

Type 2 Diabetes



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Most often, there are no diabetes symptoms or a very gradual development of the above symptoms of type 2 diabetes. In fact, about a third of all people who have type 2 diabetes don't know they have it.

[Fasting blood glucose level](#) -- diabetes is diagnosed if higher than 126 mg/dL on two occasions. Levels between 100 and 126 mg/dL are referred to as impaired fasting glucose or prediabetes. These levels are considered to be risk factors for type 2 diabetes and its complications.

[Hemoglobin A1c](#) test -- this test has been used in the past to help patients monitor how well they are controlling their blood glucose levels. In 2010, the American Diabetes Association recommended that the test be used as another option for diagnosing diabetes and identifying pre-diabetes. Levels indicate:

Normal: Less than 5.7%

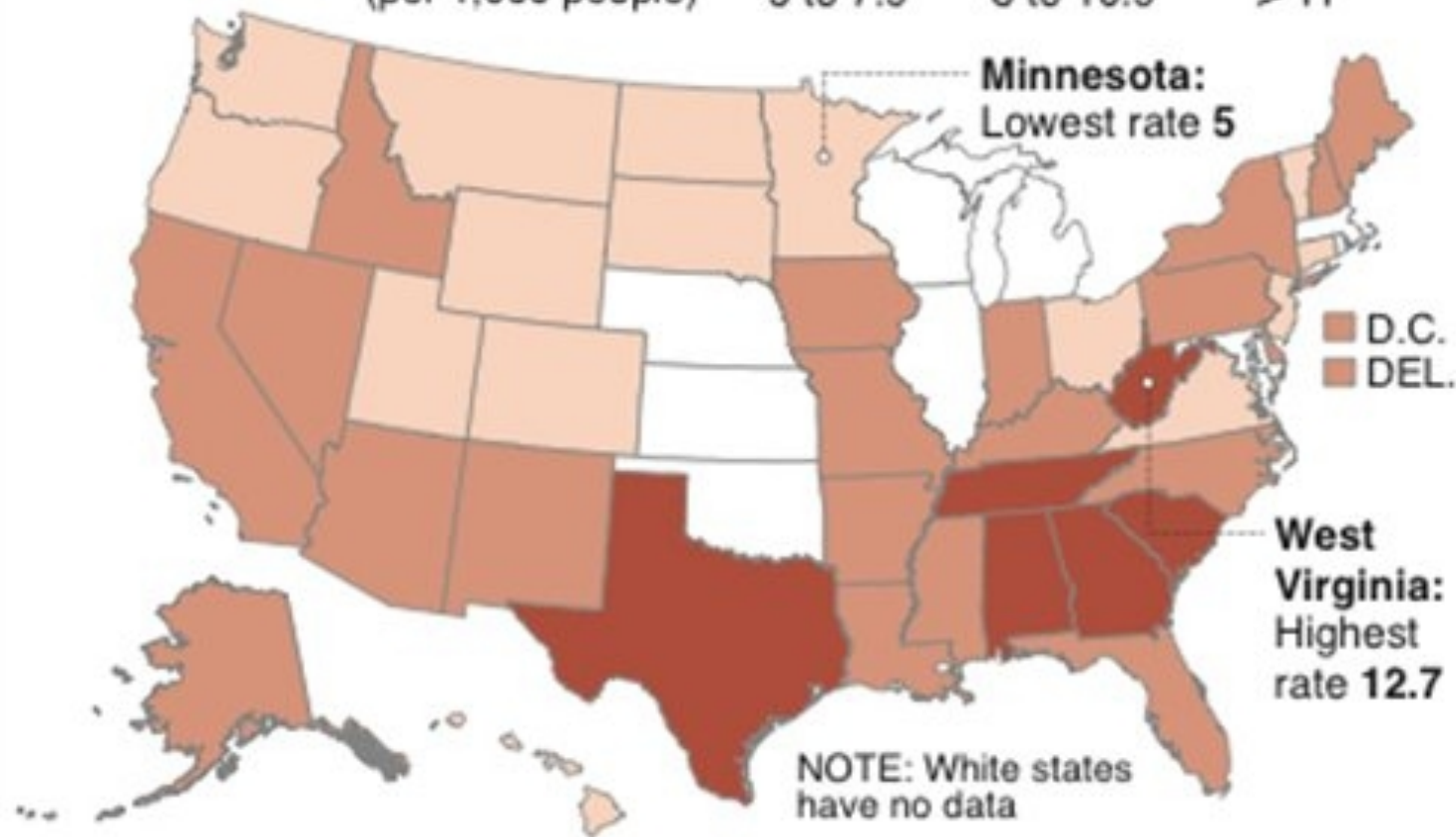
Pre-diabetes: Between 5.7% - 6.4%

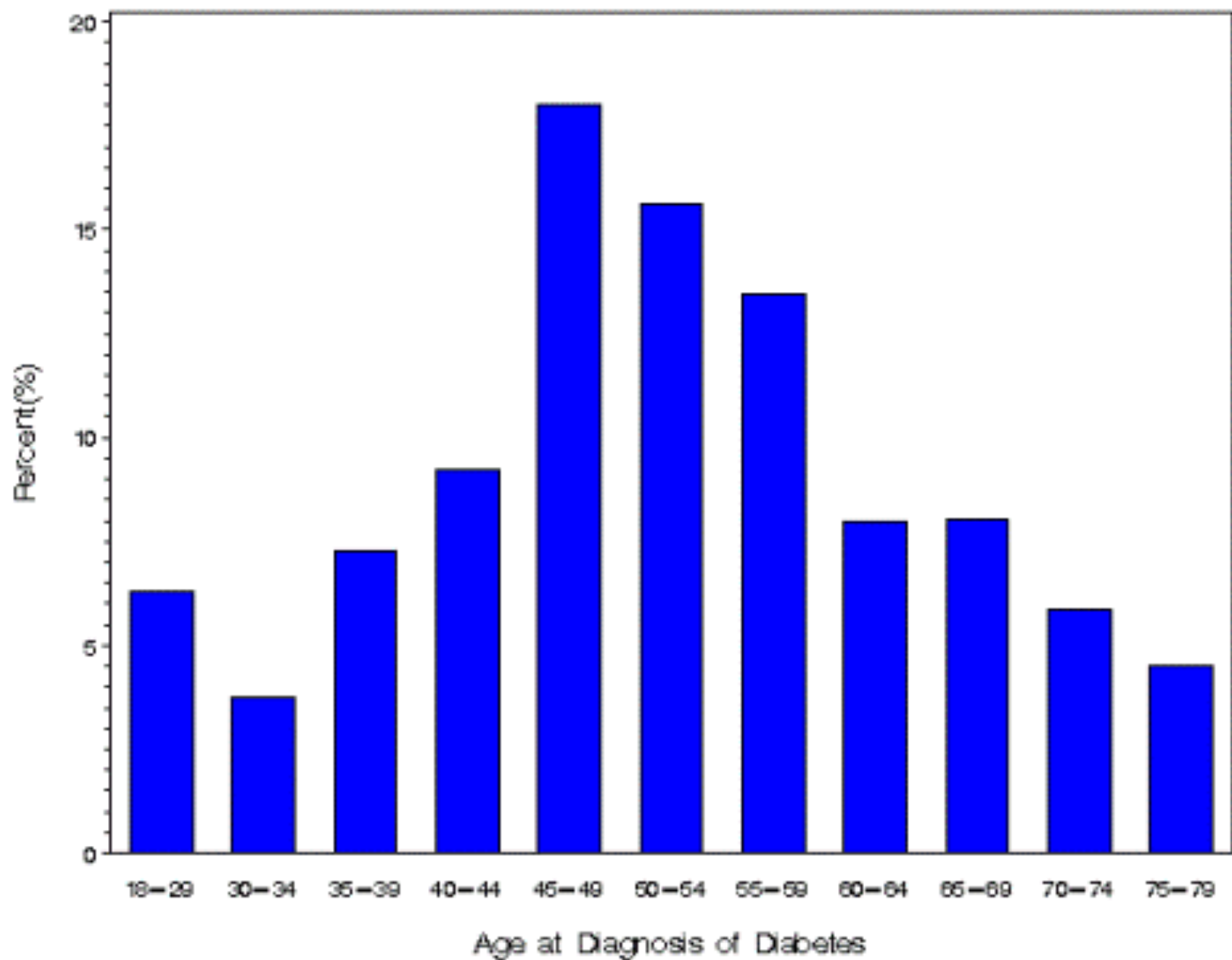
Diabetes: 6.5% or higher

