KEEP Data Report 2005

Chapter 4:
Diabetes & hypertension
Figure 4.1

KEEP participants with diabetes, by age, gender, & race/ethnicity

KEEP N=36,312. Excludes participants with missing values for diabetic status or blood glucose. Race & Hispanic ethnicity are not mutually exclusive.

Diabetes
Self-reported diabetes
Elevated blood sugar

KEEP Data Report, 2005
Figure 4.2

KEEP participants with diabetes, by cohort year

KEEP N=36,312. Excludes participants with missing values for diabetic status or blood glucose. Race & Hispanic ethnicity are not mutually exclusive.
Figure 4.3
KEEP participants with diabetes, by U.S. Census Region

KEEP N=36,288. Excludes participants with missing values for diabetic status, blood glucose, or census region.

KEEP Data Report, 2005
Figure 4.4
KEEP & NHANES participants with diabetes, by education & insurance

Diabetes
Self-reported diabetes
Elevated blood sugar

Education & insurance
<HS&NIns: Less than a high school education, & no insurance
<HS&Ins: Less than a high school education, & insurance
HS+&NIns: High school education or greater, & no insurance
HS+&Ins: High school education or greater, & insurance

KEEP N=34,551, NHANES N=11,165. Excludes participants with missing values for diabetic status, blood glucose, education, or insurance.
Figure 4.5
Microalbuminuria in KEEP participants, by diabetic status

KEEP N=31,753. Excludes participants with missing values for diabetic status, blood glucose, or microalbumin.
Mean blood pressure in KEEP participants, by diabetic status & family history

Diabetic Groups
1: Self-reported DM (+) family history
2: Self-reported DM (-) family history
3: Self-reported NDM (+) family history & elevated blood sugar
4: Self-reported NDM (-) family history & elevated blood sugar (glucose greater than the normal limit: fasting, >126 mg/dl, non fasting, >139 mg/dl)

Diabetes
Self-reported diabetes
Elevated blood sugar

KEEP N=36,751. Excludes participants with missing values for blood pressure.
Figure 4.7
Elevated blood pressure (JNC 7) in KEEP participants, by diabetic status & family history

Diabetic Groups
1: Self-reported DM (+) family history
2: Self-reported DM (-) family history
3: Self-reported NDM (+) family history & elevated blood sugar
4: Self-reported NDM (-) family history & elevated blood sugar (glucose greater than the normal limit: fasting, >126 mg/dl, non fasting, >139 mg/dl)

Elevated blood pressure (JNC 7)
DM or CKD:
Systolic: ≥130 mmHg or Diastolic: ≥80 mmHg
No DM or CKD:
Systolic: ≥140 mmHg or Diastolic: ≥90 mm Hg

KEEP N=36,751. Excludes participants with missing values for blood pressure.

KEEP Data Report, 2005
Figure 4.8
Mean eGFR in KEEP participants, by diabetic status & family history

Diabetic Groups
1: Self-reported DM (+) family history
2: Self-reported DM (-) family history
3: Self-reported NDM (+) family history & elevated blood sugar
4: Self-reported NDM (-) family history & elevated blood sugar (glucose greater than the normal limit: fasting, >126 mg/dl, non fasting, >139 mg/dl)

KEEP N=35,490. Excludes participants with missing values for eGFR

KEEP Data Report, 2005
KEEP Data Report, 2005

Figure 4.9

CKD in KEEP participants, by diabetic status & family history

Diabetic Groups
1: Self-reported DM (+) family history
2: Self-reported DM (-) family history
3 : Self-reported NDM (+) family history & elevated blood sugar
4: Self-reported NDM (-) family history & elevated blood sugar (glucose greater than the normal limit: fasting, >126 mg/dl, non fasting, >139 mg/dl)

CKD Definition
If eGFR by K/DOQI MDRD <60 ml/min/1.73 m² or;
If eGFR by K/DOQI MDRD ≥ 60 ml/min/1.73 m² and microalbuminuria +

KEEP N=35,490. Excludes participants with missing values for eGFR
Figure 4.10

Mean BMI of KEEP participants, by diabetic status & family history

Diabetic Groups
1: Self-reported DM (+) family history
2: Self-reported DM (-) family history
3: Self-reported NDM (+) family history & elevated blood sugar
4: Self-reported NDM (-) family history & elevated blood sugar (glucose greater than the normal limit: fasting, >126 mg/dl, non fasting, >139 mg/dl)

