



## **Medical Technology: The Economic and Health Value to Patients**

### **It's Important to Know:**

- Patient access to advanced medical technology generates efficiencies and cost savings for the health care system and the economy. Between 1980 and 2010, advanced medical technology helped cut the number of days people spent in hospitals by more than half.<sup>1</sup>
- Advanced medical devices and diagnostics save lives and improve the quality of patient care. Between 1980 and 2010, medical advancements helped add five years to U.S. life expectancy and reduce fatalities from heart disease and stroke by more than half.<sup>2</sup>
- The medical device and diagnostics industry is extremely competitive, ensuring that medical technology is a good bargain. Medical device prices in the U.S. increased at an average annual rate of 1.0 percent for the 22 year period from 1989 to 2010 – a rate less than half that of prices in the overall economy and less than one-quarter the rate of prices for other medical goods and services.<sup>3</sup>
- Medical devices and diagnostics are central to medical practice, but spending on advanced medical technology is consistently a small and stable share of national health expenditures – accounting for about 6 percent of national health expenditures annually from 1992 to 2010.<sup>4</sup>

### **Supporting Evidence:**

#### **Patient access to advanced medical technology generates efficiencies and cost savings for the health care system and the economy.**

- Between 1980 and 2010, advanced medical technology helped cut the number of days people spent in hospitals by 59 percent.<sup>5</sup>
- Minimally invasive surgery using laparoscopic, endoscopic and catheter-based devices in place of standard open surgical approaches for certain procedures saved \$8.9 billion in projected U.S. health plan spending in 2009 while reducing workplace absenteeism by 53,000 person-years, worth an additional \$2.2 billion in savings. If these technologically advanced surgeries were adopted for all patients, they would have saved \$2.3 billion more in health spending, plus \$800 million more from reduced worker absenteeism. Altogether, the sum of these effects exceeds \$14 billion.<sup>6</sup>
- Minimally invasive coronary revascularization saves \$30,800 and means 37 fewer lost days at work for patients compared to conventional open surgery.<sup>7</sup>

- Evidence suggests that between \$34,000 and \$57,000 is saved each year for every 100 patients who use insulin pumps, which reduce the risk of diabetes complications through improved control over blood glucose levels.<sup>8</sup>
- In 2009 approximately 11,000 people in England and Wales were enabled to return to work by a hip replacement surgery, saving the UK welfare system \$56.5 million each year of their working lives. The earlier the procedure is carried out, the more revision-free life years are gained for patients.<sup>9</sup>
- Research evaluating higher U.S. cancer care costs vs. Europe found that this investment, which reflects at least in part a more rapid uptake of new technologies in the U.S., generated \$598 billion of additional value for U.S. patients who were diagnosed with cancer between 1983 and 1999, or about \$43 billion annually.<sup>10</sup>
- Medical advancements in the treatment of at-risk persons with acute illness have helped reduce the prevalence of disability in the U.S.; trends in reduced disability from 1982 to 1999 resulted in projected Medicare savings of 19% for 2009.<sup>11</sup>

### **Advanced medical devices and diagnostics save lives and improve the quality of patient care.**

- Between 1980 and 2010, medical advancements helped add five years to U.S. life expectancy.<sup>12</sup>
  - Fatalities from heart disease were cut by 57 percent;<sup>13</sup>
  - Deaths from stroke were reduced by 59 percent;<sup>14</sup>
  - Mortality from breast cancer was cut by 31 percent;<sup>15</sup> and
  - Disability rates declined by 25 percent (disability rates are 1982-2000).<sup>16</sup>
- In just the most recent decade, between 2000 and 2010, medical advancements helped add nearly two years to U.S. life expectancy.<sup>17</sup>
  - Fatalities from heart disease were cut by 30 percent;<sup>18</sup>
  - Deaths from stroke were reduced by 36 percent;<sup>19</sup> and
  - Mortality from breast cancer was cut by 18 percent.<sup>20</sup>
- Medicare patients with osteoarthritis of the knee who underwent total knee arthroplasty showed a reduction in new diagnoses of heart failure at three, five and seven years after surgery, suggesting that increased activity after the procedure may have a beneficial effect in reducing long term cardiovascular disease among osteoarthritis patients.<sup>21</sup>
- Clinical trials have shown a 20 percent to 30 percent reduction in mortality after more than 10 years of follow-up as a result of implantable cardioverter defibrillator treatment compared with other interventions, and that only eight patients need to be treated with an ICD to save one life after eight years of follow-up.<sup>22</sup>
- There is a strong association between more frequent blood glucose testing and improved control of type 1 diabetes with safer blood sugar levels. It is important for public and private insurers to consider that reducing restrictions on the

number of test strips provided per month may lead to improved glycemic control for some patients with type 1 diabetes.<sup>23</sup>

- Research evaluating the impact of higher U.S. cancer care costs vs. European countries found that each \$100 increase in spending per capita from 1983 to 1999 – or an approximately \$20,000 increase in spending per cancer patient – was associated with an additional 1.0 year in life expectancy after diagnosis for the average cancer patient.<sup>24</sup>

