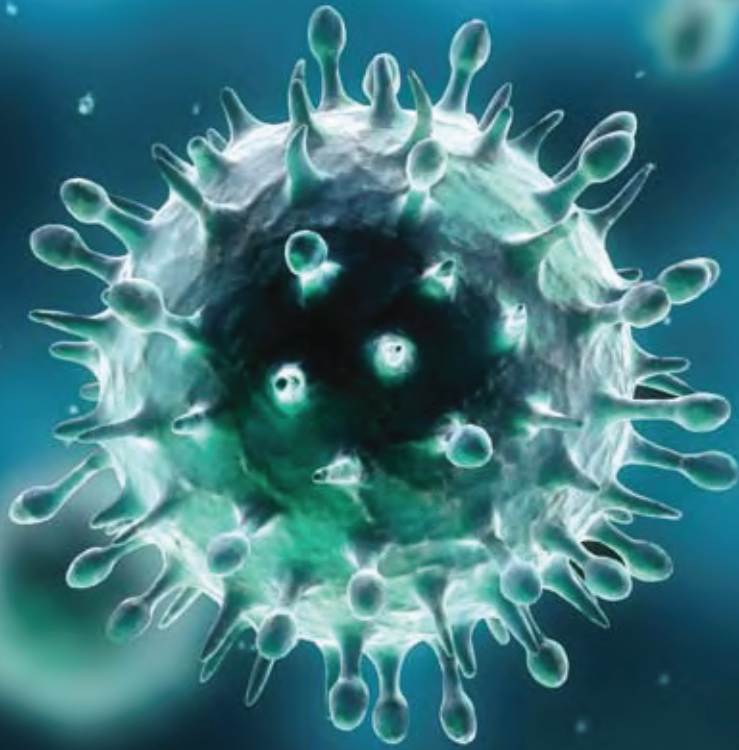


# 2011 profile

**P/RMA**

PHARMACEUTICAL  
INDUSTRY





# Key Facts

## Research and Development (R&D)

- Time to develop a drug = 10 to 15 years<sup>1</sup>

## Development Costs

- Cost to develop a drug  
2005 = \$1.3 billion<sup>2</sup>  
2001 = \$802 million<sup>3</sup>  
1987 = \$318 million<sup>3</sup>  
1975 = \$138 million<sup>3</sup>
- Cost to develop a biologic  
2005 = \$1.2 billion<sup>4</sup>

## R&D Spending

| Year | PhRMA members <sup>5</sup> | Total industry <sup>6</sup> |
|------|----------------------------|-----------------------------|
| 2010 | \$49.4 billion (est.)      | \$67.4 billion (est.)       |
| 2009 | \$46.4 billion             | \$65.9 billion              |
| 2008 | \$47.4 billion             | \$63.7 billion              |
| 2007 | \$47.9 billion             | \$63.2 billion              |
| 2006 | \$43.4 billion             | \$56.1 billion              |
| 2005 | \$39.9 billion             | \$51.8 billion              |
| 2004 | \$37.0 billion             | \$47.6 billion              |
| 2000 | \$26.0 billion             | not available               |
| 1990 | \$8.4 billion              | not available               |
| 1980 | \$2.0 billion              | not available               |

## Percentage of Sales That Went to R&D in 2010<sup>7</sup>

Domestic R&D  
as a percentage of domestic sales = 20.5%

Total R&D  
as a percentage of total sales = 17.0%

## Economic Impact of the Biopharmaceutical Sector<sup>8</sup>

Direct jobs = 655,025 in 2008 (*most recent data*)

Total jobs (including indirect and induced jobs)  
= 3.1 million in 2008 (*most recent data*)

## Approvals

- Drugs and biologics approved in 2000–2010 = 333<sup>9</sup>
- In the 28 years since the Orphan Drug Act was established, more than 360 orphan drugs have been approved.<sup>10</sup>
- Only 2 of 10 marketed drugs return revenues that match or exceed R&D costs.<sup>11</sup>

