



Diabetes:

**The hidden epidemic and
its impact on America**



novo nordisk®

In the 20 minutes it will take you to review this briefing book...

60 Americans will be diagnosed with diabetes

9 Americans will die as a result of diabetes

**3 Americans will have their limbs amputated
due to complications of diabetes**

**2 Americans will experience kidney failure
due to diabetes**

1 American will go blind due to diabetes



Diabetes
is a national
health problem.

**What can
America do?**

Promote early detection of diabetes nationwide

Why promote early detection of diabetes and pre-diabetes?

It is important to ensure that all Americans, especially those who are at risk for developing diabetes and those who are low-income, uninsured, and underserved, have access to appropriate and timely screening. The earlier that diabetes and pre-diabetes are detected, the sooner individuals can take important steps toward prevention of complications or further progression of the disease. Promoting a nationwide effort for diabetes screening would also help to raise awareness among all Americans about the importance of diabetes prevention and early detection.

How is diabetes screening conducted?

An Oral Glucose Tolerance Test (OGTT) or a Fasting Plasma Glucose Test (FPG) can be used to determine whether a patient has pre-diabetes or diabetes. The American Diabetes Association recommends the FPG test because it is easier, faster, and less expensive to perform.

How to promote early detection of diabetes

Options to consider

- Require coverage for diabetes screening for all private plans participating in SCHIP, FEHBP, DoD/VA
- Increase use of the Medicare diabetes screening benefit through promotional campaigns and incentives for physicians
- Dedicate additional funding for community health centers to screen individuals for diabetes, and conduct follow-up education and treatment
- Focus on diabetes screening and prevention as part of a larger national focus on chronic disease management and prevention
- Fund a national diabetes screening program

Examples

- Diabetes screening program in Medicare
- National Breast and Cervical Cancer Early Detection Program

Create a pathway for diabetes prevention and treatment

Why ensure access to diabetes prevention and treatment?

Promoting diabetes screening prevention must be coupled with education, prevention, and treatment for individuals who are found to have diabetes or pre-diabetes. Diabetes treatment and prevention decreases morbidity and mortality resulting from the complications of diabetes and ultimately decreases health care costs. Studies have shown that lifestyle interventions can prevent the progression of pre-diabetes to diabetes. Furthermore, managing diabetes in its early stages may also decrease its economic impact through increased worker productivity.

What services should be provided?

To effectively treat and manage diabetes, individuals annually must have an eye exam, foot exam, lipid test, HbA1c test, and blood pressure check. Nutritional counseling and diabetes self-management education should also be provided as simple lifestyle changes can dramatically reduce the effects of diabetes. Lifestyle interventions, including diet and exercise, can prevent the progression of pre-diabetes.

How to ensure diabetes prevention and treatment

Options to consider

- Create payment incentives for plans participating in SCHIP, FEHBP, and other federally funded programs to ensure that they both cover and promote diabetes and pre-diabetes treatment, prevention, and education
- Dedicate additional funding to community health centers for the treatment of diabetes and pre-diabetes
- Cover treatment for uninsured, low-income individuals with diabetes via Medicaid or other public funding
- Permit income tax credits for medical expenditures under 7.5% of income for individuals with diabetes (or other chronic conditions) who enroll in a nationwide Health Lifestyles program and demonstrate adherence to treatment regimens to control their diabetes (or other condition)

Examples

- Medicaid eligibility for women with breast and cervical cancer screened through the national early detection program
- AIDS Drug Assistance Program (ADAP) provides medications for the treatment of HIV/AIDS

Coordinate national diabetes efforts

Why coordinate diabetes efforts?

Establishing a high-level position to coordinate diabetes efforts not only demonstrates America's commitment to solving a national health problem, but will also save lives and save money. Diabetes is a large and growing national health problem contributing to increasing health care spending. In fact in FY 2005, the federal government spent an additional \$77.2 billion to treat those with diabetes.¹ Given this alarming statistic, we need to ensure that federal funds dedicated to diabetes are being used efficiently and effectively, with as little duplication as possible.

