Prevention Treatment and Care of Diabetes and Chronic Kidney Diseases: A Healthy People 2020 Progress Review
Overview and Presenters

Chair
■ Wanda Jones, DrPh, Acting Assistant Secretary for Health
  U.S. Department of Health and Human Services

Presentations
■ Rebecca Hines, MHS, Chief, Health Promotion Statistics Branch
  National Center for Health Statistics, CDC
■ Andrew Narva, MD, Director, National Kidney Disease Education Program
  National Institute of Diabetes & Digestive & Kidney Disease, NIH
■ Ann Albright, PhD, RD, Director, Division of Diabetes Translation, National
  Center for Chronic Disease Prevention and Health Promotion, CDC

Community Highlight
■ Karen Wauchope, RN, BSN, CDE, Manager, Clinical Community Programs,
  EmblemHealth
Healthy People 2020 Evolves

- 1979: Smallpox Eradicated
- 1980: AIDS is Infectious
- 1988: Surgeon General Declares Nicotine Addictive
- 1990: Human Genome Project Begins
- 1990s: Drinking Water Fluoridation
- 2000: 2000s Obesity and Chronic Disease
- 2009: H1N1 Flu
- 2005: Hurricane Katrina
- 2010: Healthy People 2020
What is Diabetes?

- Diabetes is a group of diseases marked by high levels of blood glucose resulting from problems in how insulin is produced, how insulin works, or both.

- Diabetes types:
  - Type 1 Diabetes
  - Type 2 Diabetes - 90-95% of all adults diagnosed
  - Gestational Diabetes
  - Other Types of Diabetes

Chronic Kidney Disease (CKD)

- Chronic Kidney Disease is a gradual and permanent loss of kidney function.

- CKD is caused by:
  - Diabetes
  - Hypertension
  - Glomerulonephritis or Polycystic kidney disease
  - Other conditions (atherosclerosis, HIV, sickle cell disease, kidney stones, chronic kidney infections)

- More than 20 million US adults may have CKD.

CKD and End Stage Renal Disease (ESRD)

Medical treatment goals for CKD patients:
- Slow the progression of CKD
- Treat underlying causes
- Treat complications
- Replace loss of kidney function

ESRD is a total and permanent kidney failure

Renal replacement therapies for ESRD patients:
- Hemodialysis
- Peritoneal dialysis
- Kidney transplantation

Diabetes and Chronic Kidney Disease: Connection

- Adults with diabetes are two to three times as likely to have CKD and make up 44% of new ESRD cases
- Similar disease management
- In 2011:
  - $85.9 billion – diabetes Medicare expenditures
  - $45.5 billion – CKD Medicare expenditures

Presentation Overview

- Tracking the Nation’s Progress
- Diabetes
  - Burden
  - Treatment and Care
  - Prevention
- Chronic Kidney Disease
  - Prevalence of Chronic Kidney Disease (CKD)
  - Medical evaluation
  - New cases of End-Stage Renal Disease (ESRD)
  - ESRD deaths
Tracking the Nation’s Progress

18 HP2020 Measurable Diabetes Objectives:
- 4 Target met
- 1 Improving
- 11 Little or No detectable change
- 0 Getting worse
- 1 Baseline data only
- 1 Informational

24 HP2020 Measurable Chronic Kidney Disease Objectives:
- 9 Targets met
- 5 Improving
- 4 Little or No detectable change
- 2 Getting worse
- 2 Baseline data only
- 2 Informational

NOTES: The Diabetes Topic Area contains 1 informational objective and 2 developmental objectives. The CKD Topic Area contains 2 informational objectives. Measurable objectives are defined as having at least one data point currently available, or a baseline, and anticipate additional data points throughout the decade to track progress. Informational objectives are also measurable objectives, however, they do not have a target associated with their data. Developmental objectives lack baseline data and targets.
Burden of Diabetes

- Affects 29.1 million or 9.3% of the U.S. population (2012, all ages)
  - Diagnosed: 21.0 million people
  - Undiagnosed: 8.1 million people
- 7th leading underlying cause of death (2011)
- The total cost of diabetes in the U.S.: $245 billion (2012)
  - $176 billion in direct medical costs
  - $69 billion in indirect costs including disability, work loss, premature mortality
- NCHS data for diabetes do not differentiate by type of diabetes. Gestational diabetes is excluded from our data.

Prevalence of Diagnosed Diabetes, 1997–2012

NOTES: Data are for prevalence of diagnosed diabetes. Diagnosed diabetes is defined as self-reported physician diagnosed diabetes. Women who only had diabetes while pregnant and persons with borderline diabetes are excluded. Data for total are for adults aged 18 years and over and are age adjusted to the 2000 standard population.

