

**Table 104 (page 1 of 2). Active physicians and doctors of medicine in patient care, by geographic division and state: United States, selected years 1975–2004**

[Data are based on reporting by physicians]

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Geographic division and state	Total physicians <sup>1</sup>				Doctors of medicine in patient care <sup>2</sup>			
	1975	1985	1995 <sup>3</sup>	2004 <sup>4,5</sup>	1975	1985	1995	2004 <sup>5</sup>
	Number per 10,000 civilian population							
United States . . . . .	15.3	20.7	24.2	26.3	13.5	18.0	21.3	<del>23.2</del>
New England . . . . .	19.1	26.7	32.5	37.2	16.9	22.9	28.8	<del>32.6</del>
Connecticut . . . . .	19.8	27.6	32.8	35.0	17.7	24.3	29.5	31.3
Maine . . . . .	12.8	18.7	22.3	29.6	10.7	15.6	18.2	24.0
Massachusetts . . . . .	20.8	30.2	37.5	41.7	18.3	25.4	33.2	37.4
New Hampshire . . . . .	14.3	18.1	21.5	26.2	13.1	16.7	19.8	23.5
Rhode Island . . . . .	17.8	23.3	30.4	34.6	16.1	20.2	26.7	30.7
Vermont . . . . .	18.2	23.8	26.9	35.1	15.5	20.3	24.2	31.9
Middle Atlantic . . . . .	19.5	26.1	32.4	35.0	17.0	22.2	28.0	<del>29.4</del>
New Jersey . . . . .	16.2	23.4	29.3	31.6	14.0	19.8	24.9	26.8
New York . . . . .	22.7	29.0	35.3	37.1	20.2	25.2	31.6	33.0
Pennsylvania . . . . .	16.6	23.6	30.1	31.7	13.9	19.2	24.6	25.6
East North Central . . . . .	13.9	19.3	23.3	26.6	12.0	16.4	19.8	<del>22.5</del>
Illinois . . . . .	14.5	20.5	24.8	27.2	13.1	18.2	22.1	24.1
Indiana . . . . .	10.6	14.7	18.4	21.6	9.6	13.2	16.6	19.6
Michigan . . . . .	15.4	20.8	24.8	27.1	12.0	16.0	19.0	21.3
Ohio . . . . .	14.1	19.9	23.8	27.2	12.2	16.8	20.0	23.0
Wisconsin . . . . .	12.5	17.7	21.5	25.3	11.4	15.9	19.6	23.1
West North Central . . . . .	13.3	18.3	21.8	25.8	11.4	15.6	18.9	<del>21.5</del>
Iowa . . . . .	11.4	15.6	19.2	21.0	9.4	12.4	15.1	16.6
Kansas . . . . .	12.8	17.3	20.8	23.2	11.2	15.1	18.0	20.1
Minnesota . . . . .	14.9	20.5	23.4	27.5	13.7	18.5	21.5	25.3
Missouri . . . . .	15.0	20.5	23.9	25.7	11.6	16.3	19.7	21.4
Nebraska . . . . .	12.1	15.7	19.8	23.5	10.9	14.4	18.3	21.6
North Dakota . . . . .	9.7	15.8	20.5	23.8	9.2	14.9	18.9	22.1
South Dakota . . . . .	8.2	13.4	16.7	22.1	7.7	12.3	15.7	20.3
South Atlantic . . . . .	14.0	19.7	23.4	26.4	12.6	17.6	21.0	<del>23.6</del>
Delaware . . . . .	14.3	19.7	23.4	25.9	12.7	17.1	19.7	22.2
District of Columbia . . . . .	39.6	55.3	63.6	74.2	34.6	45.6	53.6	64.2
Florida . . . . .	15.2	20.2	22.9	25.1	13.4	17.8	20.3	22.2
Georgia . . . . .	11.5	16.2	19.7	22.0	10.6	14.7	18.0	20.0
Maryland . . . . .	18.6	30.4	34.1	39.3	16.5	24.9	29.9	33.8
North Carolina . . . . .	11.7	16.9	21.1	24.5	10.6	15.0	19.4	22.6
South Carolina . . . . .	10.0	14.7	18.9	22.6	9.3	13.6	17.6	21.0
Virginia . . . . .	12.9	19.5	22.5	26.5	11.9	17.8	20.8	24.2
West Virginia . . . . .	11.0	16.3	21.0	24.6	10.0	14.6	17.9	20.4
East South Central . . . . .	10.5	15.0	19.2	23.0	9.7	14.0	17.8	<del>20.7</del>
Alabama . . . . .	9.2	14.2	18.4	21.1	8.6	13.1	17.0	19.5
Kentucky . . . . .	10.9	15.1	19.2	22.7	10.1	13.9	18.0	21.0
Mississippi . . . . .	8.4	11.8	13.9	18.4	8.0	11.1	13.0	16.8
Tennessee . . . . .	12.4	17.7	22.5	25.4	11.3	16.2	20.8	23.4
West South Central . . . . .	11.9	16.4	19.5	21.6	10.5	14.5	17.3	<del>19.2</del>
Arkansas . . . . .	9.1	13.8	17.3	20.5	8.5	12.8	16.0	18.9
Louisiana . . . . .	11.4	17.3	21.7	25.3	10.5	16.1	20.3	23.9
Oklahoma . . . . .	11.6	16.1	18.8	20.3	9.4	12.9	14.7	15.6
Texas . . . . .	12.5	16.8	19.4	21.2	11.0	14.7	17.3	18.9
Mountain . . . . .	14.3	17.8	20.2	21.2	12.6	15.7	17.8	<del>19.8</del>
Arizona . . . . .	16.7	20.2	21.4	22.2	14.1	17.1	18.2	18.9
Colorado . . . . .	17.3	20.7	23.7	26.6	15.0	17.7	20.6	23.3
Idaho . . . . .	9.5	12.1	13.9	17.7	8.9	11.4	13.1	16.1
Montana . . . . .	10.6	14.0	18.4	22.7	10.1	13.2	17.1	20.9
Nevada . . . . .	11.9	16.0	16.7	19.2	10.9	14.5	14.6	17.2
New Mexico . . . . .	12.2	17.0	20.2	23.8	10.1	14.7	18.0	21.2
Utah . . . . .	14.1	17.2	19.2	21.0	13.0	15.5	17.6	19.0
Wyoming . . . . .	9.5	12.9	15.3	19.2	8.9	12.0	13.9	17.7