South has highest diabetes levels

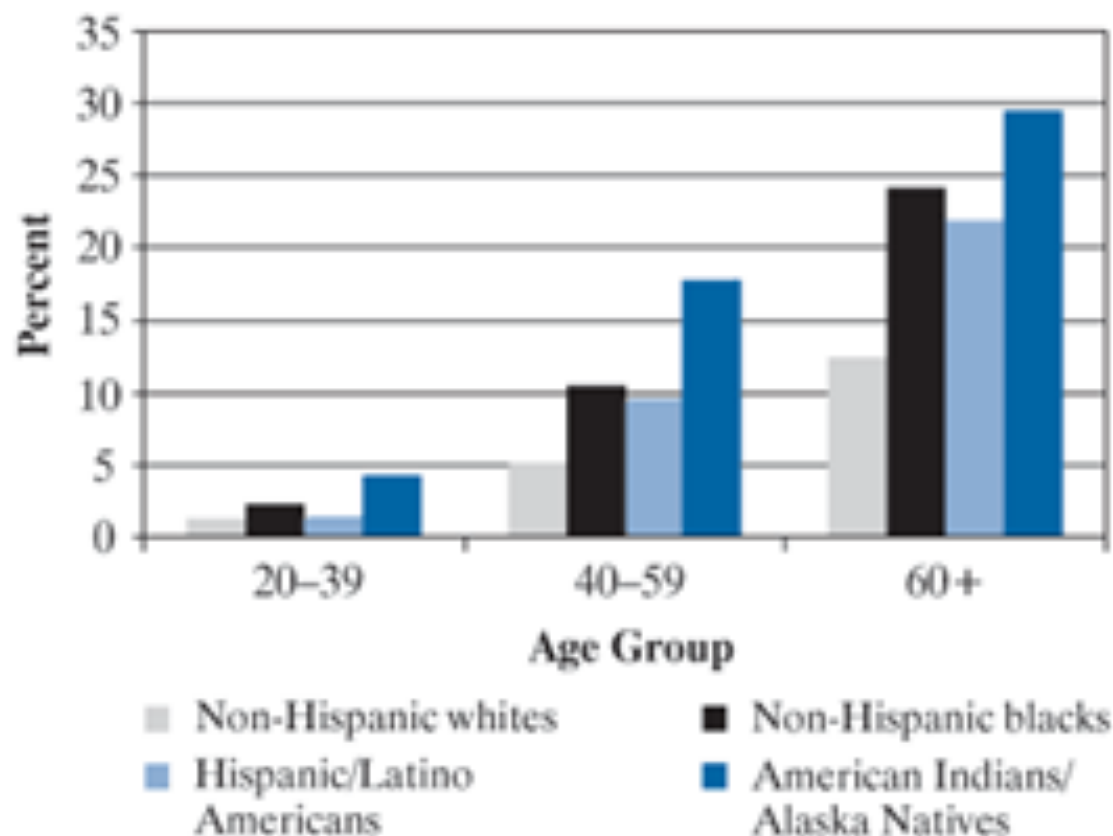
West Virginia leads the nation with the highest diabetes rate. About 90 percent of U.S. cases are linked to obesity.

Adult diabetes incident rates
(per 1,000 people)





Prevalence of diagnosed diabetes in people aged 20 years or older, by age and race/ethnicity—United States, 2002



Source: 1999–2001 National Health Interview Survey estimates projected to 2002 and 2002 outpatient database of the Indian Health Service.

