

# A Brown Paper: The Health of South Asians in the United States



The *Brown Paper* is a groundbreaking compendium and review of health research and literature on South Asians in the United States. Published in 2002, the *Brown Paper* evaluates and summarizes existing knowledge about key health indicators for South Asian Americans.

For a full, print copy of the *Brown Paper*, please e-mail [info@sapha.org](mailto:info@sapha.org).

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## Diabetes

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**Objectives:** [REDACTED]

**Key Findings:** [REDACTED]

**Recommendations:** [REDACTED]

### Introduction

[REDACTED]

[REDACTED] 2, 3, 4, [REDACTED]

### Diabetes in South Asians

[REDACTED] 5, 6, 7, 8, 9, 10, 11, [REDACTED] 12

[REDACTED] 13, 14, 15, 16

[REDACTED] delson DN. Healthcare expenditures for people with diabetes mellitus. *Journal of Clinical Endocrinology and Metabolism*. 119;78:809A-F.

<sup>2</sup> McKeigue P. Cardiovascular disease and diabetes in migrants. Diet, Nutrition, and chronic disease: Lessons from contrasting worlds. London, United Kingdom; London School of Hygiene and Tropical Medicine: 2002.

<sup>3</sup> Centers for Disease Control and Prevention (CDC). Chronic diseases in minority populations: African Americans, American Indians and Alaskan Natives, Asians and Pacific Islanders, Hispanic Americans. Atlanta, GA: CDC; 1994.

<sup>4</sup> Mokdad AH, Ford ES, Bowman BA, et al. The continuing increase of diabetes in the US. *Diabetes Care*. February 2001; 24(2):412.

<sup>5</sup> King H, Rewers M. Diabetes in adults is now a third world problem. The WHO Ad Hoc Diabetes Reporting Group. Geneva, Switzerland: Bull World Health Organization; 1991: 69.

<sup>6</sup> Cappuccio FP, Cook DJ, Atkinson RW, Strazzullo. Prevalence, detection, and management of cardiovascular risk factors in different ethnic groups in South London. *Heart*. December 1997; 78 (6):555-563.

<sup>7</sup> Landman J, Cruickshank JK. A review of ethnicity, health and nutrition-related diseases in relation to migration in the United Kingdom. *Public Health and Nutrition*. April 2001;4(2B):647-657.

<sup>8</sup> Zimmet P, Taylor R, Ram P. Prevalence of diabetes and impaired glucose tolerance in the biracial (Melanesian and Indian) population of Fiji: A rural-urban comparison. *American Journal of Epidemiology*. November 1982; 118(5):673-688.

<sup>9</sup> Miller G, Beckles G, Maude G. Ethnicity and other characteristics predictive of coronary heart disease in a developing community: principal results on the St. James Survey, Trinidad. *International Journal of Epidemiology*. 1989; 18(4):808-817.

<sup>10</sup> Dowse GK, Gareeboo H, Zimmet PZ, Alberti KG, et al. High prevalence of NIDDM and impaired glucose tolerance in Indian, Creole, and Chinese Mauritians. Mauritius Non-communicable Disease Study Group. *Diabetes*. March 1993;39(3):390-396.

<sup>11</sup> Hughes K, Yeo P, Lun K, et al. Cardiovascular disease in Chinese, Malays and Indians in Singapore: Differences in risk factor levels. *Journal of Epidemiology and Community Health*. 1990;44(1):29-35.

<sup>12</sup> Middelkoop BJ, Kesarlal-Sadhoeram SM, Ramasarandsing GN, Struben HW. Diabetes mellitus among South Asian inhabitants of The Hague: high prevalence and an age-specific socioeconomic gradient. *International Journal of Epidemiology*. 1999;28(6):1119-1123.

<sup>13</sup> Feltbower RJ, Bodansky HJ, McKinney PA, et al. Trends in the incidence of childhood diabetes in South Asians and other children in Bradford, UK. *Diabetica Medica*. February 2002; 19 (2): 162-166.

	2	9	11
F	3	8	11
M	0	9	10
B	3	9	11
K	9	9	11

17 18 19

### Complications of Diabetes

20 21 22

B	9	8
K	9	3

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<sup>14</sup> Kaufman FR. Type 2 diabetes mellitus in children and youth: a new epidemic. *J Pediatr Endocrinol Metab.* May 2002; 15(Suppl 2): 737-744.