What should be the focus?

Coordination should encompass all Department of Health and Human Services and other federal agencies' diabetes programs and policies. It should ensure that these efforts encourage efficient use of resources, avoid duplication, and complement and sustain state and local diabetes initiatives. Ultimately, better coordination can reduce the mortality and morbidity associated with diabetes and its complications, especially among low-income and uninsured populations who lack access to the necessary care.

¹ Gold, M., Briefel, R., and The MPR Study Team. An Opportunity for Federal Leadership in Changing Diabetes: A Study of Federal Spending on Diabetes. June 2007.

How to foster coordination of diabetes efforts

Options to consider

- Create a White House-level diabetes coordinator
- Make coordination of diabetes efforts a priority of the Secretary of Health and Human Services
- Begin an initiative on chronic conditions with coordination of diabetes as a focal point
- Sponsor the creation of a public-private entity that can coordinate and leverage diabetes-related efforts of public agencies and private sector initiatives

Examples

- Office of National Drug Control Policy – Drug Czar
- American Health Information Community (AHIC) – transitioning to a public-private partnership



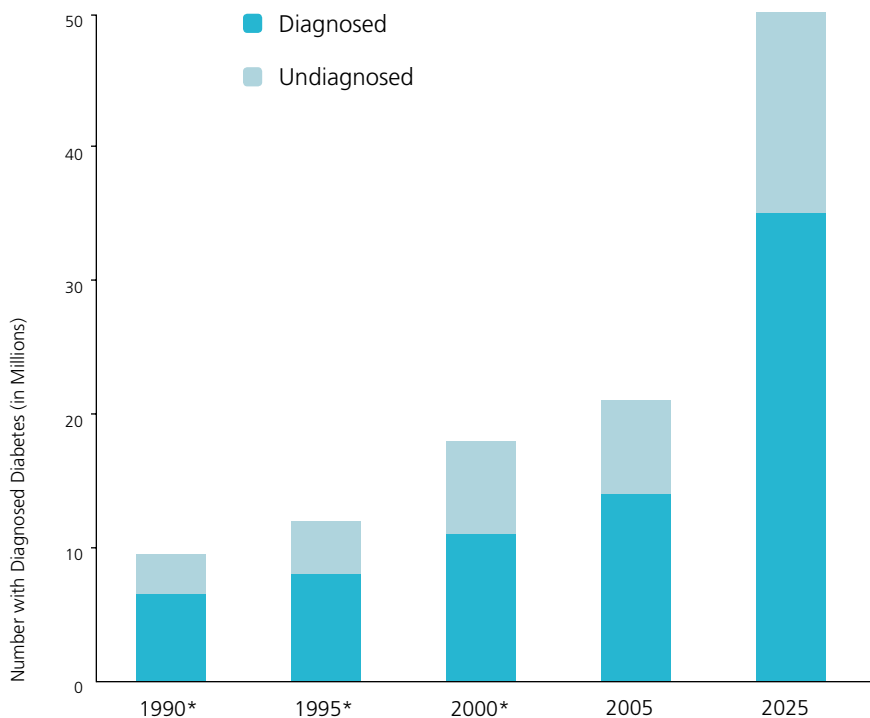
**The prevalence
of diabetes
and its impact
is larger than
you realize**

**The number
of individuals
diagnosed
with diabetes
has more than
doubled
since 1990
and will
do so again
by 2025**

Today, one new case of diabetes occurs every 21 seconds

Without intervention and prevention, one new case will occur every 7-9 seconds by 2025