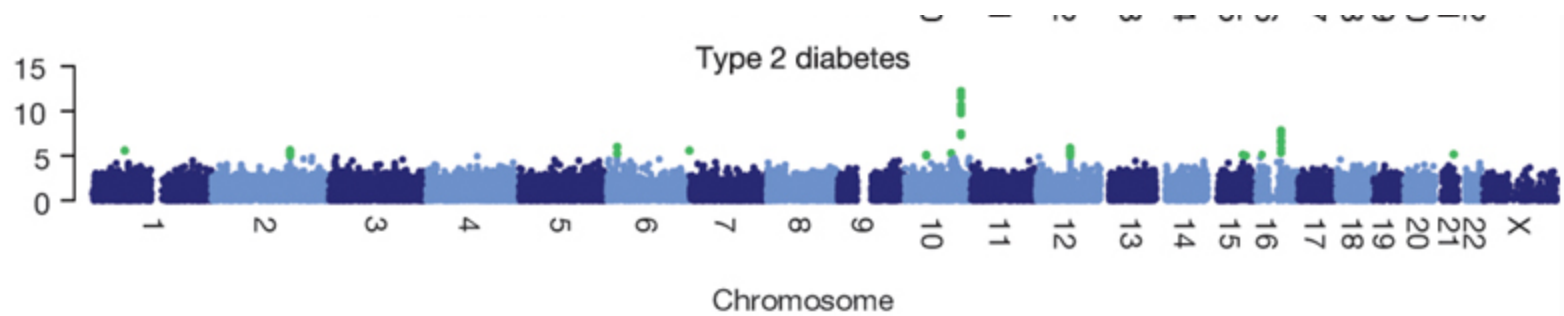
Article

Nature **447**, 661-678 (7 June 2007) | doi:10.1038/nature05911; Received 26 March 2007;
Accepted 11 May 2007

Genome-wide association study of 14,000 cases of seven common diseases and 3,000 shared controls


bipolar disorder (BD), coronary artery disease (CAD), Crohn's disease (CD), hypertension (HT), rheumatoid arthritis (RA), type 1 diabetes (T1D), and type 2 diabetes (T2D).

All individuals were White, English.



Collection	Chromosome	Region (Mb)	SNP	Trend P value	Genotypic P value	$\log_{10}(\text{BF})$, additive	$\log_{10}(\text{BF})$, general	Risk allele	Minor allele	Heterozygote odds ratio	Homozygote odds ratio	Control MAF	Case MAF	
	Standard analysis													
T2D	6p22	20.63-20.84	rs9465871	1.02×10^{-06}	3.34×10^{-07}	4.15	3.98	C	C	1.18 (1.04-1.34)	2.17 (1.6-2.95)	0.178	0.218	
T2D	10q25	114.71-114.81	rs4506565	5.68×10^{-13}	5.05×10^{-12}	10.14	9.43	T	T	1.36 (1.2-1.54)	1.88 (1.56-2.27)	0.324	0.395	
T2D	16q12	52.36-52.41	rs9939609	5.24×10^{-08}	1.91×10^{-07}	5.35	5.05	A	A	1.34 (1.17-1.52)	1.55 (1.3-1.84)	0.398	0.453	
	Multi-locus analysis													

Twelve type 2 diabetes susceptibility loci identified through large-scale association analysis

Benjamin F Voight, Laura J Scott, Valgerdur Steinthorsdottir, Andrew P Morris, Christian Dina, Ryan P Welch, Eleftheria Zeggini, Cornelia Huth, Yurii S Aulchenko, Gudmar Thorleifsson, Laura J McCulloch, Teresa Ferreira, Harald Grallert, Najaf Amin, Guanming Wu, Cristen J Willer, Soumya Raychaudhuri, Steve A McCarroll, Claudia Langenberg, Oliver M Hofmann, Josée Dupuis, Lu Qi, Ayellet V Segrè, Mandy van Hoek, Pau Navarro  *et al.*

