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The Cost of Chronic Diseases in the U.S.

Executive Summary

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HEALTH

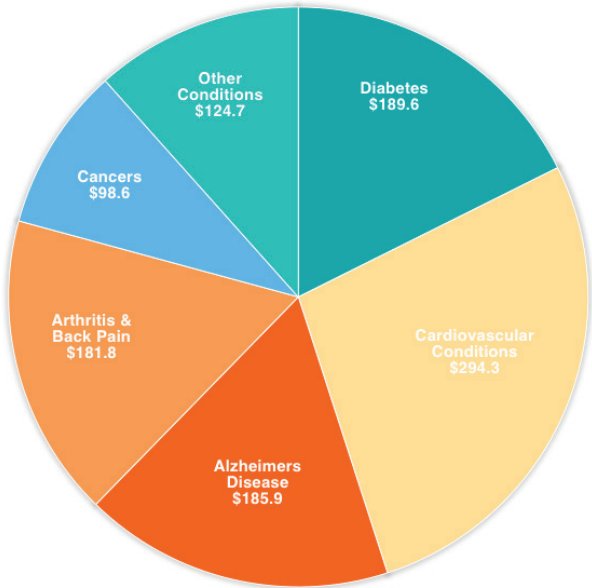


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The total costs in the U.S. for direct health care treatment for chronic health conditions totaled \$1.1 trillion in 2016—equivalent to 5.8 percent of the U.S. gross domestic product (GDP) (Figure 1 and Table 1). The most expensive conditions in terms of direct health care costs are diabetes (\$189.6 billion in annual direct health care expenditures), Alzheimer’s (\$185.9 billion), and osteoarthritis (\$115.5 billion).

Figure 1. Total Direct Costs of Chronic Diseases in the U.S. in 2016 (Billion USD)

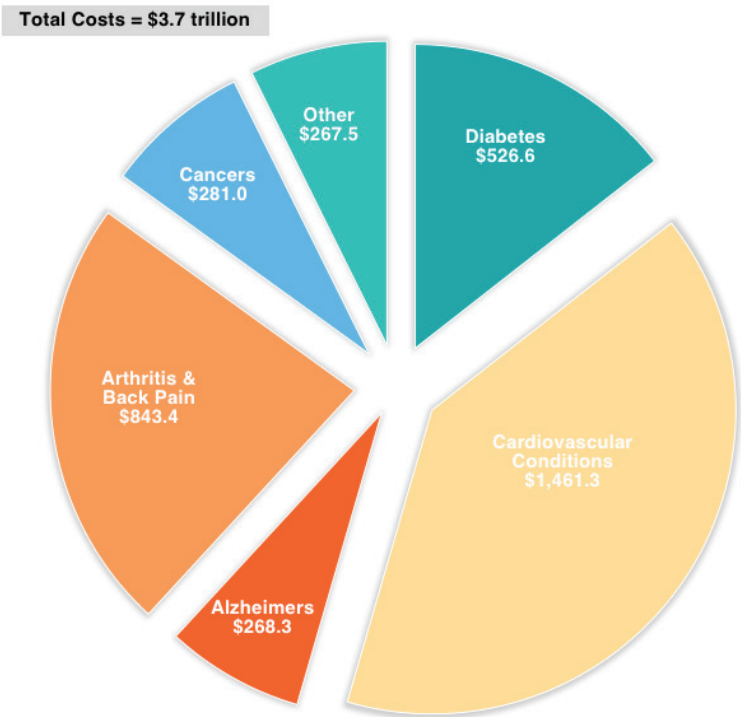


Source: Milken Institute.

Chronic diseases also lead to indirect costs—defined as lost income and reduced economic productivity—for the individuals suffering from the conditions, their family caregivers, and the overall economy.^{1,2,3} When the indirect costs of lost economic productivity are included, the total costs of chronic diseases in the U.S. increase to \$3.7 trillion (Figure 2). This is equivalent to 19.6 percent of the U.S. GDP in 2016—in other words, nearly one-fifth of the U.S.

EXECUTIVE SUMMARY

Figure 2. Total Costs of Chronic Diseases in the U.S. in 2016 (Billion USD)



Source: Milken Institute.