Prevalence of Diabetes



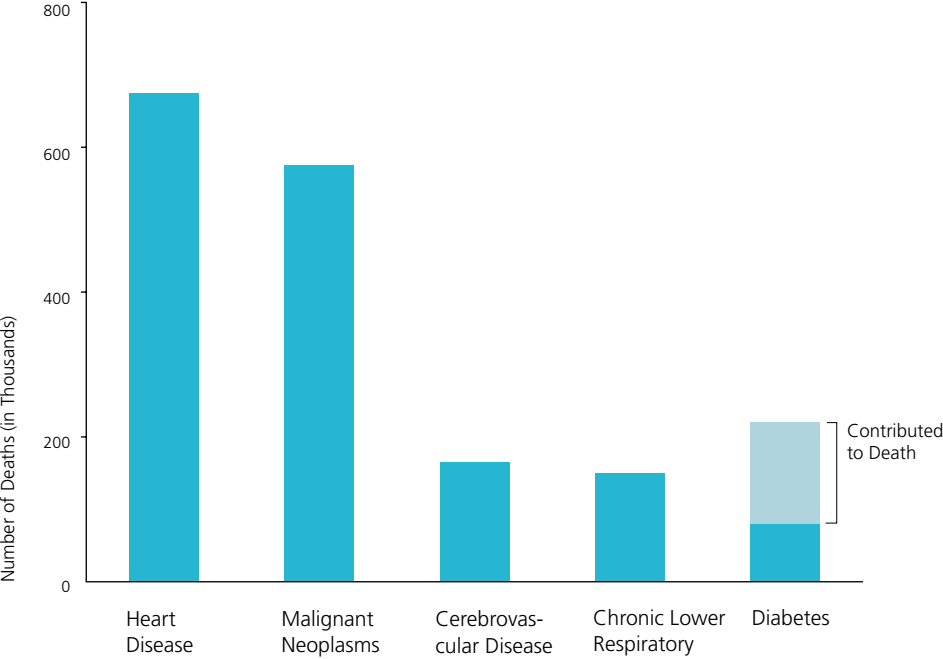
* Undiagnosed cases based on estimate that one-third of individuals with diabetes do not know they have the disease.

Source: Centers for Disease Control and Prevention (CDC); Data & Trends, National Diabetes Surveillance System, Prevalence of Diabetes; www.cdc.gov/diabetes/statistics/prev/national/tablepersons.htm. Rowley WR and C Bezold. Diabetes Forecasts to 2025 and Beyond: The Looming Crisis Demands Change. November 2005. CDC; Data & Trends, Diabetes Surveillance System, 1999 Surveillance Report Appendix; www.cdc.gov/diabetes/statistics/surv199/chap1/appendix.htm.

**Diabetes is
the 5th most
common cause
of death by
disease among
Americans,
but diabetic
complications
contribute
to many more
deaths**

Diabetes is a leading cause of cardiovascular disease and stroke, contributing to a total of 224,092 deaths in 2003; this figure is projected to grow to more than 600,000 by 2025

Leading Causes of Death by Disease, 2003



Source: National Center for Health Statistics; Health, United States, 2005; Updated March 2006; www.cdc.gov/nchs/hus.htm. Centers for Disease Control and Prevention; National Diabetes Fact Sheet, United States, 2005. Rowley WR and C Bezold. Diabetes Forecasts to 2025 and Beyond: The Looming Crisis Demands Change. November 2005.