OUTSIDE  
VALUES

CT

MA

RI

VT

NY

DC

MD

See footnotes at end of table.

**Table 104 (page 2 of 2). Active physicians and doctors of medicine in patient care, by geographic division and state: United States, selected years 1975–2004**

[Data are based on reporting by physicians]

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Geographic division and state	Total physicians <sup>1</sup>				Doctors of medicine in patient care <sup>2</sup>			
	1975	1985	1995 <sup>3</sup>	2004 <sup>4,5</sup>	1975	1985	1995	2004 <sup>5</sup>
	Number per 10,000 civilian population							
Pacific .....	17.9	22.5	23.3	26.2	16.3	20.5	21.2	<del>20.1</del>
Alaska .....	8.4	13.0	15.7	23.2	7.8	12.1	14.2	20.5
California .....	18.8	23.7	23.7	25.2	17.3	21.5	21.7	22.9
Hawaii .....	16.2	21.5	24.8	31.0	14.7	19.8	22.8	28.1
Oregon .....	15.6	19.7	21.6	26.3	13.8	17.6	19.5	23.6
Washington .....	15.3	20.2	22.5	26.2	13.6	17.9	20.2	23.6

<sup>1</sup>Includes active doctors of medicine and active doctors of osteopathy. See Appendix II, Physician.

<sup>2</sup>Excludes doctors of osteopathy (DOs); states with more than 3,000 active DOs are Florida, Michigan, New York, Ohio, and Pennsylvania. States with fewer than 100 active DOs are North Dakota, South Dakota, Vermont, Wyoming, and the District of Columbia. Excludes doctors of medicine in medical teaching, administration, research, and other nonpatient care activities.