## Medicines in Development

2010 = 3,050 compounds<sup>12</sup>  
2001 = 2,040 compounds<sup>13</sup>

## Value of Medicines

- **Cancer:** Since 1980, life expectancy for cancer patients has increased about **3 years**, and 83% of those gains are attributable to new treatments, including medicines.<sup>14</sup> Another study found that medicines specifically account for 50% to 60% of increases in survival rates since 1975.<sup>15</sup>
- **Cardiovascular Disease:** According to a 2010 statistics update by the American Heart Association (AHA), death rates for cardiovascular disease fell a dramatic **28%** between 1997 and 2007.<sup>16</sup>
- **HIV/AIDS:** Since the approval of the antiretroviral treatments in 1995, the U.S. AIDS death rate has dropped by **more than 75%**.<sup>17</sup>

## Sales

- Generic share of market<sup>18</sup>  
2000 = 49%  
2010 = 78%

See inside back cover for endnotes.



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## Detailed results from the PhRMA Annual Member Survey

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**TABLE 1: Domestic R&D and R&D Abroad,\* PhRMA Member Companies: 1975–2010**

(dollar figures in millions)

| Year           | Domestic R&D | Annual Percentage Change | R&D Abroad* | Annual Percentage Change | Total R&D  | Annual Percentage Change |
|----------------|--------------|--------------------------|-------------|--------------------------|------------|--------------------------|
| 2010**         | \$37,371.0   | 5.7%                     | \$12,047.4  | 8.7%                     | \$49,418.4 | 6.4%                     |
| 2009           | 35,356.0     | -0.6                     | 11,085.6    | -6.1                     | 46,441.6   | -2.0                     |
| 2008           | 35,571.1     | -2.8                     | 11,812.0    | 4.6                      | 47,383.1   | -1.1                     |
| 2007           | 36,608.4     | 7.8                      | 11,294.8    | 25.4                     | 47,903.1   | 11.5                     |
| 2006           | 33,967.9     | 9.7                      | 9,005.6     | 1.3                      | 42,973.5   | 7.8                      |
| 2005           | 30,969.0     | 4.8                      | 8,888.9     | 19.1                     | 39,857.9   | 7.7                      |
| 2004           | 29,555.5     | 9.2                      | 7,462.6     | 1.0                      | 37,018.1   | 7.4                      |
| 2003           | 27,064.9     | 5.5                      | 7,388.4     | 37.9                     | 34,453.3   | 11.1                     |
| 2002           | 25,655.1     | 9.2                      | 5,357.2     | -13.9                    | 31,012.2   | 4.2                      |
| 2001           | 23,502.0     | 10.0                     | 6,220.6     | 33.3                     | 29,722.7   | 14.4                     |
| 2000           | 21,363.7     | 15.7                     | 4,667.1     | 10.6                     | 26,030.8   | 14.7                     |
| 1999           | 18,471.1     | 7.4                      | 4,219.6     | 9.9                      | 22,690.7   | 8.2                      |
| 1998           | 17,127.9     | 11.0                     | 3,839.0     | 9.9                      | 20,966.9   | 10.8                     |
| 1997           | 15,466.0     | 13.9                     | 3,492.1     | 6.5                      | 18,958.1   | 12.4                     |
| 1996           | 13,627.1     | 14.8                     | 3,278.5     | -1.6                     | 16,905.6   | 11.2                     |
| 1995           | 11,874.0     | 7.0                      | 3,333.5     | ***                      | 15,207.4   | ***                      |
| 1994           | 11,101.6     | 6.0                      | 2,347.8     | 3.8                      | 13,449.4   | 5.6                      |
| 1993           | 10,477.1     | 12.5                     | 2,262.9     | 5.0                      | 12,740.0   | 11.1                     |
| 1992           | 9,312.1      | 17.4                     | 2,155.8     | 21.3                     | 11,467.9   | 18.2                     |
| 1991           | 7,928.6      | 16.5                     | 1,776.8     | 9.9                      | 9,705.4    | 15.3                     |
| 1990           | 6,802.9      | 13.0                     | 1,617.4     | 23.6                     | 8,420.3    | 14.9                     |
| 1989           | 6,021.4      | 15.0                     | 1,308.6     | 0.4                      | 7,330.0    | 12.1                     |
| 1988           | 5,233.9      | 16.2                     | 1,303.6     | 30.6                     | 6,537.5    | 18.8                     |
| 1987           | 4,504.1      | 16.2                     | 998.1       | 15.4                     | 5,502.2    | 16.1                     |
| 1986           | 3,875.0      | 14.7                     | 865.1       | 23.8                     | 4,740.1    | 16.2                     |
| 1985           | 3,378.7      | 13.3                     | 698.9       | 17.2                     | 4,077.6    | 13.9                     |
| 1984           | 2,982.4      | 11.6                     | 596.4       | 9.2                      | 3,578.8    | 11.2                     |
| 1983           | 2,671.3      | 17.7                     | 546.3       | 8.2                      | 3,217.6    | 16.0                     |
| 1982           | 2,268.7      | 21.3                     | 505.0       | 7.7                      | 2,773.7    | 18.6                     |
| 1981           | 1,870.4      | 20.7                     | 469.1       | 9.7                      | 2,339.5    | 18.4                     |
| 1980           | 1,549.2      | 16.7                     | 427.5       | 42.8                     | 1,976.7    | 21.5                     |
| 1979           | 1,327.4      | 13.8                     | 299.4       | 25.9                     | 1,626.8    | 15.9                     |
| 1978           | 1,166.1      | 9.7                      | 237.9       | 11.6                     | 1,404.0    | 10.0                     |
| 1977           | 1,063.0      | 8.1                      | 213.1       | 18.2                     | 1,276.1    | 9.7                      |
| 1976           | 983.4        | 8.8                      | 180.3       | 14.1                     | 1,163.7    | 9.6                      |
| 1975           | 903.5        | 13.9                     | 158.0       | 7.0                      | 1,061.5    | 12.8                     |
| <b>Average</b> |              | <b>11.4%</b>             |             | <b>12.9%</b>             |            | <b>11.7%</b>             |