**\$1 out of every \$20
total health care
dollars is spent
on diabetes**

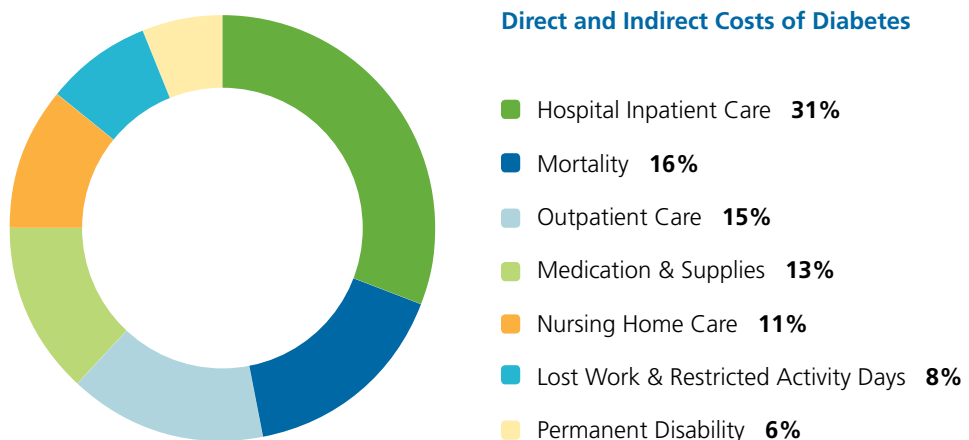


Diabetes cost the U.S. government \$132 billion in direct and indirect expenditures in 2002

- Direct medical expenditures: \$91.8 billion
- Indirect expenditures: \$39.8 billion

Per capita medical expenditures were \$13,243 for people with diabetes compared to \$2,560 for people without diabetes

The total cost of diabetes is projected to grow to as much as \$351 billion by 2025*



* In 2005 dollars

Sources: American Diabetes Association. 2003. Economic Costs of Diabetes in the US in 2002. *Diabetes Care* 26(3): 917-932.
Rowley WR and C. Bezold. Diabetes Forecasts to 2025 and Beyond: The Looming Crisis Demands Change. November 2005.

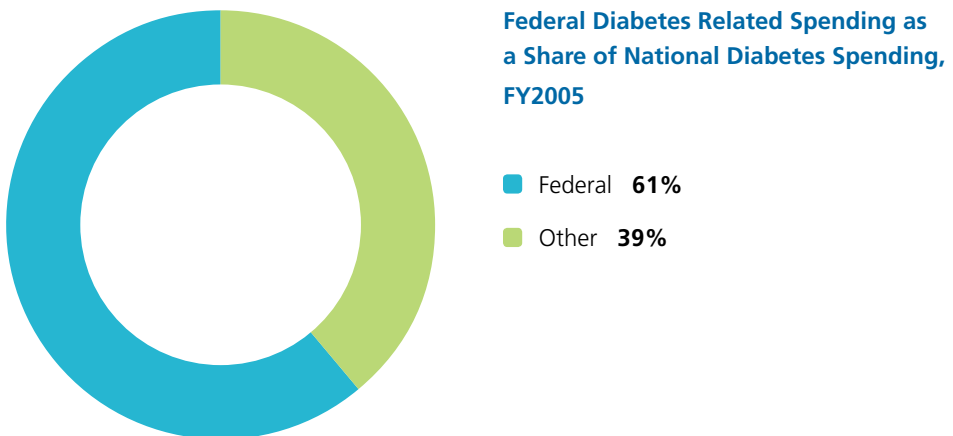
**Almost all
federal spending
on diabetes
goes toward
treatment
instead
of prevention**

The federal government spent an additional \$77.2 billion to treat people with diabetes

While an estimated \$3.9 billion is spent on disease prevention and health promotion activities, only \$0.2 billion is specifically targeted to diabetes

Medicare beneficiaries with diabetes already account for 32% of Medicare spending:

- \$1 out of every \$3 Medicare dollars is spent on beneficiaries with diabetes
- Medicare spends on average \$7,665 more for a person with diabetes



Sources: CMS. Medicare Awards for Program to Improve Care of Beneficiaries with Chronic Illness. Release December 8, 2004. <http://www.cms.hhs.gov/apps/media/press/release.asp?Counter=1274>. American Diabetes Association. 2003. An Opportunity for Federal Leadership in Changing Diabetes: A Study of Federal Spending on Diabetes. June 2007 Gold, M., Briefel, R., and The MPR Study Team. An Opportunity for Federal Leadership in Changing Diabetes: A Study of Federal Spending on Diabetes. June 2007.