<sup>3</sup>Data for doctors of osteopathy are as of July 1996.

<sup>4</sup>Data for doctors of osteopathy are as of June 2004.

<sup>5</sup>Data for the year 2004 include federal and non-federal physicians. Prior to the year 2003, the data include non-federal physicians only.

NOTES: Data for doctors of medicine are as of December 31. Data for additional years are available. See Appendix III.

SOURCES: American Medical Association (AMA). Physician distribution and medical licensure in the U.S., 1975; Physician characteristics and distribution in the U.S., 1986 edition; 1996–1997 edition; 2006 edition; Department of Physician Practice and Communication Information, Division of Survey and Data Resources, AMA. (Copyrights 1976, 1986, 1997, 2006: Used with the permission of the AMA); American Osteopathic Association: 1975–76 Yearbook and Directory of Osteopathic Physicians, 1985–86 Yearbook and Directory of Osteopathic Physicians; American Association of Colleges of Osteopathic Medicine: 2004 Annual Report on Osteopathic Medical Education, 2004.

# MDs in patient care per 10,000 by state, 2006

NCHS. (2006). *Health, United States, 2006 With Chartbook on Trends in the Health of Americans*, from <http://www.cdc.gov/nchs/data/abus/abus06.pdf>

## Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
2004: MDs in med care per 10,000 by state	51	100.0%	0	.0%	51	100.0%

## Descriptives

		Statistic	Std. Error	
2004: MDs in med care per 10,000 by state	Mean	23.616	1.0412	
	95% Confidence Interval for Mean	Lower Bound	21.524	
		Upper Bound	25.707	
	5% Trimmed Mean	22.732		
	Median	22.200		
	Variance	55.291		
	Std. Deviation	7.4358		
	Minimum	15.6		
	Maximum	64.2		
	Range	48.6		
	Interquartile Range	4.1		
	Skewness	3.541	.333	
	Kurtosis	17.443	.656	

Frequency	Stem &	Leaf
1.00	1 .	5
5.00	1 .	66677
6.00	1 .	888999
12.00	2 .	000000111111
13.00	2 .	222233333333
5.00	2 .	44455
1.00	2 .	6
1.00	2 .	8
7.00	Extremes	(>=31)

Stem width: 10.0  
Each leaf: 1 case(s)