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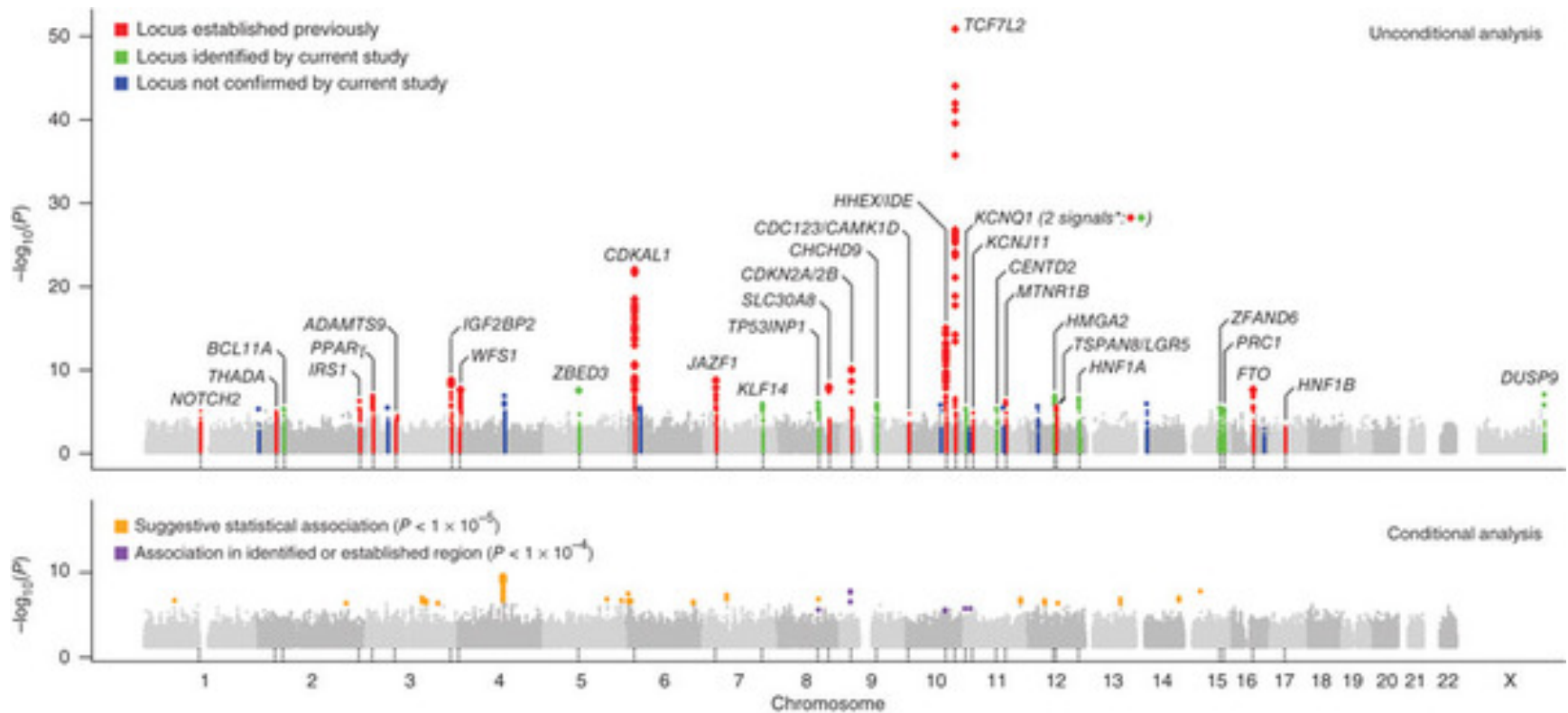
Nature Genetics **42**, 579–589 (2010) | doi:10.1038/ng.609

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[Corrigendum \(April, 2011\)](#)

25 loci for T2D previously found.

8,130 individuals with type 2 diabetes (T2D) and 38,987 controls of European descent



Replication study of best SNPs: 34,412 cases and 59,925 controls.

we identified 12 new T2D association signals with combined $P < 5 \times 10^{-8}$.

KCNQ1 region