New Cases of Diagnosed Diabetes Per 1,000 Per Year, Adults 18-84 Years, 1997-2013

Rate Per 1,000

15
12
9
6
3
0

1997-1999
2000-2002
2003-2005
2006-2008
2009-2011
2011-2013

HP2020 Target: 7.2

NOTES: Data are for three year estimates of diagnosed diabetes in the past year. Data are for adults aged 18-84 years and are age adjusted to the 2000 standard population. Diagnosed diabetes is defined as self-reported physician diagnosed diabetes. Women who only had diabetes while pregnant and persons with borderline diabetes are excluded. 2011-2013 is the most recent data year currently available.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.
New Cases of Diagnosed Diabetes Per 1,000 Per Year, Adults 18–84 Years, 1997–2013

Rate Per 1,000


65–74 years
45–64 years
75–84 years
18–44 years

NOTES: Data are for three year estimates of diagnosed diabetes in the past year. Diagnosed diabetes is defined as self-reported physician diagnosed diabetes. Women who only had diabetes while pregnant and persons with borderline diabetes are excluded. 2011-2013 is the most recent data year currently available.

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. D-1
Decrease desired
New Cases of Diagnosed Diabetes Per 1,000 Per Year, Adults 18–84 Years, 2011–2013

HP2020 Target: 7.2 per 1000

2006-2008 Total*
2011-2013 Total
Male
Female
Black
Hispanic
White
Asian
Family Income (percent poverty threshold)
<100
100-199
200-399
400-599
600+

Rate Per 1,000

NOTES: — = 95% confidence interval. *2006-2008 data – HP2020 baseline. Data are for three year average of diagnosed diabetes in the past year for adults aged 18-84 years and are age adjusted to the 2000 standard population. Diagnosed diabetes is defined as self-reported physician diagnosed diabetes. Women who only had diabetes while pregnant and persons with borderline diabetes are excluded. Persons of Hispanic origin may be any race. The categories Black and White exclude persons of Hispanic origin. Respondents were asked to select one or more races. Data for the single race categories are for persons who reported only one racial group. Data for American Indian/Alaska Native, Native Hawaiian or other Pacific Islander, and 2 or more races are not shown because they are statistically unreliable (DSU).

SOURCE: National Health Interview Survey (NHIS), CDC/NCHS.

Obj. D-1
Proportion of Diabetes That is Diagnosed, Adults 20+ Years, 2009–2012

HP2020 Target: 80.1%

2005-2008 Total*
2009-2012 Total
Male
Female
Black
White
Hispanic
Private
Public
Uninsured

NOTES: — = 95% confidence interval. *2005-2008 data – HP2020 baseline. Data are for adults aged 20 years and over with diabetes and are age adjusted to the 2000 standard population. Diabetes is defined as diagnosed diabetes -OR- fasting blood glucose greater or equal to 126 mg/dL -OR- HbA1c level greater or equal to 6.5%. Diagnosed diabetes is defined as self-reported physician diagnosed diabetes. Women who only had diabetes while pregnant and persons with borderline diabetes are excluded. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Hispanic origin may be any race.

SOURCE: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS.
Diabetes: Co-Existing Conditions and Complications

- Hypoglycemia and hyperglycemic crisis
- High blood pressure
- High LDL cholesterol
- Heart disease and stroke
- Blindness and eye problems
- **Kidney disease**
- Amputations
- Nerve disease
- Non-alcoholic fatty liver disease
- Periodontal disease
- Hearing loss
- Erectile dysfunction
- Depression
- Complications of pregnancy

Glycemic, Cholesterol, and Blood Pressure Control in Adults with Diagnosed Diabetes

**Percent**

<table>
<thead>
<tr>
<th></th>
<th>2005-2008</th>
<th>2009-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HbA1c &gt;9%</strong></td>
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<td></td>
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<tr>
<td><strong>LDL Cholesterol</strong></td>
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<td></td>
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<tr>
<td>&lt;100 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Blood pressure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;130/80 mm Hg</td>
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</tr>
</tbody>
</table>

**HP2020 Targets**

- **HbA1c >9%**
  - 2005-2008: 18.3%
  - 2009-2012: 16.1%
- **LDL Cholesterol <100 mg/dL**
  - 2005-2008: 58.3%
  - 2009-2012: 57.0%
- **Blood pressure <130/80 mm Hg**
  - 2005-2008: 57.0%
  - 2009-2012: 58.3%

**Notes:**
- I = 95% confidence interval. Data are for adults aged 18 years and over with diagnosed diabetes and are age adjusted to the 2000 standard population. Diagnosed diabetes is defined as self-reported physician diagnosed diabetes. Women who only had diabetes while pregnant and persons with borderline diabetes are excluded. Criteria for LDL Cholesterol control and blood pressure control were chosen to follow the 2010 American Diabetes Association guidelines at the time the objectives were set.
- SOURCE: National Health and Nutrition Examination Surveys (NHANES), CDC/NCHS.