\*R&D Abroad includes expenditures outside the United States by U.S.-owned PhRMA member companies and R&D conducted abroad by the U.S. divisions of foreign-owned PhRMA member companies. R&D performed abroad by the foreign divisions of foreign-owned PhRMA member companies are excluded. Domestic R&D, however, includes R&D expenditures within the United States by all PhRMA member companies.

\*\*Estimated.

\*\*\*R&D Abroad affected by merger and acquisition activity.

Note: All figures include company-financed R&D only. Total values may be affected by rounding.

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.

**TABLE 2: R&D as a Percentage of Sales, PhRMA Member Companies: 1975–2010**

| Year  | Domestic R&D<br>as a Percentage<br>of Domestic Sales | Total R&D<br>as a Percentage<br>of Total Sales |
|-------|--|--|
| 2010* | 20.5%  | 17.0%  |
| 2009  | 19.5   | 16.8   |
| 2008  | 19.4   | 16.6   |
| 2007  | 19.8   | 17.5   |
| 2006  | 19.4   | 17.1   |
| 2005  | 18.6   | 16.9   |
| 2004  | 18.4   | 16.1**   |
| 2003  | 18.3   | 16.5**   |
| 2002  | 18.4   | 16.1   |
| 2001  | 18.0   | 16.7   |
| 2000  | 18.4   | 16.2   |
| 1999  | 18.2   | 15.5   |
| 1998  | 21.1   | 16.8   |
| 1997  | 21.6   | 17.1   |
| 1996  | 21.0   | 16.6   |
| 1995  | 20.8   | 16.7   |
| 1994  | 21.9   | 17.3   |
| 1993  | 21.6   | 17.0   |
| 1992  | 19.4   | 15.5   |
| 1991  | 17.9   | 14.6   |
| 1990  | 17.7   | 14.4   |
| 1989  | 18.4   | 14.8   |
| 1988  | 18.3   | 14.1   |
| 1987  | 17.4   | 13.4   |
| 1986  | 16.4   | 12.9   |
| 1985  | 16.3   | 12.9   |
| 1984  | 15.7   | 12.1   |
| 1983  | 15.9   | 11.8   |
| 1982  | 15.4   | 10.9   |
| 1981  | 14.8   | 10.0   |
| 1980  | 13.1   | 8.9  |
| 1979  | 12.5   | 8.6  |
| 1978  | 12.2   | 8.5  |
| 1977  | 12.4   | 9.0  |
| 1976  | 12.4   | 8.9  |
| 1975  | 12.7   | 9.0  |

\*Estimated.