SHAPE: POSITIVE SKEW WITH OUTLIERS  
SEE SLIDE SHOWING "HAND" STEM PLOT

LOCATION: MEDIAN  $\approx$  22

SPREAD: GIVEN SHAPE, 5-POINT SUMMARY IS BEST  
15, 20, 22, 24, 62

FIVE-POINT SUMMARY FROM STEM PLOT

$$D(M) = \frac{51+1}{2} = 26$$

$$\text{ROUGH MEDIAN} = 22$$

$$D(Q1) = \frac{26+1}{2} = 13.5$$

$$\text{ROUGH } Q1 = 20$$

$$\text{ROUGH } Q3 = 24$$

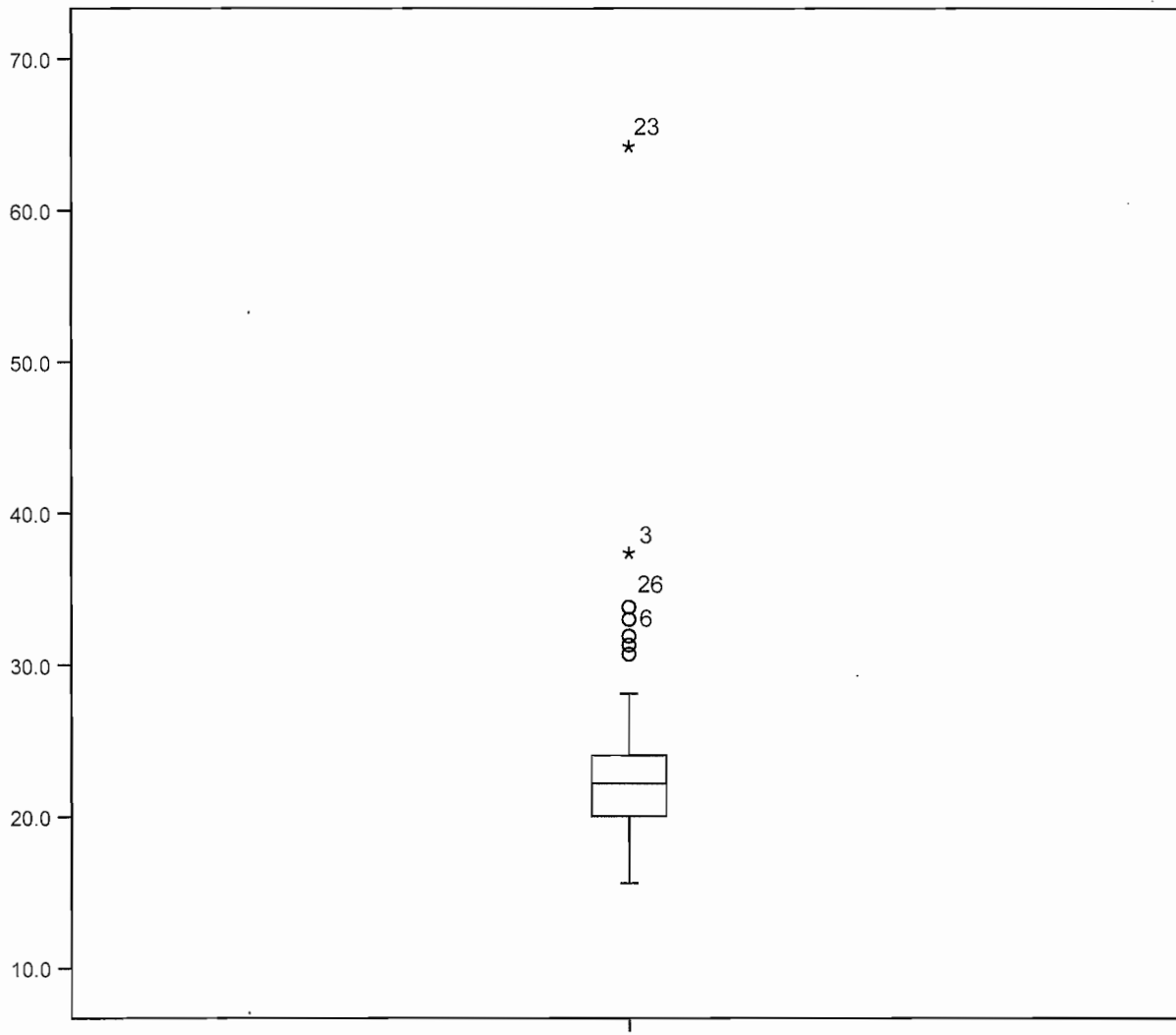
$$\text{ROUGH IQR} = 4$$

$$\text{ROUGH } F_L = 20 \times (1.5)(4) = 14$$

NONE OUTSIDE

$$\text{ROUGH } F_U = 24 \times (1.5)(4) = 30$$

THERE ARE SEVEN UPPER OUTSIDE VALUES - SEE DATA LISTING



2004: MDs in med care per 10,000 by state

## BINOMIAL REVIEW

p. 18 APOLOGIZE FOR POORLY WORDED PROBLEM

"STATE"  $X$  REPRESENTS THE NUMBER OF PEOPLE WITH  
HERPES SIMPLEX-2.

ASSUME PREVALENCE  $p = 0.2$

TAKE SRS OF  $n = 4$

$$\therefore X \sim b(4, 0.2)$$

$$(a) \Pr(X=0) = {}_n C_x p^x q^{n-x} = {}_4 C_0 \cdot 0.2^0 \cdot 0.8^4$$

$$\text{NOTE: } {}_4 C_0 = \frac{n!}{x!(n-x)!} = \frac{4!}{0!4!} = \frac{1 \cdot 4!}{1 \cdot 4!} = 1$$

$${}_4 C_0 \cdot 0.2^0 \cdot 0.8^4 = 1 \cdot 1 \cdot .4096 = \boxed{.4096}$$

(b) PROBABILITY OF "AT LEAST ONE" IS THE COMPLEMENT OF  
PROBABILITY OF NONE. THEREFORE,

$$\Pr(X \geq 1) = 1 - \Pr(X=0) = 1 - .4096 = \boxed{0.5904}$$

(c) NOW TAKE A SRS OF  $n=10 \rightarrow X \sim b(10, 0.2)$   
AND DETERMINE  $\Pr(X=0)$ .