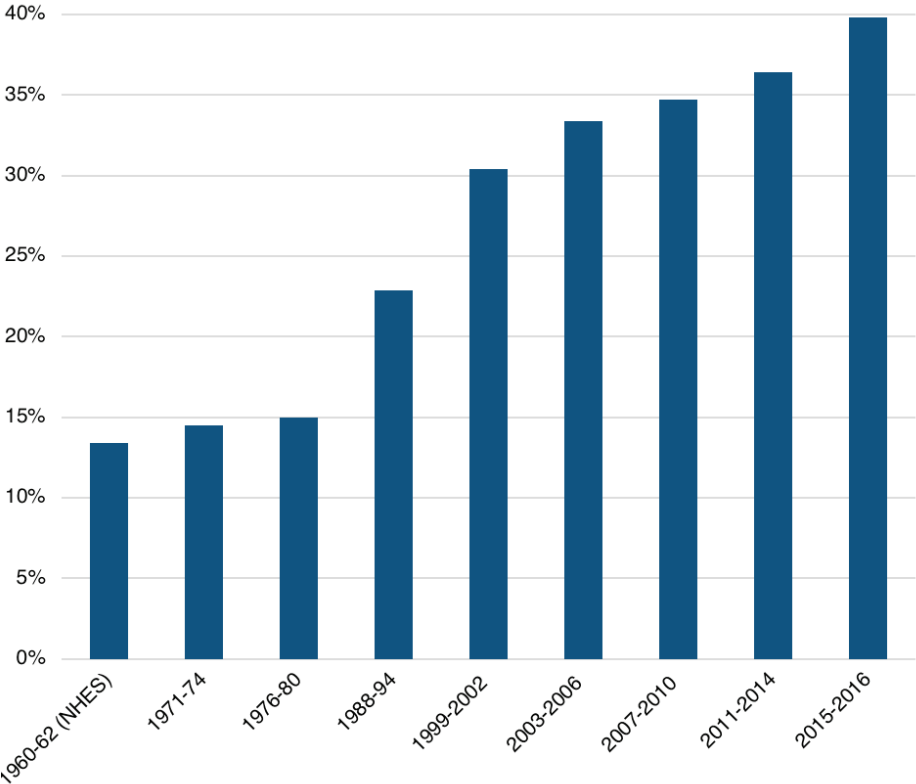
The most common chronic health conditions in the U.S. are hypertension (high blood pressure), dyslipidemia, and osteoarthritis. In 2016, 78.6 million individuals lived with hypertension, which is a significant risk factor for heart disease and stroke.⁴ 94.7 million Americans had dyslipidemia, which is a cholesterol imbalance—indicating high levels of low-density lipoprotein (LDL) cholesterol (“bad” cholesterol), or low levels of high-density lipoprotein (HDL) cholesterol (“good” cholesterol).⁵ 55.7 million U.S. residents had osteoarthritis,⁶ which leads to the breakdown of joint cartilage. The fourth most prevalent chronic health condition in the U.S. is Type 2 diabetes, which affected 26.7 million people in the U.S. in 2016—or 10.9 percent of the adult population.^{7,8}

Obesity is by far the greatest risk factor contributing to the burden of chronic diseases in the U.S. As shown in Figure 3, the prevalence of obesity in the U.S. population has increased steadily since the 1960s.

EXECUTIVE SUMMARY

In 2016, diseases caused by obesity and being overweight accounted for 47.1 percent of the total cost of chronic diseases in the U.S.—responsible for \$480.7 billion in direct health care costs, plus \$1.24 trillion in indirect costs related to lost economic productivity. The total cost of chronic diseases due to obesity in 2016 was \$1.72 trillion—equivalent to 9.3 percent of the U.S. GDP that year.⁹

Figure 3. Prevalence of Obesity for U.S. Adults by Year^{10,11}



Source: Milken Institute.

The increasing trends in the prevalence and costs of chronic diseases in the U.S. are projected to continue well in to the future. Moreover, these trends will be magnified by the aging of the U.S. population. By 2060, the U.S. population aged 65 years and older is projected to more than double—from 46 million to more than 98 million.¹² By 2030, an estimated 83.4 million people in the U.S. will suffer from three or more chronic diseases simultaneously—compared to 30.8 million in 2015.¹³

EXECUTIVE SUMMARY

Table 1. Prevalence and Costs of Chronic Diseases in the U.S. in 2016

	Total Cases	Costs (Million USD)		
		Direct	Indirect	Total
Alzheimer's and Dementia	5,619,500	\$185,917	\$82,395	\$268,312
Asthma and COPD (adults)	21,801,046	\$40,201	\$61,775	\$101,975
Breast Cancer (women)	3,669,600	\$23,086	\$14,357	\$37,442
Chronic Back Pain	31,573,940	\$66,239	\$374,076	\$440,315
Colorectal Cancer	1,346,586	\$18,479	\$16,299	\$34,778
Congestive Heart Failure	6,597,583	\$28,281	\$11,087	\$39,368
Coronary Heart Disease	16,747,711	\$72,497	\$125,558	\$198,055
Diabetes (adults)	26,673,135	\$189,618	\$336,956	\$526,574
Dyslipidemia	94,698,620	\$74,887	†	\$74,887
End Stage Renal Disease	700,969	\$5,107	††	\$5,107
Endometrial Cancer	726,047	\$3,472	\$2,897	\$6,369
Esophageal Cancer	46,561	\$1,963	\$186	\$2,149
Gallbladder Cancer	10,057	\$52	\$40	\$93
Gallbladder Disease	20,298,477	\$79,415	\$81,003	\$160,418
Stomach Cancer	95,764	\$4,038	\$382	\$4,420
Hypertension	78,619,781	\$66,257	\$976,665	\$1,042,923
Liver Cancer	66,771	\$348	\$266	\$615
Lung Cancer	527,228	\$14,448	\$23,056	\$37,504
Osteoarthritis	55,688,453	\$115,523	\$287,607	\$403,129
Ovarian Cancer (women)	222,060	\$6,702	\$886	\$7,588
Pancreatic Cancer	64,668	\$537	\$2,720	\$3,257
Prostate Cancer (men)	3,085,209	\$17,659	\$119,452	\$137,111
Renal Cancer	483,225	\$7,770	\$1,928	\$9,698
Stroke	8,794,418	\$52,338	\$53,741	\$106,079
Totals	\$378,157,411	\$1,074,832	\$2,573,333	\$3,648,166

† Included in heart disease, diabetes, and stroke.