KEEP N=36,796. Excludes participants with missing values for BMI.
Figure 4.11

BMI $\geq$ 30 kg/m$^2$ in KEEP participants, by diabetic status & family history

KEEP N=36,796. Excludes participants with missing values for BMI.
Figure 4.12
Mean blood sugar in KEEP participants with self-reported diabetes, by BMI group

KEEP N=8,926 for self-reported diabetes. Excludes participants with missing values for BMI, self-reported diabetic status, or blood glucose.
Figure 4.13
KEEP participants with self-reported diabetes who meet the target blood sugar level, by BMI group

KEEP N=8,926 for self-reported diabetes. Excludes participants with missing values for BMI, self-reported diabetic status, or blood glucose.
Figure 4.14
KEEP participants with self-reported diabetes who meet the target blood sugar level, by BMI & cohort year

Keep N=8,926 for self-reported diabetes. Excludes participants with missing values for BMI, self-reported diabetic status, or blood glucose.
Figure 4.15
KEEP participants with self-reported diabetes who meet the target blood sugar level, by BMI & U.S. Census Region

KEEP N=8,922 for self-reported diabetes. Excludes participants with missing values for BMI, self-reported diabetic status, blood glucose, or census region.

Body Mass Index Categories
- UW: underweight: BMI<18.5
- N: normal: BMI 18.5–24.9
- OW: overweight: BMI 25–29.9
- OB: obese: 30–39.9
- EOB: extremely obese: BMI ≥ 40

Elevated blood sugar
- Fasting: >126 mg/dl
- Non-fasting: >139 mg/dl
Figure 4.16
Mean blood sugar in KEEP participants with self-reported diabetes, by physician interaction

KEEP N=8,752 for self-reported diabetes. Excludes participants with missing values for self-reported diabetic status, blood glucose, or physician information.
Figure 4.17
Elevated blood sugar in KEEP participants with self-reported diabetes, by physician interaction

KEEP N=8,752 for self-reported diabetes. Excludes participants with missing values for self-reported diabetic status, blood glucose, or physician information.
Figure 4.18
Odds of self-reported non-diabetic KEEP participants having an elevated blood sugar, by risk factor

Keeping N=22,290 for self-reported non-diabetes. Excludes participants with missing values for race, self-reported hypertension, family history, census region, CKD, BMI, smoking, or blood glucose.
Figure 4.19
Odds of being within the target blood sugar level in known KEEP participants with diabetes, by risk factor

KEEP N=7,316 for self-reported diabetes. Excludes participants with missing values for race, self-reported hypertension, family history, census region, CKD, BMI, smoking, or blood glucose.
Table 4.a
Odds of self-reported non-diabetic KEEP participants having an elevated blood sugar

<table>
<thead>
<tr>
<th></th>
<th>RR</th>
<th>lower</th>
<th>upper</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>0.387</td>
<td>0.296</td>
<td>0.507</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>31-45</td>
<td>0.671</td>
<td>0.576</td>
<td>0.781</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>46-60</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61-75</td>
<td>1.389</td>
<td>1.209</td>
<td>1.595</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>&gt; 75</td>
<td>1.394</td>
<td>1.126</td>
<td>1.726</td>
<td>0.0023</td>
</tr>
<tr>
<td>female</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>1.221</td>
<td>1.085</td>
<td>1.374</td>
<td>0.0009</td>
</tr>
<tr>
<td>white</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>black</td>
<td>1.154</td>
<td>1.015</td>
<td>1.311</td>
<td>0.029</td>
</tr>
<tr>
<td>other</td>
<td>1.643</td>
<td>1.405</td>
<td>1.922</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Smoking &amp; used to smoke</td>
<td>1.124</td>
<td>1.005</td>
<td>1.256</td>
<td>0.04</td>
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<tr>
<td>Self-reported HTN</td>
<td>1.267</td>
<td>1.123</td>
<td>1.429</td>
<td>0.0001</td>
</tr>
<tr>
<td>Family history of diabetes</td>
<td>1.251</td>
<td>1.109</td>
<td>1.411</td>
<td>0.0003</td>
</tr>
<tr>
<td>Family history of hypertension</td>
<td>0.831</td>
<td>0.725</td>
<td>0.952</td>
<td>0.0075</td>
</tr>
<tr>
<td>BMI ≥30</td>
<td>1.594</td>
<td>1.424</td>
<td>1.784</td>
<td>&lt;.0001</td>
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<tr>
<td>CKD</td>
<td>1.428</td>
<td>1.275</td>
<td>1.6</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2000</td>
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<td></td>
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<tr>
<td>2001</td>
<td>0.908</td>
<td>0.761</td>
<td>1.083</td>
<td>0.2824</td>
</tr>
<tr>
<td>2002</td>
<td>0.8</td>
<td>0.672</td>
<td>0.952</td>
<td>0.0121</td>
</tr>
<tr>
<td>2003</td>
<td>0.88</td>
<td>0.747</td>
<td>1.036</td>
<td>0.1252</td>
</tr>
<tr>
<td>South</td>
<td>1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>0.841</td>
<td>0.73</td>
<td>0.97</td>
<td>0.0174</td>
</tr>
<tr>
<td>Midwest</td>
<td>0.776</td>
<td>0.661</td>
<td>0.912</td>
<td>0.0021</td>
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<tr>
<td>West</td>
<td>0.875</td>
<td>0.719</td>
<td>1.064</td>
<td>0.1808</td>
</tr>
</tbody>
</table>