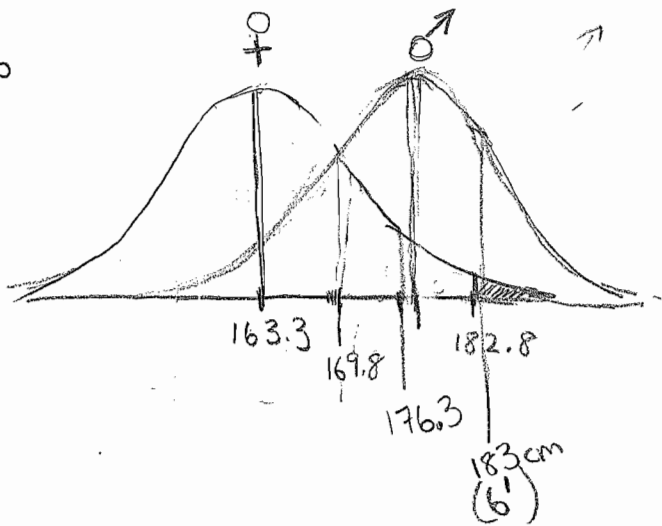
$$\begin{aligned} \Pr(X=0) &= {}_n C_x p^x q^{n-x} = {}_{10} C_0 \cdot .2^0 \cdot .8^{10} \\ &= 1 \cdot 1 \cdot 0.1074 \\ &= \boxed{0.1074} \end{aligned}$$

(d) WITH  $n=10$ , WHAT IS  $\Pr(X \geq 1)$

$$\begin{aligned} \Pr(X \geq 1) &= 1 - \Pr(X=0) \quad \text{BY LAW OF COMPLEMENTS} \\ &= 1 - 0.1074 \\ &= \boxed{0.8926} \end{aligned}$$

# NORMAL REVIEW

7.6



$$X_{\text{♂}} \sim N(176.9, 7.1)$$

$$X_{\text{♀}} \sim N(163.3, 6.5)$$

SHADED REGION REPRESENTS WOMEN GREATER THAN 6' TALL (183 cm)

Z-SCORE FOR ♀ GREATER THAN 183 cm

$$z = \frac{183 - 163.3}{6.5} = 3.03$$

$$\Pr(z \geq 3.03) = \Pr(z \leq -3.03) \text{ BY SYMMETRY}$$

$$= .0012 \text{ FROM Z TABLE}$$

$$= 12 \text{ PER } 10,000$$

FOR EVERY 10,000 WOMEN, ONLY 12 WILL BE 6' OR MORE IN HEIGHT

Z-SCORE FOR ♂ GREATER THAN 183 cm.

$$z = \frac{183 - 176.9}{7.1} = 0.86$$

$$\Pr(z \geq 0.86) = \Pr(z \leq -0.86) \text{ BY SYMMETRY}$$

$$= .1949$$

$$= \text{ABOUT ONE IN FIVE}$$

∴ IT'S NOT THAT UNUSUAL TO SEE A 6' TALL MAN

7.8 64<sup>th</sup> PERCENTILE = THAT VALUE WITH CUMULATIVE PROBABILITY

FOR STANDARD NORMAL Z

$$z_{.64} \approx z_{.6406} = 0.36 \text{ FROM TABLE B}$$

↑ CLOSEST CUMULATIVE PROBABILITY

7.10 TOP 10 PERCENT FOR  $X \sim N(100, 15)$

$$z_{.90} \approx z_{.8997} = 1.28$$

↑ CLOSEST TO .90

UNSTANDARDIZE

$$x = \mu + z_p \sigma = 100 + (1.28)(15) = 119.2$$