\*\*Revised in 2007 to reflect updated data.

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.



**TABLE 3: Domestic R&D and R&D Abroad,\* PhRMA Member Companies: 2009**

(dollar figures in millions)

| <b>R&amp;D Expenditures<br/>for Human-use Pharmaceuticals</b>      | <b>Dollars</b>    | <b>Share</b>  |
|--|-------------------|---------------|
| Domestic   | \$34,986.7        | 75.3%         |
| Abroad*  | \$10,751.5        | 23.2%         |
| <b>Total Human-use R&amp;D</b>                                     | <b>\$45,738.2</b> | <b>98.5%</b>  |
|  |                   |               |
| <b>R&amp;D Expenditures<br/>for Veterinary-use Pharmaceuticals</b> |                   |               |
| Domestic   | \$369.3           | 0.8%          |
| Abroad*  | \$334.1           | 0.7%          |
| <b>Total Vet-use R&amp;D</b>                                       | <b>\$703.4</b>    | <b>1.5%</b>   |
|  |                   |               |
| <b>TOTAL R&amp;D</b>   | <b>\$46,441.6</b> | <b>100.0%</b> |

\*R&D abroad includes expenditures outside the United States by U.S.-owned PhRMA member companies and R&D conducted abroad by the U.S. divisions of foreign-owned PhRMA member companies. R&D performed abroad by the foreign divisions of foreign-owned PhRMA member companies are excluded. Domestic R&D, however, includes R&D expenditures within the United States by all PhRMA member companies.

Note: All figures include company-financed R&D only. Total values may be affected by rounding.

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.

**TABLE 4: Domestic R&D by Source, PhRMA Member Companies: 2009**

(dollar figures in millions)

| Source               | Dollars           | Share         |
|----------------------|-------------------|---------------|
| Licensed-in          | \$6,339.0         | 17.9%         |
| Self-originated      | 29,017.0          | 82.1          |
| <b>TOTAL R&amp;D</b> | <b>\$35,356.0</b> | <b>100.0%</b> |

Note: All figures include company-financed R&D only. Total values may be affected by rounding.

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.

**TABLE 5: R&D by Function, PhRMA Member Companies: 2009**

(dollar figures in millions)

| Function             | Dollars           | Share         |
|----------------------|-------------------|---------------|
| Prehuman/Preclinical | \$11,717.4        | 25.2%         |
| Phase 1              | 3,752.9           | 8.1           |
| Phase 2              | 7,123.7           | 15.3          |
| Phase 3              | 16,300.1          | 35.1          |
| Approval             | 2,046.9           | 4.4           |
| Phase 4              | 5,302.7           | 11.4          |
| Uncategorized        | 197.8             | 0.4           |
| <b>TOTAL R&amp;D</b> | <b>\$46,441.6</b> | <b>100.0%</b> |

Note: All figures include company-financed R&D only. Total values may be affected by rounding.

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.





**TABLE 6: R&D by Geographic Area,\* PhRMA Member Companies: 2009**

(dollar figures in millions)