**Objs. D-5.1, D-6, D-7**
Lower Extremity Amputations Among Persons with Diabetes

Rate per 1,000

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
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<td></td>
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<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTES: I = 95% confidence interval. *Indicates Healthy People 2020 baseline year for this measure. This objective is being tracked without a target. Data are age adjusted to the 2000 standard population and include any amputation of lower limb. For NHDS data prior to 2000, only one race category was recorded; reporting more than one race was not an option. For NHIS data prior to 1999, respondents reported one or more races and identified one race as best representing their race. Respondents were asked to select one or more races starting in 1999 (NHIS) or 2000 (NHDS), although more than one race selection was not used for 1999 NHIS data in order to be consistent with 1997-1998 data. Data for the single race categories shown are for persons who reported only one racial group.

SOURCE: National Hospital Discharge Survey (NHDS) and National Health Interview Survey (NHIS), CDC/NCHS.
Prediabetes (High Risk Group)

- Prediabetes is a condition in which people have high blood glucose or hemoglobin A1c levels above normal, but not high enough to be classified as diabetes.

- Prediabetes affects 86 million or 37% of the U.S. adult population (ages 20+, 2009-2012).

- For Healthy People measures, persons are considered at high risk for diabetes if they:
  - did not report diagnosed diabetes -and-
  - had fasting glucose ≥100 and <126 mg/dL -or-
     an HbA1c value ≥5.7% and <6.5%.

Prevention Behaviors in Adults at High Risk for Diabetes

NOTES: I = 95% confidence interval. Data are for adults aged 18 years and over at high risk for diabetes and are age adjusted to the 2000 standard population. Persons are considered at high risk for diabetes if they: did not report diagnosed diabetes and had fasting glucose ≥100 and <126 mg/dL or an HbA1c value ≥5.7% to <6.5%. Two-year and four-year data are not comparable. Different age adjustment groups are used for two-year and four-year data. Two-year estimates are generally less stable and reliable than four-year estimates.

SOURCE: National Health and Nutrition Examination Surveys (NHANES), CDC/NCHS.
Presentation Overview

- Tracking the Nation’s Progress
- Diabetes
- Chronic Kidney Disease
  - Prevalence of Chronic Kidney Disease (CKD)
  - Medical evaluation
  - New cases of End-Stage Renal Disease (ESRD)
  - ESRD deaths
CKD and ESRD Burden, 2011

- 615,899 patients received treatment for ESRD
- 115,643 new ESRD cases reported
- 17,671 patients received kidney transplantations
  - Median time on transplant wait list for adults: 2.6 years
- Medicare CKD expenditures: $45.5 billion (nearly 20% of total Medicare expenditures)
- Total ESRD costs: $49.3 billion including $34.4 billion of Medicare expenditures


Chronic Kidney Disease, Adults, 2005–2010

NOTES: — = 95% confidence interval. *HP2020 baseline. Data are for adults 18 years+ with CKD stages 1-4. Stage 1 is defined as estimated glomerular filtration rate (eGFR) ≥90 ml/min/1.73 m² and urinary albumin/creatinine ratio (ACR) ≥30 mg/g; stage 2: eGFR 60-89 ml/min/1.73 m² and ACR ≥30 mg/g; stages 3 and 4: eGFR 30-59 and 15-29 ml/min/1.73 m², respectively. Except for age specific groups, data are age adjusted to the 2000 standard population. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Mexican American persons may be of any race.

SOURCE: National Health and Nutrition Examination Survey (NHANES), CDC/NCHS.
## Hypertension in Adults with CKD, 2005–2010

**HP2020 Target: 49.2%**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>1999-04 Total*</td>
<td>60%</td>
</tr>
<tr>
<td>Total Female</td>
<td>65%</td>
</tr>
<tr>
<td>Male</td>
<td>55%</td>
</tr>
<tr>
<td>White</td>
<td>50%</td>
</tr>
<tr>
<td>Mexican American</td>
<td>70%</td>
</tr>
<tr>
<td>Black</td>
<td>75%</td>
</tr>
<tr>
<td>Family Income (percent poverty threshold)</td>
<td></td>
</tr>
<tr>
<td>&lt;100</td>
<td>70%</td>
</tr>
<tr>
<td>100-199</td>
<td>65%</td>
</tr>
<tr>
<td>200-399</td>
<td>60%</td>
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<tr>
<td>400-499</td>
<td>55%</td>
</tr>
<tr>
<td>500+</td>
<td>50%</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>18-44</td>
<td>60%</td>
</tr>
<tr>
<td>45-64</td>
<td>70%</td>
</tr>
<tr>
<td>65+</td>
<td>80%</td>
</tr>
</tbody>
</table>

**NOTES:** — = 95% confidence interval. *HP2020 baseline. Data are for adults 18 years+ with CKD stages 1-4 and either self-reported hypertension, reported prescription for hypertension medication, or measured high systolic (≥140 mmHg) or diastolic (≥90 mmHg) blood pressure. Except for age specific groups, data are age adjusted to the 2000 standard population. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Mexican American persons may be of any race.