Reference groups:
- age 46–60, female, white, never smoked, no self-reported hypertension, no family history of diabetes, no family history of hypertension, BMI <30 kg/m², no CKD, and South

KEEP N=22,290 for self-reported non-diabetes. Excludes participants with missing values for race, self-reported hypertension, family history, census region, CKD, BMI, smoking, or blood glucose.
**Table 4.b**

Odds of being within the target blood sugar level in known diabetic KEEP participants

<table>
<thead>
<tr>
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<th>RR</th>
<th>lower</th>
<th>upper</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>1.309</td>
<td>0.962</td>
<td>1.783</td>
<td>0.0868</td>
</tr>
<tr>
<td>31-45</td>
<td>1.115</td>
<td>0.962</td>
<td>1.293</td>
<td>0.1495</td>
</tr>
<tr>
<td>61-75</td>
<td>1.113</td>
<td>0.997</td>
<td>1.244</td>
<td>0.0577</td>
</tr>
<tr>
<td>&gt; 75</td>
<td>1.176</td>
<td>0.991</td>
<td>1.395</td>
<td>0.0632</td>
</tr>
<tr>
<td>male</td>
<td>0.749</td>
<td>0.676</td>
<td>0.831</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>black</td>
<td>1.02</td>
<td>0.915</td>
<td>1.138</td>
<td>0.7167</td>
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<tr>
<td>other</td>
<td>0.864</td>
<td>0.758</td>
<td>0.986</td>
<td>0.0298</td>
</tr>
<tr>
<td>Smoking &amp; used to smoke</td>
<td>1.024</td>
<td>0.931</td>
<td>1.127</td>
<td>0.6207</td>
</tr>
<tr>
<td>Self-reported HTN</td>
<td>0.88</td>
<td>0.787</td>
<td>0.982</td>
<td>0.023</td>
</tr>
<tr>
<td>Family history of diabetes</td>
<td>0.797</td>
<td>0.708</td>
<td>0.897</td>
<td>0.0002</td>
</tr>
<tr>
<td>Family history of hypertension</td>
<td>1.212</td>
<td>1.079</td>
<td>1.362</td>
<td>0.0012</td>
</tr>
<tr>
<td>BMI ≥30</td>
<td>0.869</td>
<td>0.787</td>
<td>0.959</td>
<td>0.0054</td>
</tr>
<tr>
<td>CKD</td>
<td>0.718</td>
<td>0.652</td>
<td>0.792</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Northeast</td>
<td>1.154</td>
<td>1.025</td>
<td>1.299</td>
<td>0.018</td>
</tr>
<tr>
<td>Midwest</td>
<td>1.109</td>
<td>0.975</td>
<td>1.262</td>
<td>0.115</td>
</tr>
<tr>
<td>West</td>
<td>0.852</td>
<td>0.709</td>
<td>1.023</td>
<td>0.0852</td>
</tr>
</tbody>
</table>