| Geographic Area*   | Dollars           | Share         |
|--|-------------------|---------------|
| <b>Africa</b>  |                   |               |
| Egypt  | \$1.8             | 0.0%          |
| South Africa   | 16.7              | 0.0           |
| Other Africa   | 24.6              | 0.1           |
| <b>Americas</b>  |                   |               |
| United States  | \$35,356.0        | 76.1%         |
| Canada   | 444.4             | 1.0           |
| Mexico   | 70.9              | 0.2           |
| Brazil   | 100.9             | 0.2           |
| Argentina  | 24.4              | 0.1           |
| Venezuela  | 5.0               | 0.0           |
| Columbia   | 16.5              | 0.0           |
| Chile  | 4.3               | 0.0           |
| Peru   | 14.8              | 0.0           |
| Other Latin America  | 178.3             | 0.4           |
| <b>Asia-Pacific</b>  |                   |               |
| Japan  | \$676.2           | 1.5%          |
| China  | 124.4             | 0.3           |
| India  | 125.1             | 0.3           |
| Taiwan   | 18.0              | 0.0           |
| South Korea  | 32.4              | 0.1           |
| Other Asia-Pacific   | 345.1             | 0.7           |
| <b>Australia</b>   |                   |               |
| Australia and New Zealand  | \$181.7           | 0.4%          |
| <b>Europe</b>  |                   |               |
| France   | \$365.1           | 0.8%          |
| Germany  | 583.2             | 1.3           |
| Italy  | 210.5             | 0.5           |
| Spain  | 223.6             | 0.5           |
| United Kingdom   | 1,937.4           | 4.2           |
| Other Western European   | 4,315.6           | 9.3           |
| Czech Republic   | 97.9              | 0.2           |
| Hungary  | 40.3              | 0.1           |
| Poland   | 212.4             | 0.5           |
| Turkey   | 28.7              | 0.1           |
| Russia   | 159.6             | 0.3           |
| Central and Eastern Europe (Cyprus, Estonia, Slovenia, Bulgaria, Lithuania, Latvia, Romania, Slovakia, Malta, and other Eastern European countries and the Newly Independent States) | 384.1             | 0.8           |
| <b>Middle East</b>   |                   |               |
| Saudi Arabia   | \$2.7             | 0.0%          |
| Middle East (Yemen, United Arab Emirates, Iraq, Iran, Kuwait, Israel, Jordan, Syria, Afghanistan, and Qatar)   | 118.0             | 0.3           |
| <b>Uncategorized</b>   | \$1.1             | 0.0%          |
| <b>TOTAL R&amp;D</b>   | <b>\$46,441.6</b> | <b>100.0%</b> |

\*R&D abroad includes expenditures outside the United States by U.S.-owned PhRMA member companies and R&D conducted abroad by the U.S. divisions of foreign-owned PhRMA member companies. R&D performed abroad by the foreign divisions of foreign-owned PhRMA member companies are excluded. Domestic R&D, however, includes R&D expenditures within the United States by all PhRMA member companies.

Note: All figures include company-financed R&D only. Total values may be affected by rounding.

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.



**TABLE 7: Biologics and Biotechnology R&D, PhRMA Member Companies: 2009**

(dollar figures in millions)

| Type   | Dollars           | Share         |
|--|-------------------|---------------|
| Biotechnology-derived Therapeutic Proteins   | \$9,691.6         | 20.9%         |
| Vaccines                                     | 1,161.7           | 2.5           |
| Cell or Gene Therapy                         | 250.6             | 0.5           |
| All Other Biologics                          | 1,001.8           | 2.2           |
| <b>Total Biologics/Biotechnology R&amp;D</b> | <b>\$12,105.6</b> | <b>26.1%</b>  |
| <b>Non-biologics/Biotechnology R&amp;D</b>   | <b>\$34,336.0</b> | <b>73.9%</b>  |
| <b>TOTAL R&amp;D</b>                         | <b>\$46,441.6</b> | <b>100.0%</b> |

Note: All figures include company-financed R&D only. Total values may be affected by rounding.  
 SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.

**TABLE 8: Domestic Sales and Sales Abroad,\* PhRMA Member Companies: 1975–2010**

(dollar figures in millions)