**SOURCE:** National Health and Nutrition Examination Survey (NHANES), CDC/NCHS.
Recommended Medical Evaluation, Adults 65+ Years with CKD

HP2020 Target: 28.3%

NOTES: I = 95% confidence interval. AIAN - American Indian/Alaska Native. Recommended medical evaluation included serum creatinine, lipids, and urine albumin tests. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Hispanic origin may be of any race.

SOURCE: United States Renal Data System (USRDS), NIH/NIDDK.
Recommended Medical Evaluation, Adults 65+ Years with CKD and Diabetes

**NOTES:** \( I = 95\% \) confidence interval. AIAN – American Indian/Alaska Native. Recommended medical evaluation for adults with type 1 and type 2 diabetes and CKD included serum creatinine, urine albumin, A1c, lipids tests, and eye examinations. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Hispanic origin may be of any race. SOURCE: United States Renal Data System (USRDS), NIH/NIDDK.
New Cases of End-Stage Renal Disease, 1980–2011

Per 1,000,000

HP2020 Target: 344.3

NOTES: The data are adjusted for age, sex, race and ethnicity.
SOURCE: United States Renal Data System (USRDS), NIH/NIDDK.
New Cases of End-Stage Renal Disease

NOTES: I = 95% confidence interval. AIAN – American Indian/Alaska Native. The data are adjusted for age, sex, and race/ethnicity. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Hispanic origin may be of any race.
SOURCE: United States Renal Data System (USRDS), NIH/NIDDK.
New Cases of ESRD due to Diabetes, Patients with Diabetes

HP2020 Target: 2380.5

Per 1,000,000

Total 2007 2011

NOTES: I = 95% confidence interval. AIAN – American Indian/Alaska Native. Data are for patients with ESRD and diabetes whose cause of renal failure was due to diabetes. The data are adjusted for age, sex, and race/ethnicity. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Hispanic origin may be of any race.

SOURCE: United States Renal Data System (USRDS), NIH/NIDDK.
Deaths in Patients with ESRD on Dialysis

Per 1,000 patient years

**HP2020 Target: 190.0**

**NOTES:** I = 95% confidence interval. AIAN – American Indian/Alaska Native. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Hispanic origin may be of any race.

**SOURCE:** United States Renal Data System (USRDS), NIH/NIDDK.

**Obj. CKD-14.1**
Decrease desired
Deaths in ESRD Patients with a Functioning Kidney Transplant

NOTES: I = 95% confidence interval. AIAN – American Indian/Alaska Native. Respondents were asked to select one or more races. The categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Hispanic origin may be of any race.

SOURCE: United States Renal Data System (USRDS), NIH/NIDDK.

Obj. CKD-14.4
Decrease desired
Key Takeaways – Diabetes

- Prevalence of diagnosed diabetes in adults has increased over the last decade, but has leveled off in recent years.
- New cases of diagnosed diabetes have also increased over the past decade, but have decreased since the HP2020 baseline and have met the HP2020 target.
- About two-thirds of adults with diabetes had their condition diagnosed.
- About 20% of adults with diagnosed diabetes have a hemoglobin A1c > 9.0%.
- Over half of diabetes objectives have seen little or no change thus far in the decade.
Key Takeaways – CKD

- CKD estimates have shown little or no change over the last decade.
- Since 2001 there has been a significant reduction in new cases of ESRD and ESRD deaths.
- About 50% of patients with CKD had hypertension in 2005–2010.
- Medical evaluation has improved for Medicare CKD patients and for patients with diabetes and CKD.
- Although there have been improvements, disparities still persist.
- Over half of HP2020 CKD objectives, 14 out of 24, have met or moved towards their HP2020 targets thus far in the decade.
NIH Research to Improve Outcomes in People with Diabetes and Kidney Disease
Andrew Narva, MD
National Kidney Disease Education Program
National Institutes of Health
NIDDK’s Integrated Research Programs

- Obesity
- Type 2 Diabetes
- Chronic Kidney Disease
Diabetes: The Tip of the Iceberg

