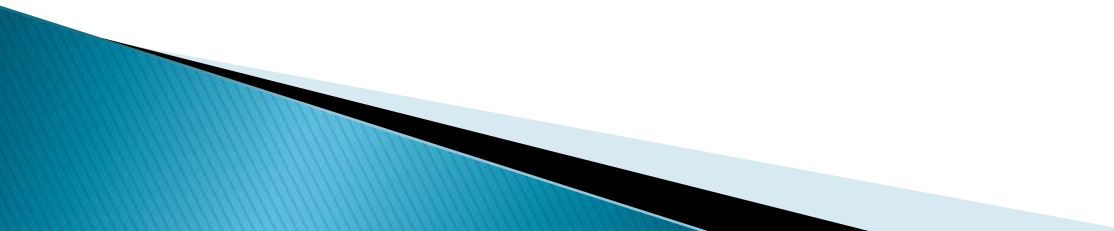
Discussion

- ▶ Our results showed a decrease in testing rates with PCPs over 60 and increase with age under 50
 - ▶ Previous research has shown younger more recent graduates tend to be more adherent to guidelines
 - ▶ This was the case in 2007 but not in 2010
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Discussion

- ▶ No guidelines advocate PSA testing for men over 75 yet there is still much controversy
 - ▶ Lack of complete consensus may be causing increased variation
 - ▶ It is possible physicians are discussing PSA testing more often with their patients
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Limitations:

- ▶ Only assessed screening PSA tests but some symptoms may not have been coded
 - ▶ exclusions of patients with HMOs
 - ▶ use of only Texas data--Southern states tend to have higher utilization rates for test and procedures
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Conclusion

- ▶ Despite an overall decrease in PSA testing the release of the USPTF increased variation among physicians using PSA screening tests

Questions?