| Year           | Domestic Sales | Annual Percentage Change | Sales Abroad* | Annual Percentage Change | Total Sales | Annual Percentage Change |
|----------------|----------------|--------------------------|---------------|--------------------------|-------------|--------------------------|
| 2010**         | \$182,610.5    | 0.8%                     | \$108,815.2   | 14.3%                    | \$291,425.8 | 5.5%                     |
| 2009           | 181,116.8      | -1.1                     | 95,162.5      | -7.5                     | 276,279.3   | -3.4                     |
| 2008           | 183,167.2      | -1.1                     | 102,842.4     | 16.6                     | 286,009.6   | 4.6                      |
| 2007           | 185,209.2      | 4.2                      | 88,213.4      | 14.8                     | 273,422.6   | 7.4                      |
| 2006           | 177,736.3      | 7.0                      | 76,870.2      | 10.0                     | 254,606.4   | 7.9                      |
| 2005           | 166,155.5      | 3.4                      | 69,881.0      | 0.1                      | 236,036.5   | 2.4                      |
| 2004***        | 160,751.0      | 8.6                      | 69,806.9      | 14.6                     | 230,557.9   | 10.3                     |
| 2003***        | 148,038.6      | 6.4                      | 60,914.4      | 13.4                     | 208,953.0   | 8.4                      |
| 2002           | 139,136.4      | 6.4                      | 53,697.4      | 12.1                     | 192,833.8   | 8.0                      |
| 2001           | 130,715.9      | 12.8                     | 47,886.9      | 5.9                      | 178,602.8   | 10.9                     |
| 2000           | 115,881.8      | 14.2                     | 45,199.5      | 1.6                      | 161,081.3   | 10.4                     |
| 1999           | 101,461.8      | 24.8                     | 44,496.6      | 2.7                      | 145,958.4   | 17.1                     |
| 1998           | 81,289.2       | 13.3                     | 43,320.1      | 10.8                     | 124,609.4   | 12.4                     |
| 1997           | 71,761.9       | 10.8                     | 39,086.2      | 6.1                      | 110,848.1   | 9.1                      |
| 1996           | 64,741.4       | 13.3                     | 36,838.7      | 8.7                      | 101,580.1   | 11.6                     |
| 1995           | 57,145.5       | 12.6                     | 33,893.5      | ****                     | 91,039.0    | ****                     |
| 1994           | 50,740.4       | 4.4                      | 26,870.7      | 1.5                      | 77,611.1    | 3.4                      |
| 1993           | 48,590.9       | 1.0                      | 26,467.3      | 2.8                      | 75,058.2    | 1.7                      |
| 1992           | 48,095.5       | 8.6                      | 25,744.2      | 15.8                     | 73,839.7    | 11.0                     |
| 1991           | 44,304.5       | 15.1                     | 22,231.1      | 12.1                     | 66,535.6    | 14.1                     |
| 1990           | 38,486.7       | 17.7                     | 19,838.3      | 18.0                     | 58,325.0    | 17.8                     |
| 1989           | 32,706.6       | 14.4                     | 16,817.9      | -4.7                     | 49,524.5    | 7.1                      |
| 1988           | 28,582.6       | 10.4                     | 17,649.3      | 17.1                     | 46,231.9    | 12.9                     |
| 1987           | 25,879.1       | 9.4                      | 15,068.4      | 15.6                     | 40,947.5    | 11.6                     |
| 1986           | 23,658.8       | 14.1                     | 13,030.5      | 19.9                     | 36,689.3    | 16.1                     |
| 1985           | 20,742.5       | 9.0                      | 10,872.3      | 4.0                      | 31,614.8    | 7.3                      |
| 1984           | 19,026.1       | 13.2                     | 10,450.9      | 0.4                      | 29,477.0    | 8.3                      |
| 1983           | 16,805.0       | 14.0                     | 10,411.2      | -2.4                     | 27,216.2    | 7.1                      |
| 1982           | 14,743.9       | 16.4                     | 10,667.4      | 0.1                      | 25,411.3    | 9.0                      |
| 1981           | 12,665.0       | 7.4                      | 10,658.3      | 1.4                      | 23,323.3    | 4.6                      |
| 1980           | 11,788.6       | 10.7                     | 10,515.4      | 26.9                     | 22,304.0    | 17.8                     |
| 1979           | 10,651.3       | 11.2                     | 8,287.8       | 21.0                     | 18,939.1    | 15.3                     |
| 1978           | 9,580.5        | 12.0                     | 6,850.4       | 22.2                     | 16,430.9    | 16.1                     |
| 1977           | 8,550.4        | 7.5                      | 5,605.0       | 10.2                     | 14,155.4    | 8.6                      |
| 1976           | 7,951.0        | 11.4                     | 5,084.3       | 9.7                      | 13,035.3    | 10.8                     |
| 1975           | 7,135.7        | 10.3                     | 4,633.3       | 19.1                     | 11,769.0    | 13.6                     |
| <b>Average</b> |                | <b>9.8%</b>              |               | <b>9.6%</b>              |             | <b>9.6%</b>              |

\*Sales Abroad includes sales generated outside the United States by U.S.-owned PhRMA member companies and sales generated abroad by the U.S. divisions of foreign-owned PhRMA member companies. Sales generated abroad by the foreign divisions of foreign-owned PhRMA member companies are excluded. Domestic sales, however, includes sales generated within the United States by all PhRMA member companies.