Reference groups:
- age 46–60, female, white, never smoked, no self-reported hypertension, no family history of diabetes, no family history of hypertension, BMI <30 kg/m², no CKD, and South

KEEP N=7,316 for self-reported diabetes. Excludes participants with missing values for race, self-reported hypertension, family history, census region, CKD, BMI, smoking, or blood glucose.
KEEP participants with hypertension, by age, gender, & race/ethnicity

KEEP N=36,379. Excludes participants with missing values for self-reported diabetic status or blood pressure. Race & Hispanic ethnicity are not mutually exclusive.
Figure 4.21

KEEP participants with hypertension, by cohort year

KEEP N=36,379. Excludes participants with missing values for self-reported diabetic status or blood pressure. Race & Hispanic ethnicity are not mutually exclusive.
Figure 4.22
KEEP participants with hypertension, by U.S. Census Region

Hypertension
Self-reported hypertension
Elevated blood pressure

JNC 7 Hypertension
normal
systolic < 120 mmHg &
diastolic < 80 mmHg
prehypertension
systolic 120-139 mmHg or
diastolic 80-89 mmHg
stage 1
systolic 140-159 mmHg or
diastolic 90-99 mmHg
stage 2
systolic ≥160 mmHg or
diastolic ≥100 mm Hg

KEEP N=36,355. Excludes participants with missing values for self-reported diabetic status, blood pressure, or census region.

KEEP Data Report, 2005
Figure 4.23
KEEP & NHANES participants with hypertension, by age, race/ethnicity, education, & insurance status

Hypertension
- Self-reported hypertension
- Elevated blood pressure

JNC 7 Hypertension
- normal
  - systolic < 120 mmHg & diastolic < 80 mmHg
- prehypertension
  - systolic 120-139 mmHg or diastolic 80-89 mmHg
- stage 1
  - systolic 140-159 mmHg or diastolic 90-99 mmHg
- stage 2
  - systolic ≥160 mmHg or diastolic ≥100 mm Hg

Education & insurance
- <HS&NIns: Less than a high school education, & no insurance
- <HS&Ins: Less than a high school education, & insurance
- HS+&NIns: High school education or greater, & no insurance
- HS+&Ins: High school education or greater, & insurance

KEEP N=34,639, NHANES N=9,561. Excludes participants with missing values for self-reported diabetic or hypertensive status, blood pressure, education, or insurance status.
Figure 4.24
Microalbuminuria in KEEP participants, by hypertensive status

KEEP N=31,712. Excludes participants with missing values for self-reported diabetic status, microalbumin, or blood pressure.
Figure 4.25

Blood pressure parameters in KEEP participants, by cohort year

KEEP N=36,751. Excludes participants with missing values for blood pressure.

Mean blood pressure
\((\text{Systolic} - \text{Diastolic})/3 + \text{Diastolic}\)
Figure 4.26
Mean blood pressure in KEEP participants, by hypertension status & family history

Hypertension Groups
1: Self-reported HTN (+) family history
2: Self-reported HTN (-) family history
3: Self-reported NHTN (+) family history & elevated blood pressure
4: Self-reported NHTN (-) family history & elevated blood pressure

JNC 7 Hypertension
normal
systolic < 120 mmHg & diastolic < 80 mmHg
prehypertension
systolic 120-139 mmHg or diastolic 80-89 mmHg
stage 1
systolic 140-159 mmHg or diastolic 90-99 mmHg
stage 2
systolic ≥160 mmHg or diastolic ≥100 mm Hg

KEEP N=36,379. Excludes participants with missing values for self-reported diabetic status or blood pressure.

KEEP Data Report, 2005
Figure 4.27
Elevated blood pressure (JNC 7) in KEEP participants, by hypertension status & family history

Hypertension Groups
1: Self-reported HTN (+) family history
2: Self-reported HTN (-) family history
3: Self-reported NHTN (+) family history & elevated blood pressure
4: Self-reported NHTN (-) family history & elevated blood pressure

Elevated blood pressure (JNC 7)
DM or CKD:
Systolic: ≥130 mmHg or Diastolic: ≥80 mmHg
No DM or CKD:
Systolic: ≥140 mmHg or Diastolic: ≥90 mmHg

KEEP N=36,379. Excludes participants with missing values for self-reported diabetic status or blood pressure.