†† Included in diabetes and hypertension.

Source: Milken Institute.

EXECUTIVE SUMMARY

Table 2. Total Prevalence of Chronic Diseases in the U.S. in 2016

	Male	Female	Total Cases	References
Alzheimer's and Dementia	2,093,540	3,525,960	5,619,500	a
Asthma and COPD (adults)	10,340,130	14,928,422	21,801,046	b
Breast Cancer (women)	—	3,327,552	3,669,600	c
Chronic Back Pain	15,345,546	16,228,395	31,573,940	d
Colorectal Cancer	543,369	529,711	1,346,586	e,f
Congestive Heart Failure	3,529,921	3,076,299	6,597,583	g,h,i,j
Coronary Heart Disease	9,390,183	7,635,973	16,747,711	i
Diabetes (adults)	13,513,211	13,159,924	26,673,135	k,l
Dyslipidemia	40,689,873	42,884,066	94,698,620	m
End Stage Renal Disease	405,160	295,809	700,969	n,o
Endometrial Cancer	—	553,484	726,047	e,f
Esophageal Cancer	29,744	8,180	46,561	e,f,p
Gallbladder Cancer	2,279	5,983	10,057	e,f
Gallbladder Disease	6,168,248	14,130,230	20,298,477	q
Stomach Cancer	44,774	32,738	95,764	e,f
Hypertension	40,413,841	41,376,213	78,619,781	i
Liver Cancer	41,435	16,102	66,771	e,g
Lung Cancer	274,123	253,105	527,228	e,r
Osteoarthritis	26,591,136	28,120,959	55,688,453	s
Ovarian Cancer (women)	—	225,689	222,060	t
Pancreatic Cancer	25,887	26,644	64,668	e,f
Prostate Cancer (men)	2,863,975	—	3,085,209	e,f
Renal Cancer	229,135	150,321	483,225	e,f
Stroke	4,748,986	4,045,432	8,794,418	i

References: a¹⁴, b¹⁵, c¹⁶, d¹⁷, e¹⁸, f¹⁹, g²⁰, h²¹, i²², j²³, k²⁴, l²⁵, m²⁶, n²⁷, o²⁸, p²⁹, q³⁰, r³¹, s³², t³³
 Source: Milken Institute.

EXECUTIVE SUMMARY

Table 3. Costs per Individual for Each Health Condition in 2016

Condition	Cost per Case		References
	Direct	Indirect	
Alzheimer's and Dementia	\$33,084	\$14,662	a,b,c,d
Asthma and COPD (adults)	\$1,843	\$2,833	e
Breast Cancer (women)	\$6,291	\$3,912	f,g,h,i
Chronic Back Pain	\$2,097	\$11,847	j,k,l
Colorectal Cancer	\$13,722	\$12,104	f,g,i,m
Congestive Heart Failure	\$4,286	\$1,680	n,x
Coronary Heart Disease	\$4,328	\$7,497	n,x
Diabetes (adults)	\$7,108	\$12,632	o,p
Dyslipidemia	\$790	†	q,r
End Stage Renal Disease	\$7,285	††	s,t,u
Endometrial Cancer	\$4,781	\$3,990	f,k
Esophageal Cancer	\$42,166	\$3,990	f,k
Gallbladder Cancer	\$5,219	\$3,990	f,k
Gallbladder Disease	\$3,912	\$3,990	f,k
Stomach Cancer	\$42,166	\$3,990	f,k
Hypertension	\$842	\$12,422	n,q,v,x
Liver Cancer	\$5,219	\$3,990	f,k
Lung Cancer	\$27,404	\$43,731	y
Osteoarthritis	\$2,074	\$5,164	g,h,w
Ovarian Cancer (women)	\$30,181	\$3,990	f,k
Pancreatic Cancer	\$8,308	\$42,061	f,m,n
Prostate Cancer (men)	\$5,723	\$38,717	i
Renal Cancer	\$16,079	\$3,990	f,k
Stroke	\$5,951	\$6,110	c,e,o,v,x

† Included in heart disease, diabetes, and stroke.³⁴

†† Included in diabetes and hypertension.

References: a³⁵, b³⁶, c³⁷, d³⁸, e³⁹, f⁴⁰, g⁴¹, h⁴², i⁴³, j⁴⁴, k⁴⁵, l⁴⁶, m⁴⁷, n⁴⁸, o⁴⁹, p⁵⁰, q⁵¹, r⁵², s⁵³, t⁵⁴, u⁵⁵, v⁵⁶, w⁵⁷, x⁵⁸, y⁵⁹
Source: Milken Institute.

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