\*\*Estimated.

\*\*\*Revised in 2007 to reflect updated data.

\*\*\*\*Sales abroad affected by merger and acquisition activity.

Note: Total values may be affected by rounding.

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.

**TABLE 9: Sales by Geographic Area,\* PhRMA Member Companies: 2009**

(dollar figures in millions)

| Geographic Area*   | Dollars            | Share         |
|--|--------------------|---------------|
| <b>Africa</b>  |                    |               |
| Egypt  | \$314.4            | 0.1%          |
| South Africa   | 555.6              | 0.2           |
| Other Africa   | 671.8              | 0.2           |
| <b>Americas</b>  |                    |               |
| United States  | \$181,116.8        | 65.6%         |
| Canada   | 6,466.5            | 2.3           |
| Mexico   | 2,261.8            | 0.8           |
| Brazil   | 2,988.9            | 1.1           |
| Argentina  | 486.2              | 0.2           |
| Venezuela  | 1,493.9            | 0.5           |
| Columbia   | 545.3              | 0.2           |
| Chile  | 219.2              | 0.1           |
| Peru   | 151.1              | 0.1           |
| Other Latin America  | 1,470.9            | 0.5           |
| <b>Asia-Pacific</b>  |                    |               |
| Japan  | \$11,609.6         | 4.2%          |
| China  | 2,722.1            | 1.0           |
| India  | 638.4              | 0.2           |
| Taiwan   | 653.7              | 0.2           |
| South Korea  | 1,091.8            | 0.4           |
| Other Asia-Pacific   | 2,139.6            | 0.8           |
| <b>Australia</b>   |                    |               |
| Australia and New Zealand  | \$3,107.5          | 1.1%          |
| <b>Europe</b>  |                    |               |
| France   | \$9,229.9          | 3.3%          |
| Germany  | 7,410.0            | 2.7           |
| Italy  | 6,352.4            | 2.3           |
| Spain  | 6,243.9            | 2.3           |
| United Kingdom   | 4,938.1            | 1.8           |
| Other Western European   | 10,326.0           | 3.7           |
| Czech Republic   | 646.9              | 0.2           |
| Hungary  | 454.6              | 0.2           |
| Poland   | 817.5              | 0.3           |
| Turkey   | 1,412.2            | 0.5           |
| Russia   | 1,106.5            | 0.4           |
| Central and Eastern Europe (Cyprus, Estonia, Slovenia, Bulgaria, Lithuania, Latvia, Romania, Slovakia, Malta, and other Eastern European countries and the Newly Independent States) | 4,468.4            | 1.6           |
| <b>Middle East</b>   |                    |               |
| Saudi Arabia   | \$439.3            | 0.2%          |
| Middle East (Yemen, United Arab Emirates, Iraq, Iran, Kuwait, Israel, Jordan, Syria, Afghanistan, and Qatar)   | 1,728.4            | 0.6           |
| <b>Uncategorized</b>   | —                  | 0.0%          |
| <b>TOTAL SALES</b>   | <b>\$276,279.3</b> | <b>100.0%</b> |

\*Sales Abroad includes expenditures outside the United States by U.S.-owned PhRMA member companies and sales generated abroad by the U.S. divisions of foreign-owned PhRMA member companies. Sales generated abroad by the foreign divisions of foreign-owned PhRMA member companies are excluded. Domestic sales, however, includes sales generated within the United States by all PhRMA member companies.

Note: Total values may be affected by rounding.

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.