<sup>15</sup> Raymond NT, Jones JR, Swift PG, Davies MJ, et al. Comparative incidence of Type 1 diabetes in children aged under 15 years from South Asian and White or other ethnic backgrounds in Leicestershire, UK, 1989 to 1988. *Diabetologica.* October 2001; (44 Suppl 3): B32-36.

<sup>16</sup> Enas EA, Garg A, Davisson MA, Nair VM, Huet BA, Yusuf S. Coronary heart disease and its risk factors in first-generation immigrant Asian Indians to the United States of America. *Indian Heart Journal.* July –August 1996; 48(4):343-353.

<sup>17</sup> Ramachandran A, Snehlata C, Dharmaraj D, Viswanathan M. Prevalence of glucose intolerance in Asian Indians. Urban-rural difference and significance of upper body adiposity. *Diabetes Care.* October 1992; 15(1):1348-1355.

<sup>18</sup> Bhopal R, Unwin N, White M, et al. Heterogeneity of coronary heart disease risk factors in Indian, Pakistani, Bangladeshi, and European origin populations: cross-sectional study. *British Medical Journal.* 1999; 319 (7204): 215-220.

<sup>19</sup> Ramachandran A. Genetic epidemiology of NIDDM among Asian Indians. *Ann Med.* December 1992; 24(6):499-503.

<sup>20</sup> Game FL, Jones AF. Ethnicity and risk factors for coronary heart disease in diabetes mellitus. *Diabetes Obesity and Metabolism.* April 2000; 2(2):91-97.

<sup>21</sup> Mather HM, Chaturvedi N, Fuller JH. Mortality and morbidity from diabetes in South Asians and Europeans: 11-year follow-up of the Southall diabetes Survey, London, UK. *Diabetica Med.* January 1998; 15(1):53-59.



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## Barriers to Treatment

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## Recommendations

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## About the Authors



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<sup>23</sup> Snehalatha C, Ramachandran A, Satyavani K, Latha E, Viswanathan V. study of genetic prediabetic South Indian subjects. Importance of hyperinsulinemia and beta-cell dysfunction. *Diabetes Care*. January 1998; 21(1):76-79.

<sup>24</sup> Snehalatha C, Ramachandran A, Satyavani K, Vijay V, Haffner SM. Specific insulin and proinsulin concentrations in nondiabetic South Indians. *Metabolism*. February 1998; 47(2): 230-233.

<sup>25</sup> Gishen FS, Hough LM, Stock MJ. Differences in conicity in young adults of European and South Asian descent. *International Journal of Obesity and Related Metabolic Disorders*. 1995; 19(2):146-148.

<sup>26</sup> Yajnik CS. The insulin resistance epidemic in India: fetal origins, later lifestyle, or both? *Nutr Rev*. January 2001; 59 (1 Pt 1):1-9.

<sup>27</sup> Whincup P, Gilg J, Papcosta O, Seymour C, Miller G, Alberti K, Cook D. Early Evidence of ethnic differences in cardiovascular risk: cross sectional comparison of British South Asian and White children. *BMJ*. 2002; 324:1-6.

<sup>28</sup> Simmons D, Powell MJ. Metabolic and clinical characteristics of South Asians and Europeans in Coventry. *Diabetica Med*. October 1993; 10(8):751-758.

<sup>29</sup> Close CF, Lewis PG, Holder R, Wright AD, Nattrass M. Diabetes care in South Asian and White European patients with type 2 diabetes. *Diabetica Med*. July 1995; 12(7):619-621.

<sup>30</sup> Mather HM, Chaturvedi N, Kehely Am. Comparison of prevalence and riskf actors for microalbuminuria in South Asians and Europeans with type 2 diabetes mellitus. *Diabetica Med*. August 1998; 15(8): 672-677.

<sup>31</sup> Hawthorne K. South Asian diabetic patients need more education about their illness. *British Medical Journal*. January 18, 1997.; 314 (7075):209-213.

<sup>32</sup> Rankin J, Bhopal R. Understanding of heart disease and diabetes in a South Asian community: cross-sectional study testing the 'snowball' sample method. *Public Health*. July 2001; 115(4):253-260.

<sup>33</sup> Greenhalgh PM. Diabetes in British South Asians: Nature, nurture, and culture. *Diabetica Med*. January 1997; 14(1): 10-18.



## **Acknowledgements**