KEEP Data Report, 2005
Figure 4.28
Mean eGFR in KEEP participants, by hypertension status & family history

KEEP N=34,828. Excludes participants with missing values for self-reported diabetic status, blood pressure, or eGFR.
Figure 4.29
CKD in KEEP participants, by hypertension status & family history

Hypertension Groups
1: Self-reported HTN (+) family history
2: Self-reported HTN (-) family history
3: Self-reported NHTN (+) family history & elevated blood pressure
4: Self-reported NHTN (-) family history & elevated blood pressure

JNC 7 Hypertension
normal
systolic < 120 mmHg & diastolic < 80 mmHg
prehypertension
systolic 120-139 mmHg or diastolic 80-89 mmHg
stage 1
systolic 140-159 mmHg or diastolic 90-99 mmHg
stage 2
systolic ≥160 mmHg or diastolic ≥100 mm Hg

CKD Definition
If eGFR by K/DOQI MDRD <60 ml/min/1.73 m² or;
If eGFR by K/DOQI MDRD ≥ 60 ml/min/1.73 m² and microalbuminuria +

KEEP N=34,828. Excludes participants with missing values for self-reported diabetic status, blood pressure, or eGFR.

KEEP Data Report, 2005
Figure 4.30
Mean BMI of KEEP participants, by hypertension status & family history

Hypertension Groups
1: Self-reported HTN (+) family history
2: Self-reported HTN (-) family history
3: Self-reported NHTN (+) family history & elevated blood pressure
4: Self-reported NHTN (-) family history & elevated blood pressure

JNC 7 Hypertension
normal
systolic < 120 mmHg & diastolic < 80 mmHg
prehypertension
systolic 120-139 mmHg or diastolic 80-89 mmHg
stage 1
systolic 140-159 mmHg or diastolic 90-99 mmHg
stage 2
systolic ≥160 mmHg or diastolic ≥100 mm Hg

KEEP N=36,053. Excludes participants with missing values for self-reported diabetic status, blood pressure, or BMI.
Figure 4.31
BMI $\geq 30$ kg/m$^2$ in KEEP participants, by hypertension status & family history

Hypertension Groups
1: Self-reported HTN (+) family history
2: Self-reported HTN (-) family history
3: Self-reported NHTN (+) family history & elevated blood pressure
4: Self-reported NHTN (-) family history & elevated blood pressure

JNC 7 Hypertension
normal
systolic < 120 mmHg & diastolic < 80 mmHg
prehypertension
systolic 120-139 mmHg or diastolic 80-89 mmHg
stage 1
systolic 140-159 mmHg or diastolic 90-99 mmHg
stage 2
systolic $\geq 160$ mmHg or diastolic $\geq 100$ mm Hg

KEEP N=36,053. Excludes participants with missing values for self-reported diabetic status, blood pressure, or BMI.

KEEP Data Report, 2005
Figure 4.32
Mean blood pressure in KEEP participants with self-reported hypertension, by BMI

Figure 4.32 KEEP N=18,873. for self-reported hypertension. Excludes participants with missing values for BMI or blood pressure.

KEEP Data Report, 2005
Figure 4.33
Target blood pressure (JNC 7) in KEEP participants with self-reported hypertension, by BMI group

Target blood pressure (JNC 7)
- **DM or CKD:**
  - Systolic: <130 mmHg or
  - Diastolic: <80 mmHg
- **No DM or CKD:**
  - Systolic: <140 mmHg or
  - Diastolic: <90 mm Hg

JNC 7 Hypertension
- **normal**
  - systolic < 120 mmHg &
  - diastolic < 80 mmHg
- **prehypertension**
  - systolic 120-139 mmHg or
  - diastolic 80-89 mmHg
- **stage 1**
  - systolic 140-159 mmHg or
  - diastolic 90-99 mmHg
- **stage 2**
  - systolic ≥160 mmHg or
  - diastolic ≥100 mm Hg

Body Mass Index Categories
- **UW:** underweight: BMI < 18.5
- **N:** normal: BMI 18.5–24.9
- **OW:** overweight: BMI 25–29.9
- **OB:** obese: 30–39.9
- **EOB:** extremely obese: BMI ≥ 40

KEEP N=18,679 for self-reported hypertension. Excludes participants with missing values for self-reported hypertension, diabetes, or BMI.
Figure 4.34
Mean blood pressure* in KEEP participants with self-reported hypertension, by physician interaction

KEEP N=18,485 for self-reported hypertension. Excludes participants with missing values for physician information.