**TABLE 10: Domestic R&D Scientific, Professional and Technical Personnel by Function, PhRMA Member Companies: 2009**

| Function                       | Personnel     | Share         |
|--------------------------------|---------------|---------------|
| Prehuman/Preclinical           | 22,725        | 28.8%         |
| Phase 1                        | 5,748         | 7.3           |
| Phase 2                        | 10,010        | 12.7          |
| Phase 3                        | 17,622        | 22.3          |
| Approval                       | 4,179         | 5.3           |
| Phase 4                        | 8,843         | 11.2          |
| Uncategorized                  | 580           | 0.7           |
| <b>Total R&amp;D Staff</b>     | <b>69,707</b> | <b>88.3</b>   |
| Supported R&D Non-staff        | 9,243         | 11.7          |
| <b>TOTAL R&amp;D PERSONNEL</b> | <b>78,950</b> | <b>100.0%</b> |

SOURCE: Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey*, 2011.

# endnotes

(continued from inside front cover)

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<sup>2</sup> J. A. DiMasi and H. G. Grabowski, "The Cost of Biopharmaceutical R&D: Is Biotech Different?" *Managerial and Decision Economics* 28 (2007): 469–479.

<sup>3</sup> J. A. DiMasi, R. W. Hansen, and H. G. Grabowski, *op. cit.*

<sup>4</sup> J. A. DiMasi and H. G. Grabowski, *op. cit.*

<sup>5</sup> Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey* (Washington, DC: PhRMA, 1981–2011).

<sup>6</sup> Burrill & Co., analysis for PhRMA, 2005–2011 (includes PhRMA research associates and nonmembers); Pharmaceutical Research and Manufacturers of America, *op. cit.*

<sup>7</sup> Pharmaceutical Research and Manufacturers of America, *PhRMA Annual Member Survey* (Washington, DC: PhRMA, 2011).

<sup>8</sup> Archstone Consulting and R. L. Burns, *The Biopharmaceutical Sector's Impact on the Economy of the United States* (Fact Sheet) (Washington, DC: Archstone Consulting, LLC, 2010). Types of direct biopharmaceutical jobs in 2008 are from the U.S. Bureau of Labor Statistics, 2008 Occupational Employment Statistics (NAICS codes 3254 and 54171).

<sup>9</sup> Pharmaceutical Research and Manufacturers of America, "New Drugs Approved" reports, (PhRMA, DC: 2001–2010); B. Silverman, "Few, But Fast and on Time: 2010 Saw Low NME Count, But Almost All Were First-Cycle Approvals and FDA Met Most User Fees," *Pink Sheet*, 73 (24 January 2011): No. 4.

<sup>10</sup> Food and Drug Administration, Orphan Drug Designations and Approvals Database, [www.accessdata.fda.gov/scripts/opdlisting/opd/index.cfm](http://www.accessdata.fda.gov/scripts/opdlisting/opd/index.cfm) (accessed 16 February 2011).

<sup>11</sup> J. A. Vernon, J. H. Golec, and J. A. DiMasi, "Drug Development Costs When Financial Risk Is Measured Using the Fama-French Three-Factor Model," *Health Economics Letters* (2009).

<sup>12</sup> Adis R&D Insight Database, Wolters Kluwer Health (accessed 28 February 2011).

<sup>13</sup> Adis R&D Insight Database, Wolters Kluwer Health, customized run, December 2007.

<sup>14</sup> E. Sun, *et al.*, "The Determinants of Recent Gains in Cancer Survival: An Analysis of the Surveillance, Epidemiology, and End Results (SEER) Database," *Journal of Clinical Oncology* 26, suppl. 15 (2008): Abstract 6616.

<sup>15</sup> F. Lichtenberg, "The Expanding Pharmaceutical Arsenal in the War on Cancer," National Bureau of Economic Research Working Paper 10328, February 2004.

<sup>16</sup> V. L. Roger, *et al.*, "Heart Disease and Stroke Statistics 2011 Update: A Report from the American Heart Association," *Circulation*, published online, 15 December 2010.

<sup>17</sup> U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, *Health United States, 2009 with Special Feature on Medical Technology*, Table 38 (Hyattsville, MD: 2010), [www.cdc.gov/nchs/data/hsr/hsr09.pdf](http://www.cdc.gov/nchs/data/hsr/hsr09.pdf).

<sup>18</sup> IMS National Prescription Audit, February 2011.