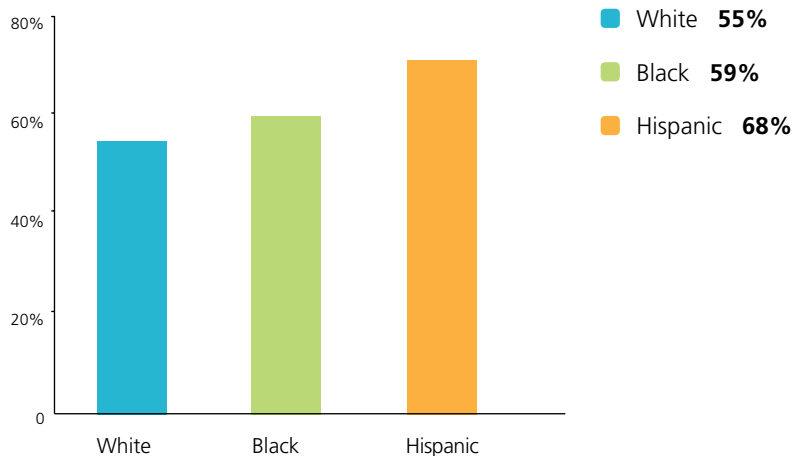
**Poorly managed
diabetes leads
to unnecessary
and costly diabetic
complications**

Treatment of preventable diabetic complications costs \$22.9 billion per year in direct medical costs

Three out of five individuals with diabetes experience at least one high-cost complication from the disease, for example:

- 9.8% of diabetics have heart attacks, compared to 1.8% of non-diabetics, costing \$14,150 per year, per patient
- 27.8% of diabetics develop chronic kidney disease, compared to only 6.1% of non-diabetics, costing \$9,002 per year, per patient

Rate of Complications Varies by Race / Ethnicity



Source: Kaiser Daily Health Policy Report. Three in Five Diabetics Experience at Least One High-Cost Complication Related to the Disease, Study Finds. Released April 12, 2007.

**Diabetes
affects Medicare
beneficiaries
more than just
about any other
health condition**



Among Medicare beneficiaries at age 65, diabetes results in the largest reduction in life expectancy as compared to other common chronic conditions

Disease at age 65	Average reduction in life expectancy from age 65 (years)
Diabetes	3.1
Stroke	3.0
COPD	2.8
AMI	2.3
Cancer	2.1
CHD	0.6
Hypertension	0.3

AMI=acute myocardial infarction; CHD=coronary heart disease; COPD=chronic obstructive pulmonary disease

Source: RAND. 2005. Research Highlights. Future Health and Medical Care Spending of the Elderly: Implications for Medicare. Table 3. www.rand.org



**Diabetes
prevention
is proven to
be effective,
yet not enough
is being done**

**Although
the number of
Americans with
diabetes is growing,
prevention can
curb the number of
cases progressing
from pre-diabetes
to diabetes**

54 million Americans have pre-diabetes

Pre-diabetes increases individuals' risk of heart disease and stroke

Studies indicate that many people with pre-diabetes will go on to develop Type 2 diabetes within 10 years

Obesity—a growing epidemic in the U.S.—is also linked to development of diabetes

However, progression from pre-diabetes to diabetes is not inevitable—lifestyle changes including weight loss, increased physical activity, and improved nutrition can prevent or delay diabetes