U.S. Diabetes
29.1 million*
21 million diagnosed; 8.1 million undiagnosed

U.S. Prediabetes
86 million†

*All ages, 2012
† Age 20 and older with IGT +/or IFG +/or A1c between 5.7 and 6.4 (2012)
The Diabetes Prevention Program Clinical Trial (DPP)

- 3234 participants (45% minority) with IGT who were overweight or obese

- Compared 3 approaches to diabetes prevention for 3 years:
  - Placebo
  - Metformin
  - Lifestyle
DPP Results

Cases/100 person-yr

<table>
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<tr>
<th>Group</th>
<th>Placebo</th>
<th>Metformin</th>
<th>Lifestyle</th>
</tr>
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<tbody>
<tr>
<td>Caucasian (n=1768)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>African American (n=645)</td>
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</tr>
<tr>
<td>Hispanic (n=508)</td>
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</tr>
<tr>
<td>American Indian (n=171)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian (n=142)</td>
<td></td>
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</table>
Translating from Efficacy Research to Public Health
Behavioral Counseling to Promote a Healthful Diet and Physical Activity for Cardiovascular Disease Prevention in Adults With Cardiovascular Risk Factors: U.S. Preventive Services Task Force Recommendation Statement

Michael L. LeFevre, MD, MSPH, on behalf of the U.S. Preventive Services Task Force

Description: Update and refinement of the 2003 U.S. Preventive Services Task Force (USPSTF) recommendation on dietary counseling for adults with risk factors for cardiovascular disease (CVD) who have known CVD risk factors (hypertension, dyslipidemia, impaired fasting glucose, or the metabolic syndrome).

August 2014
DCCT/EDIC: Glucose Control Can Significantly Reduce the Risk of Complications

Reductions in Risk:

- Eye Disease: 76%
- Nerve Disease: 60%
- Cardiovascular Disease: 57%
- Kidney Disease: 50%
Impaired GFR Reduced by Half

Risk reduction with intensive therapy:
50% (95% CI, 18–69)  P=0.006

Cumulative Incidence of Impaired GFR (%)

Years since Randomization

<table>
<thead>
<tr>
<th>No. at Risk</th>
<th>Intensive therapy</th>
<th>Conventional therapy</th>
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<tbody>
<tr>
<td></td>
<td>711</td>
<td>730</td>
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<td>594</td>
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<tr>
<td></td>
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<td>108</td>
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</table>

Source: NEJM 365: 2366, 2011

GFR<60
Prevalence of Diabetic Kidney Disease (DKD) Among Adults with Diabetes; United States, 2005-2008

Prevalence of DKD:
- Total: 34.5%
- Albuminuria: 16.8%
- Impaired GFR: 10.8%
- Both: 6.9%

Definitions:
- Albuminuria = ACR ≥30 mg/g
- Impaired GFR = eGFR <60 ml/min/1.73m²

JAMA 305:2532-2539, 2011
Diabetes is the leading cause of ESRD

Incident counts & adjusted rates of ESRD, by primary diagnosis

Reference: USRDS Annual Data Report (NIDDK, 2013)
Disparities in the Burden of ESRD

Incident counts & adjusted rates of ESRD, by race

Reference: USRDS Annual Data Report (NIDDK, 2013)
Awareness of Kidney Disease among adults with CKD is Poor

NHANES 2007-2010
Encouraging African Americans to Make the Kidney Connection

- Research-based program leverages influence of faith leaders to share health information
- Engages faith organizations to host educational events on kidney health
- Reached 100,000 people in March 2014
Testing Interventions
“Usability of a CKD Educational Website Targeted to Patients and Their Family Members”
Translational Research in CKD

- **Integrated Population Program for Diabetic Kidney Disease (Duke)**
  - **Goal:** Improve identification and care of diabetic kidney disease (DKD) patients with uncontrolled hypertension

- **Group-based Chronic Kidney Disease Care (Einstein)**
  - **Goal:** Improve blood pressure control among CKD patients

- **Health IT Enhanced for CKD in Safety-Net Primary Care (UCSF)**
  - **Goal:** Mitigate disparities through improved delivery of CKD care
Improving Chronic Kidney Disease Management with Pieces (ICD-Pieces) UT-Southwestern

Goal: Leverage EHR information to improve care for patients with diabetes, hypertension, and CKD

Interventions: Collaborative model of primary care and subspecialty care implemented through Parkland intelligent e-coordination and evaluation system (Pieces)

Challenges: Lack of electronic health records (EHR) interoperability, primary care provider hesitance to engage, lack of CKD education resources in EHRs
Translational research in CKD