**The medical device and diagnostics industry is extremely competitive, ensuring that medical technology is a good bargain; spending on advanced medical technology is consistently a small and stable share of national health expenditures.**

- Medical device prices in the U.S. over the last two decades have increased at an average annual rate that is less than half that of prices in the overall economy and less than one-quarter the rate of prices for other medical goods and services.<sup>25</sup>
- From 1989 to 2010, device and diagnostic prices have increased at an average annual rate of 1.0 percent, compared to the Consumer Price Index (CPI) increase of 2.7 percent, the Medical Care CPI increase of 4.7 percent and the Medical Care Services CPI increase of 5.0 percent.<sup>26</sup>
- Spending on advanced medical technology has remained virtually constant from 1992 to 2010 as a percentage of national health expenditures – at about 6 percent – demonstrating remarkable consistency and value despite a flood of new products that profoundly improved medical practice.<sup>27</sup>

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<sup>1</sup> National Center for Health Statistics. (2013, March 14). Table 103 – Discharges, days of care, and average length of stay in nonfederal short-stay hospitals, by selected characteristics: United States, selected years 1980 through 2009-2010. Retrieved March 15, 2013, from Centers for Disease Control and Prevention: <http://www.cdc.gov/nchs/data/hus/2011/103.pdf>.

<sup>2</sup> National Center for Health Statistics. "Health, United States, 2012: With Special Feature on Emergency Care." Hyattsville, MD. 2013.

<sup>3</sup> Guy King and Gerald Donahoe, "Estimates of Medical Device Spending in the United States," October 2012.

<sup>4</sup> Ibid.

<sup>5</sup> National Center for Health Statistics. (2013, March 14). Table 103 – Discharges, days of care, and average length of stay in nonfederal short-stay hospitals, by selected characteristics: United States, selected years 1980 through 2009-2010. Retrieved March 15, 2013, from Centers for Disease Control and Prevention: <http://www.cdc.gov/nchs/data/hus/2011/103.pdf>.

<sup>6</sup> A. Epstein, P. Groeneveld, M. Harhay, et al., "Impact of Minimally Invasive Surgery on Medical Spending and Employee Absenteeism," *Journal of the American Medical Association Surgery magazine*, published online March 20, 2013, [www.jamasurg.com](http://www.jamasurg.com).

<sup>7</sup> Ibid.

<sup>8</sup> S. Bevan, K. Zheltoukhova and R. McGee, "Adding Value: The Economic and Societal Benefits of Medical Technology", *The Work Foundation – part of Lancaster University*, November 2011.

<sup>9</sup> Ibid.

<sup>10</sup> T. Philipson, M. Eber, D. Lakdawalla, et al., "An Analysis of Whether Higher Health Care Spending In The United States Versus Europe Is 'Worth It' In The Case Of Cancer", *Health Affairs*, April 2012, p. 667.

<sup>11</sup> K. Manton, V. Lamb and X. Gu, "Medicare Cost Effects of Recent U.S. Disability Trends in the Elderly: Future Implications," *Journal of Aging and Health*, June 2007, p. 359-381.

<sup>12</sup> National Center for Health Statistics. "Health, United States, 2012: With Special Feature on Emergency Care." Hyattsville, MD. 2013.

<sup>13</sup> Ibid.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> *The Value of Investment in Health Care: Better Care, Better Lives*. Report compiled for The Value Group by MedTap International, 2004. Data cited on disability rates is limited to 1982-2000.

<sup>17</sup> National Center for Health Statistics. "Health, United States, 2012: With Special Feature on Emergency Care." Hyattsville, MD. 2013.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> Ibid.

<sup>21</sup> S. Lovald, K. Ong, E. Lau, et al., "Mortality, Cost, and Health Outcomes of Total Knee Arthroplasty in Medicare Patients," *The Journal of Arthroplasty* (2012), <http://dx.doi.org/10.1016/j.arth.2012.06.036>.

<sup>22</sup> S. Bevan, K. Zheltoukhova and R. McGee, "Adding Value: The Economic and Societal Benefits of Medical Technology", *The Work Foundation – part of Lancaster University*, November 2011.

<sup>23</sup> K. Miller, R. Beck, R. Bergenstal, et al., "Evidence of a Strong Association Between Frequency of Self-Monitoring of Blood Glucose and Hemoglobin A1C Levels in T1D Exchange Clinic Registry," *American Diabetes Association's Diabetes Care*, published online, February 2013, <http://bit.ly/12wCHRh>.

<sup>24</sup> T. Philipson, M. Eber, D. Lakdawalla, et al., "An Analysis of Whether Higher Health Care Spending In The United States Versus Europe Is 'Worth It' In The Case Of Cancer", *Health Affairs*, April 2012, p. 667.

<sup>25</sup> Guy King and Gerald Donahoe, "Estimates of Medical Device Spending in the United States," October 2012.

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.