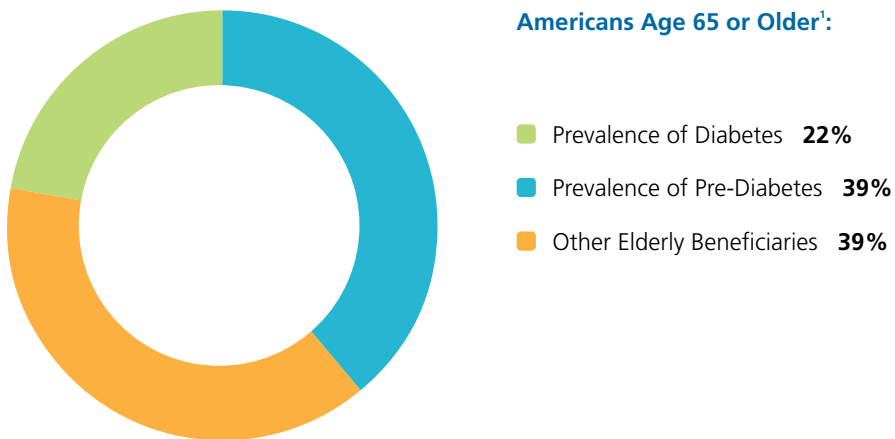
Sources: American Diabetes Association. Total Prevalence of Diabetes & Pre-diabetes & Frequently Asked Questions about Pre-diabetes. www.diabetes.org. National Institute of Diabetes and Digestive and Kidney Diseases. National Diabetes Statistics. <http://diabetes.niddk.nih.gov>.

**Investing now
will save money
in the future:
Medicare will bear
the future burden
of diabetes**



Of the estimated 35 million Medicare beneficiaries age 65 or older², 61% or 21 million have diabetes or pre-diabetes*

More than 2 million Medicare beneficiaries with diabetes are undiagnosed; virtually all of the 14 million Medicare beneficiaries with pre-diabetes are undiagnosed



* Analysis assumes that rates of diabetes for Medicare beneficiaries are the same as rates for all Americans age 65 or older.

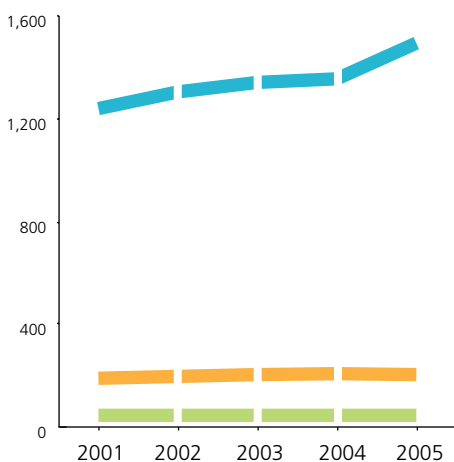
Sources: Avalere Health analysis of ¹*Diabetes Care*. "Prevalence of Diabetes and Impaired Fasting Glucose in Adults in the U.S. Population." June 2006. ²The Kaiser Family Foundation, June 2006. (Approximately 6 million Medicare beneficiaries are younger adults with permanent disabilities.)

Investing makes a difference: new cases vs. CDC funding



In 2005, CDC funding was \$67 million for diabetes, \$220 million for breast/cervical cancer, and \$790 million for HIV/AIDS

New Cases (000s)



CDC Funding per New Case



- Diabetes
- Breast / Cervical Cancer
- HIV / AIDS

* Diabetes \$ per new case ranges from \$45 to \$49

Sources: ACS, Surveillance Research, 2001-2005. CDC; Data & Trends, National Diabetes Surveillance System, Incidence of Diabetes; www.cdc.gov/diabetes/statistics/incidence/table1.htm. CDC; Cases of HIV Infection and AIDS in the US, 2004. CDC; FY 2006 CDC/ATSDR Functional Table; Financial Management Office; January 26, 2006. HRSA; Fiscal Year 2007 Justification of Estimates for Appropriations Committees; <http://www.hrsa.gov/about/budgetjustification07/RyanWhiteHIV.htm>.