THE LAST MILE
The Road to Improved Chronic Kidney Disease Outcomes

IMPROVED OUTCOMES

INTEGRATED HEALTH CARE

DECISION SUPPORT

NEW COLLABORATIONS

SELF-MANAGEMENT & HEALTH LITERACY

VIRTUAL COHORTS

OUTCOME METRICS

T2 TRANSLATIONAL RESEARCH

Healthy People 2020
CDC’s Priorities in the Public Health Response to Diabetes
Ann Albright, PhD, RD
Director
Division of Diabetes Translation
Centers for Disease Control and Prevention
The fight against diabetes

Cases skyrocket
The number of adults ages 18 to 79 newly diagnosed with diabetes nearly tripled from 493,000 in 1980 to 1.4 million in 2005:
(in thousands)

493

An American Epidemic
Diabetes

The silent killer: Scientific research shows a "persistent explosion" of cases—especially among those in their prime by Jerry Adler and Claudia Kalb.

If you've recently been diagnosed with diabetes, you're hardly alone: Nearly 26 million Americans have either type 1 or type 2, according to the American Diabetes Association (ADA). Fortunately, taking even small steps to manage your disease can have big payoffs.

Take charge of your health.
Living with type 1 or type 2 diabetes? Keeping it under control may be easier than you think.
County-level Estimates of Diagnosed Diabetes among Adults Aged ≥20 Years: United States 2005

National Diabetes Surveillance System
www.cdc.gov/diabetes
County-level Estimates of Diagnosed Diabetes among Adults Aged ≥20 Years: United States 2006

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www.cdc.gov/diabetes
County-level Estimates of Diagnosed Diabetes among Adults Aged ≥20 Years: United States 2007

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www.cdc.gov/diabetes
County-level Estimates of Diagnosed Diabetes among Adults Aged ≥20 Years: United States 2008

National Diabetes Surveillance System
www.cdc.gov/diabetes

Percentage
County-level Estimates of Diagnosed Diabetes among Adults Aged ≥20 Years: United States 2009

National Diabetes Surveillance System
www.cdc.gov/diabetes
County-level Estimates of Diagnosed Diabetes among Adults Aged ≥20 Years: United States 2010

National Diabetes Surveillance System
www.cdc.gov/diabetes
County-Level Estimates of Diagnosed Diabetes among Adults Aged ≥20 Years: United States 2011

National Diabetes Surveillance System
www.cdc.gov/diabetes
Trends in Type 2 Diabetes Prevalence, 2001–2009, among Youth Age 10–19 Years

Changes in Lifetime Risk for Diagnosed Diabetes after Age 20 Years in the United States, 1985 to 2011

Gregg et al., Lancet Diabetes & Endocrinology, 2014
Trends in Age-Standardized Rates of Diabetes-Related Complications from 1990 to 2010 among U.S. Adults with Diagnosed Diabetes

Successes and Challenges in the Public Health Response to Diabetes

- **Reductions and Improvements**
  - Mortality and Complications

- **Continued increases**
  - Incidence and Prevalence
Public Health Response to Diabetes

- Prevent diabetes
  - Increase diabetes preventive behaviors
  - Improve the access to effective lifestyle intervention
  - Promote healthy environments for the whole population

- Prevent diabetes complications
  - Increase access and delivery of preventive health care
  - Enhance and improve community and environmental strategies to support people with diabetes

- Prevent chronic kidney disease
  - Increase awareness and early diagnosis
  - Build a national CKD surveillance program
  - Promote use of evidence-based, cost-effective care

- Eliminate diabetes-related health disparities
DISTRIBUTION
(Diffusion of interventions)

AVAILABILITY
(Supply)

EFFICIENCY
(Biggest effect on most people)

EFFECTIVENESS
(Real world settings)

EFFICACY
(Ideal settings)

BASIC SCIENCE
(Molecular/physiological)

National Diabetes Prevention Program

COMPONENTS

Training: Increase Workforce
Train the workforce that can implement the program cost effectively.

Recognition Program: Assure Quality
Implement a recognition program that will:
- Assure quality.
- Lead to reimbursement.
- Allow CDC to develop a program registry.

Intervention Sites: Deliver Program
Develop intervention sites that will build infrastructure and provide the program.

Health Marketing: Support Program Uptake
Increase referrals to and use of the prevention program.

Progress to Date for National Diabetes Prevention Program

Source: Diabetes Prevention Recognition Program (CDC/National Diabetes Prevention Program)
Summary

• The number of and health impact from diabetes-related complications, including kidney complications, have declined substantially.

• Incidence (new cases) of diagnosed diabetes has increased over two decades. Preventing type 2 diabetes is an important step in preventing kidney disease.

• Continued improvements are needed for preventing diabetes and its complications.

• Strong community lifestyle-change programs are needed for high-risk individuals and healthy communities to reduce risk and prevent diabetes in the population as a whole.
Thank You!