Mean blood pressure
(Systolic – Diastolic)/3 + Diastolic

JNC 7 Hypertension
normal
systolic < 120 mmHg &
diastolic < 80 mmHg
prehypertension
systolic 120-139 mmHg or
diastolic 80-89 mmHg
stage 1
systolic 140-159 mmHg or
diastolic 90-99 mmHg
stage 2
systolic ≥160 mmHg or
diastolic ≥100 mm Hg
Figure 4.35
KEEP participants outside the target blood pressure range (JNC 7), by physician interaction

KEEP N=18,304 for self-reported hypertension. Excludes participants with missing values physician information.

Target blood pressure (JNC 7)
DM or CKD:
  Systolic: <130 mmHg or
  Diastolic: <80 mmHg
No DM or CKD:
  Systolic: <140 mmHg or
  Diastolic: <90 mm Hg
Figure 4.36
Odds of self-reported non-hypertensive KEEP participants having an elevated blood pressure, by risk factor

Reference groups
age: 46-60, gender: female, race: white, census region: south

Elevated blood pressure (JNC 7)
DM or CKD:
Systolic: ≥130 mmHg or Diastolic: ≥80 mmHg
No DM or CKD:
Systolic: ≥140 mmHg or Diastolic: ≥90 mm Hg

KEEP N=14,259 for self-reported non-hypertension. Excludes participants with missing values for diabetic status, race, family history, census region, CKD, BMI, smoking status, or blood glucose.
Table 4.c

Odds ratios of self-reported non-hypertensive KEEP participants having elevated blood pressure (JNC 7)

<table>
<thead>
<tr>
<th></th>
<th>OR</th>
<th>Low</th>
<th>Upper</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>0.372</td>
<td>0.329</td>
<td>0.42</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>31-45</td>
<td>0.618</td>
<td>0.564</td>
<td>0.677</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>61-75</td>
<td>1.82</td>
<td>1.618</td>
<td>2.048</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>&gt;75</td>
<td>2.329</td>
<td>1.9</td>
<td>2.856</td>
<td>&lt;.0001</td>
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<td>Male</td>
<td>1.727</td>
<td>1.591</td>
<td>1.875</td>
<td>&lt;.0001</td>
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<td>Black</td>
<td>1.158</td>
<td>1.059</td>
<td>1.265</td>
<td>0.0012</td>
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<tr>
<td>Other race</td>
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<td>Smoking &amp; used to smoke</td>
<td>0.866</td>
<td>0.802</td>
<td>0.935</td>
<td>0.0003</td>
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<tr>
<td>Self-reported diabetes</td>
<td>2.032</td>
<td>1.828</td>
<td>2.258</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Family history of diabetes</td>
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<td>0.944</td>
<td>1.122</td>
<td>0.5153</td>
</tr>
<tr>
<td>Family history of hypertension</td>
<td>1.288</td>
<td>1.171</td>
<td>1.417</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>BMI ≥30</td>
<td>2.522</td>
<td>2.33</td>
<td>2.729</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>CKD</td>
<td>3.651</td>
<td>3.381</td>
<td>3.942</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Northeast</td>
<td>0.823</td>
<td>0.747</td>
<td>0.907</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Midwest</td>
<td>1.005</td>
<td>0.905</td>
<td>1.116</td>
<td>0.9218</td>
</tr>
<tr>
<td>West</td>
<td>0.872</td>
<td>0.766</td>
<td>0.993</td>
<td>0.0387</td>
</tr>
</tbody>
</table>

Reference groups
age: 46-60, gender: female, race: white, census region: south

Elevated blood pressure (JNC 7)
DM or CKD:
Systolic: ≥130 mmHg or
Diastolic: ≥80 mmHg
No DM or CKD:
Systolic: ≥140 mmHg or
Diastolic: ≥90 mm Hg

KEEP N=14,259 for self-reported non-hypertension. Excludes participants with missing values for diabetic status, race, family history, census region, CKD, BMI, smoking status, or blood glucose.
Figure 4.37
Odds ratios of meeting target blood pressure (JNC 7) in KEEP participants with known hypertension, by risk factor