**Investing in
prevention
can make large
strides in reducing
the number
of new cases
of diabetes**

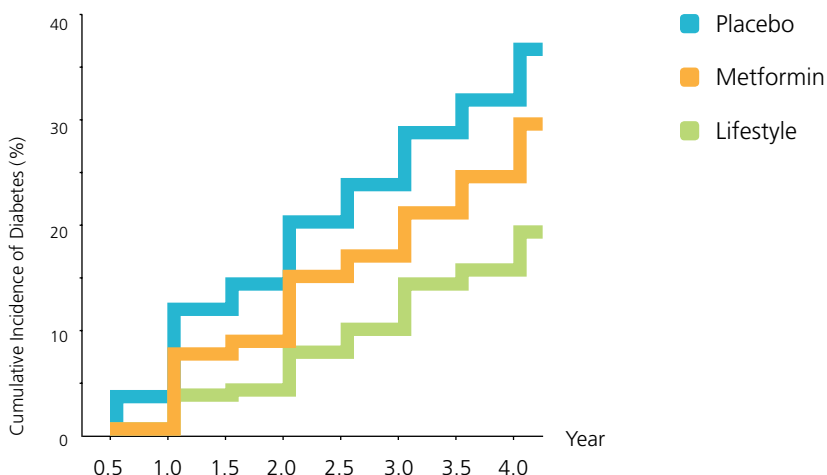
The Diabetes Prevention Program randomly assigned 3,234 non-diabetic persons at risk of developing diabetes to a placebo, Metformin, or lifestyle modification program

After follow up, on average 2.8 years, compared to placebo:

- Lifestyle intervention reduced diabetes incidence by 58%; for the study group over 60 years of age, diabetes incidence was reduced by 71%
- Metformin reduced diabetes incidence by 31%

Lifestyle modification was significantly more effective than Metformin

Cumulative Incidence of Diabetes by Study Group*



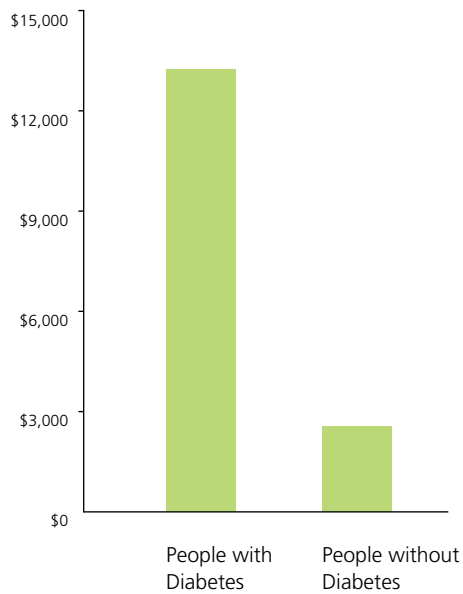
* Defined as persons having elevated fasting and post-load plasma glucose concentrations.

Source: Diabetes Prevention Program Research Group. 2002. Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin. *The New England Journal of Medicine* 346(6): 393-403.

**Given the per capita
medical costs of
diabetes, imagine
the savings if
we prevent 5 million
new cases over
the next 10 years**

Per capita medical expenditures are \$13,243 for people with diabetes compared to \$2,560 for people without diabetes

Per Capita Medical Costs



Source: American Diabetes Association. 2003. Economic Costs of Diabetes in the US in 2002. Diabetes Care 26(3): 917-932.

**With optimal results,
intervention leads
to significant cost
savings for the
health care system**



With no action, 9 million new individuals will be diagnosed with diabetes in the next 10 years¹

Studies (on earlier slides) found that lifestyle intervention can lead to a 58% reduction in incidence²

The annual cost of treating diabetes is \$13,243 compared to \$2,560 for individuals without diabetes: a difference of \$10,683³

Assume a yearly constant rate of diabetes incidence

Estimate	Savings estimate
New cases between 2005 and 2015	9 million
Reduction in incidence from lifestyle intervention	58%
Person-years of diabetes averted	28,710,000
Per person per year savings of averting diabetes	\$10,683
Optimal savings for health care system	\$307 billion (Over 10 years)