Please visit the Division of Diabetes Translation web site at
www.cdc.gov/diabetes
www.cdc.gov/ckd

For more information, please contact:
The Centers for Disease Control and Prevention
1600 Clifton Road NE, Atlanta, Georgia 30333
Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
E-mail: cdcinfo@cdc.gov  Web: www.cdc.gov
EMBLEMHEALTH
National Diabetes Prevention Program

Presented by: Karen Wauchope, RN, BSN, CDE
September 29, 2014
EMBLEMHEALTH

- New York based non-profit health plan
- State’s largest insurance plan
- 3.4 million lives
- Individual, small and large groups, Medicaid, Medicare and Family Health Plus, Long-Term Care, Health Exchange
- Integrated delivery model – AdvantageCare Physicians
NEIGHBORHOOD CARE

**BASIC HEALTH**
We don’t provide medical treatment at Neighborhood Care, but our vendors can access tools like EPR machines and blood pressure stations, and learn how to understand how the information to help take charge of their own health.

**HOSPITALITY**
“Hospital and nursing staff?” That’s what everyone gets at Neighborhood Care. Each visit to one of our locations gets the kind of warm welcome they’d expect at the finest hotel—or their best friend’s home.

**COMMUNITY CLASSES**
Zumba, Health Care Reform 101, Smoking cessation, Diet support. Support for stroke survivors. Tai chi and meditation. Therapeutic massage. Every day Neighborhood Care locations are bustling with free activities and programs that keep our communities healthy.

**ONE-ON-ONE SUPPORT**
No one learns being ‘healthy’ or ‘well’ in their ‘department’, at Neighborhood Care. We’re not how it’s done in the whole neighborhood. Our Social Worker and Personalized Care Specialist are all the time they need to help everyone who walks through our doors.

**SPECIFIC GUIDANCE**
We have a non-profit organization that trains registered nurses, licensed social workers and pharmacy navigators. We help people understand their care needs and connect with primary care doctors and specialists. The best part? It all works together, this right hand does know what the left hand is doing!

---

**Nurse Case Managers**  **Pharmacy Case Managers**  **Social Work Case Managers**  **Health Navigators**  **Health Care Solutions Specialists**  **Community Liaisons**
QUALITY GAPS
WHY DPP?

- Population health management
- Prevention focus
- Consumer experience

Market-Needs

- Higher DM / Pre-DM prevalence Blacks, Hispanics and Asians
- Evidence-Based Prevention
- Wagner Chronic Care

Organization

- Organizational Goals
- Integrated Delivery
- Cultural Competence Care Model
- Partnerships
- Neighborhood Care Innovations

Epidemiology

DPP

EmblemHealth
WHAT CARE FEELS LIKE.
EMBLEMHEALTH DPP

- In collaboration with AHIP (American Health Insurance Plans), EmblemHealth awarded CDC grant to implement the National DPP, September 2012

- Evidence-based lifestyle change program designed to prevent type 2 diabetes among people at high risk

- The study demonstrated that with a modest amount of weight loss (5-7% of body weight), through dietary changes and increased physical activity, reduced diabetes risk by 58%

- Initial implementation at Harlem and Cambria Heights Neighborhood Care, July 2013
## METRICS

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Metric</th>
<th>16 weekly sessions</th>
<th>6 monthly sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>C1</td>
<td>C2-15</td>
</tr>
<tr>
<td>Patient demographics</td>
<td>Age, race and ethnicity details, gender, sexual orientation, educational attainment, paid employment, annual household income, preferred spoken and written language</td>
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<tr>
<td>Class information</td>
<td>Location of classes (e.g., Cambria Heights, Harlem, Chinatown NC), health coach, class day/time/duration, class attendance</td>
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<td>Anthropomorphic data</td>
<td>Height</td>
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<tr>
<td></td>
<td>Weight</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Blood Pressure, HbA1c</td>
<td>X</td>
<td></td>
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<tr>
<td>Behavior data</td>
<td>Physical Activity in minutes</td>
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<tr>
<td></td>
<td>Other weight loss efforts (self-report), leisure time exercise questionnaire</td>
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<tr>
<td>Attitude data</td>
<td>Stages of change (exercise and weight loss), barriers to exercise</td>
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</tr>
<tr>
<td>Experience data</td>
<td>CDC Exit survey</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
RESULTS

- 18 cohorts
- 6 completed classes
- 270 members enrolled (1 class)
- 203 members engaged (more than 1 class)
- 75% engagement rate
PARTICIPANT DEMOGRAPHICS