Reference groups
age: 46-60, gender: female, race: white, census region: south

Target blood pressure (JNC 7)
DM or CKD:
Systolic: ≥130 mmHg or
Diastolic: ≥80 mmHg
No DM or CKD:
Systolic: <140 mmHg or
Diastolic: <90 mm Hg

Elevated blood pressure (JNC 7)
DM or CKD:
Systolic: ≥130 mmHg or
Diastolic: ≥80 mmHg
No DM or CKD:
Systolic: ≥140 mmHg or
Diastolic: ≥90 mm Hg

KEEP N=15,210 for self-reported non-hypertension. Excludes participants with missing values for diabetic status, race, family history, census region, CKD, BMI, smoking status, or blood glucose.

KEEP Data Report, 2005
Table 4.d

Odds ratios of meeting target blood pressure (JNC 7) in KEEP participants with known hypertension

<table>
<thead>
<tr>
<th></th>
<th>OR</th>
<th>Low</th>
<th>Upper</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>2.462</td>
<td>1.993</td>
<td>3.041</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>31-45</td>
<td>1.39</td>
<td>1.24</td>
<td>1.559</td>
<td>&lt;.0001</td>
</tr>
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<td>61-75</td>
<td>0.847</td>
<td>0.77</td>
<td>0.932</td>
<td>0.0007</td>
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<tr>
<td>&gt;75</td>
<td>0.815</td>
<td>0.705</td>
<td>0.941</td>
<td>0.0054</td>
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<tr>
<td>Male</td>
<td>0.842</td>
<td>0.772</td>
<td>0.919</td>
<td>0.0001</td>
</tr>
<tr>
<td>Black</td>
<td>0.802</td>
<td>0.734</td>
<td>0.877</td>
<td>&lt;.0001</td>
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<tr>
<td>Other race</td>
<td>1.101</td>
<td>0.98</td>
<td>1.237</td>
<td>0.1041</td>
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<tr>
<td>Smoking &amp; used to smoke</td>
<td>1.17</td>
<td>1.08</td>
<td>1.267</td>
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<tr>
<td>Self-reported diabetes</td>
<td>0.619</td>
<td>0.565</td>
<td>0.679</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Family history of diabetes</td>
<td>1.067</td>
<td>0.979</td>
<td>1.162</td>
<td>0.1398</td>
</tr>
<tr>
<td>Family history of hypertension</td>
<td>0.935</td>
<td>0.841</td>
<td>1.04</td>
<td>0.2183</td>
</tr>
<tr>
<td>BMI ≥30</td>
<td>0.671</td>
<td>0.619</td>
<td>0.728</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>CKD</td>
<td>0.33</td>
<td>0.305</td>
<td>0.358</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Northeast</td>
<td>1.212</td>
<td>1.099</td>
<td>1.336</td>
<td>0.0001</td>
</tr>
<tr>
<td>Midwest</td>
<td>0.992</td>
<td>0.888</td>
<td>1.108</td>
<td>0.8852</td>
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<tr>
<td>West</td>
<td>0.935</td>
<td>0.803</td>
<td>1.088</td>
<td>0.384</td>
</tr>
</tbody>
</table>

Reference groups
- age: 46-60, gender: female, race: white, census region: south

Target blood pressure (JNC 7)
- DM or CKD:
  - Systolic: <130 mmHg or
  - Diastolic: <80 mmHg
- No DM or CKD:
  - Systolic: <140 mmHg or
  - Diastolic: <90 mm Hg

KEEP N=15,210 for self-reported non-hypertension. Excludes participants with missing values for diabetic status, race, family history, census region, CKD, BMI, smoking status, or blood glucose.
Figure 4.38
Risk factors for hypertension in self-reported non-hypertensive KEEP participants with a blood relative who has had a heart attack or stroke, or has PVD, by family history

KEEP N=15,642 for self-reported hypertension. Excludes participants with missing values for diabetic status, family history of CVD, blood pressure, BMI, smoking status, or blood glucose.
Figure 4.39
Risk factors for hypertension in non-hypertensive KEEP participants with a blood relative who has had a heart attack or stroke, or has PVD, by family history

KEEP N=15,642 for self-reported non-hypertension. Excludes participants with missing values for diabetic status, family history of CVD, blood pressure, BMI, smoking status, or blood glucose.