Sources: Avalere Health analysis. ¹Avalere Health estimate based upon: Rowley WR and C Bezold. Diabetes Forecasts to 2025 and Beyond: The Looming Crisis Demands Change. November 2005. and Narayan KMV, et al. (2006). Impact of Recent Increase in Incidence on Future Diabetes Burden, US, 2005-2050. Diabetes Care 29(9): 2114-2116. ²Tuomilehto J, et al. 2001. Prevention of Type 2 Diabetes Mellitus by Changes in Lifestyle Among Subjects with Impaired Glucose Tolerance. *New England Journal of Medicine* 344(18): 1343-1350. and ³American Diabetes Association. 2003. Economic Costs of Diabetes in the US in 2002. Diabetes Care 26(3): 917-932.

**Even assuming
less than
optimal results,
prevention
still saves
real money**

Assume that intervention is only half as effective, leading to 29% reduction¹

Assume savings are only ¾ of optimal savings: \$8,012²

Assume a yearly constant rate of diabetes incidence

Estimate	Savings estimate
New cases between 2005 and 2015 ³	9 million
Reduction in incidence from lifestyle intervention	29%
Person-years of diabetes averted	14,355,000
Per person per year savings of averting diabetes	\$8,012
Realistic savings for health care system	\$115 billion (Over 10 years)

Sources: Avalere Health analysis. ³Avalere Health estimate based upon: Rowley WR and C Bezold. Diabetes Forecasts to 2025 and Beyond: The Looming Crisis Demands Change. November 2005. and Narayan KMV, et al. (2006). Impact of Recent Increase in Incidence on Future Diabetes Burden, US, 2005-2050. *Diabetes Care* 29(9): 2114-2116. ¹Tuomilehto J, et al. 2001. Prevention of Type 2 Diabetes Mellitus by Changes in Lifestyle Among Subjects with Impaired Glucose Tolerance. *New England Journal of Medicine* 344(18): 1343-1350. and ²American Diabetes Association. 2003. Economic Costs of Diabetes in the US in 2002. *Diabetes Care* 26(3): 917-932.

Return on investment: examples in the real world



“What is the ROI for a 10 percent reduction in mortality for diabetes? About \$450 billion.”

—Peter Corr, Pfizer’s senior vice president for research and development, at the 2006 Drug Discovery Technology conference.¹

If all patients with Type 2 diabetes received recommended screening and treatment for eye disease, the predicted net savings to the federal budget would exceed \$472.1 million²

When Pitney Bowes reduced cost sharing for diabetes medications to increase adherence, overall health care costs per member with diabetes decreased by 6%³

Early evaluation of Asheville, N.C., diabetes disease management program and cost-sharing reductions for diabetes showed savings of \$2,000 per member⁴

* Sources: ¹Davies, K. (September 2006). The \$2 Billion Pill? *Bio-IT World*. ²Javitt, JC, et al. (1994). Preventive Eye Care in People with Diabetes Is Cost-Saving to the Federal Government, Implications for Health-Care Reform. *Diabetes Care* 17(8): 909-917. Figure is discounted at 5%. ³Mahoney, JJ. (2005). Reducing Patient Drug Acquisition Costs Can Lower Diabetes Health Claims. *The American Journal of Managed Care* 11(5S): S170-S176. ⁴AISHealth.com. Some Payers Link Disease Management Participation to Rx Copays. <http://www.aishhealth.com/Bnow/040506c.html>.



For more information on diabetes,
please contact:

Michael Mawby
Chief Government Affairs Officer
202.626.4521
MMBY@novonordisk.com

Chris McGowen
Director of Government Affairs
202.626.4522
cmcg@novonordisk.com

Novo Nordisk Inc.
500 New Jersey Ave., NW
Suite 350
Washington, DC 20001
www.novonordisk.com

The time to act is now!