**GENDER**
- Female: 84%
- Male: 16%

**ETHNICITY**
- No Response: 15%
- Hispanic: 9%
- Non-Hispanic: 76%

**RACE**
- No Response: 5%
- AIAN: 1%
- ASIAN: 1%
- BLACK: 84%
HEMOGLOBIN A1C RESULTS

HbA1c changes

- Increase in HbA1c level: 12 participants
- Decrease or no change in HbA1c level: 36 participants

Key Finding: 75% of participants (36) decreased or maintained their HbA1c levels.
HEMOGLOBIN A1C RESULTS

Key Findings:

- 79% of participants (n=38) started off as pre-diabetic (HbA1c = 5.70-6.4)
- All but one stayed pre-diabetic or became "normal"
WEIGHT RESULTS

Key Finding: 75% of participants lost or maintained their weight. On average they lost 4.1% of their starting weight.
WEIGHT RESULTS

Weight loss (more than 5%)

Key Findings:
• 42% lost 5% or more of their baseline weight
• 12% of the sample lost significantly more weight
Key Finding: 40% of participants with abnormal BP (above 140/90) improved both their systolic and diastolic BP.
RESULTS*

- 75% engagement rate
- 75% of participants (36) decreased their HbA1c levels.
- 32% of pre-diabetics changed to ‘normal’ (HbA1c below 5.7)
- 75% participants lost or maintained weight.
- 42% lost 5% or more of their baseline weight
- 40% of the 10 participants with abnormal BP (above 140/90) improved both their systolic and diastolic BP.

*preliminary results (first 6 completed classes)
CHALLENGES

- Lack of urgency in the medical community
- Lack of awareness
- Engagement
  - Males
  - Young working families
- Participant barriers
  - Financial
  - Lack of family support/sabotage
  - Denial
LESSONS LEARNED

- Prevention is important.
- Appropriation of resources
- Physician support critical
- Physicians and community awareness
TESTIMONIALS

- “My doctor says I am back to normal! My A1c went from 6.1 to 5.6!”
- “I thank God for this program every day!”
- “I love the fellowship.”
- “I’ve never had someone care about my personal health so much before.”
A SUCCESS STORY
GRADUATION MAY 2014
THANK YOU

To find out more about EmblemHealth and EmblemHealth Neighborhood Care, please visit our websites:

www.emblemhealth.com
www.ehnc.com
Roundtable Discussion

Please submit your questions using the Q&A function. Thank you for filling out our brief survey.
LHI Infographic Gallery

The Leading Health Indicators are high-priority health issues in the United States that serve as measures of the Nation’s health. Each month healthypeople.gov displays one or more infographics to visually communicate the existing health disparities for the featured Leading Health Indicator Topic.

If you would like the monthly infographic and bulletin sent straight to your inbox, sign up for Healthy People email updates.

LHI Infographic Gallery
New Training on Diabetes Agents

Preventing Adverse Drug Events
Individualizing Glycemic Targets Using Health Literacy Strategies

- Preventing Adverse Drug Events: Individualizing Glycemic Targets Using Health Literacy Strategies
- Earn continuing education credit (CME, CNE, CEU, CPE)
- Available on the training tab of www.health.gov
Please join us as we review select Healthy People 2020 objectives in the Environmental Health and Tobacco Use topic areas.

Friday, December 5, 2014

Hear from a community-based organization that is working to improve outcomes in the community.

To register, visit: www.healthypeople.gov
Stay Connected

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WEB  healthypeople.gov
EMAIL hp2020@hhs.gov
TWITTER @gohealthypeople
LINKEDIN Healthy People 2020
YOUTUBE ODPHP (search “healthy people”)
A library of stories highlighting ways organizations across the country are implementing Healthy People 2020

Healthy People in Action - Sharing Library

http://healthypeople.gov/2020/implement/MapSharingLibrary.aspx
Healthy People 2020
Progress Review Planning Group

- Ed Greg (CDC/NCCDPHP)
- Desmond Williams (CDC/NCCDPHP)
- Paul Eggers (NIH/NIDDK)
- Lawrence Agodoa (NIH/NIDDK)
- Peter Savage (NIDDK/NIH)
- Nilka Rios Burrows (CDC/NCCDPHP)
- Sharon Saydah (CDC/NCCDPHP)
- Stan Lehman (CDC/NCCHSTP)
- Denise Stredrick (NIH/OD)
- Rebecca Hines (CDC/NCHS)
- Leda Gurley (CDC/NCHS)
- Asel Ryskulova (CDC/NCHS)
- Lesley Dobrzynski (CDC/NCHS)
- Mark Eberhardt (CDC/NCHS)
- David Lacher (CDC/NCHS)
- Carter Blakey (HHS/ODPHP)
- Emmeline Ochiai (HHS/ODPHP)
- Debbie Hoyer (HHS/ODPHP)
- Yen Luong (HHS/ODPHP)