REVIEW

Reporting of ethnicity in research on chronic disease: update

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This paper examines the inclusion of ethnicity and race as variables in current, leading edge research on chronic disease and its risk factors. Of 100 randomly selected original research articles published in high-impact journals in 2005, 85% did not report either a definition of ethnicity or its conceptualisation in terms of theoretical reasoning, and 98% did not report an actual measurement item. Ethnicity and race remain non-standardised and largely underdescribed variables in research on chronic disease. This represents an important loss of opportunity to articulate and test hypotheses about the mechanisms underlying ethnic group differences in chronic disease.

the “Black like Beckham” phenomenon; see Karlsen²). It has also been argued that race and ethnicity are more properly conceptualised as properties of social environments rather than of individuals, influencing health through racialisation and socioeconomic opportunity.^{5–6} Moreover, the categories that are used to structure self-reports—for example, provided as choices on questionnaires—are usually derived from “official” categorisations such as those used in national censuses, which are themselves non-neutral products of intensely political negotiation processes linked to battles on entitlements and social policy.⁷ In sum, advances in understanding the role of ethnicity in chronic disease require a reflective and theory-driven approach to conceptualisation and measurement.

Previous studies have examined the inclusion of race as a variable in epidemiological and health services research. Jones *et al*⁸ found that although the concept of race is more prevalent in studies published in two major epidemiology journals over the 20th century (1921–1990), few papers offered theory-driven justifications for its inclusion. In a study of one epidemiology journal from 1980 to 1989, Ahdieh and Hahn⁹ noted that explicit definitions of race or ethnicity were present in <10% of the articles. Similar findings were reported by Williams¹⁰ in a study of papers published in a major health services research journal from 1966 to 1990.

As an update to our 1999 statement and in line with these prior criticisms, this paper explores the current state of affairs in the reporting of ethnicity in chronic disease research, by systematically examining the inclusion of ethnicity and race as variables in current, leading edge research on chronic disease and its risk factors.

METHODS

We randomly selected 100 original research articles published in 2005 in journals with an impact factor of ≥ 2 from the PubMed database, using the search words (Ethnicity or Race or Ethnic group) and (Diabetes or Cancer or Cardiovascular disease). The articles are listed in Appendix 1. Articles were excluded if they were a review article or an editorial, not available online, in a journal with an impact factor <2 or where the journal's impact factor was not available, and if the measure of ethnicity was actually citizenship (eg, “Canadian”). Using a set of coding rules developed by the first coder (ED), ED and KM independently abstracted each article systematically to identify the study objectives, conceptualisation or definition of ethnicity, actual measurement item and ethnicity categories.

In 1999, we published an editorial in the *Canadian Medical Association Journal*¹ arguing that findings of differences among ethnic and racial groups in morbidity and mortality related to chronic disease provided an opportunity to develop better understanding of the mechanisms underlying these factors and their roles. However, we noted that there was a need to re-examine the inclusion of race and ethnicity as variables in research on chronic disease: (1) by broadening conceptualisation and measurement beyond racial designation or cultural grouping to include cultural practices, lifestyle patterns, social influences, religious pursuits and community identity, as well as better articulation of differences within ethnic groups; and (2) by taking better account of confounding factors that co-vary with race and ethnicity.

Other authors have provided additional reasons for a critical appraisal of how ethnicity is treated in health research. Health research has been criticised for adopting an “untheorised” approach to ethnicity, treating arbitrary categories as though they were based on meaningful differences and hence reifying them, and for making inferential errors by using “crude and inflexible assessments of ethnicity”² that fail to receive the same critical scrutiny as other study variables.³ As Bhopal and Donaldson⁴ point out, the problem of crudely undifferentiated measurements exists for all commonly used categories, including “white”. Empirically, studies have shown that ethnic identity is at least partially socially constructed, which means that how people self-report their ethnic or racial category may be determined by factors other than ancestry or geographical origin, including factors that confound the research design (eg,

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Percentage agreements and κ coefficients were calculated where appropriate for each coding category. These were conceptualisation or definition of ethnicity: agreement = 99%, $\kappa = 0.96$; variable name for the race or ethnicity variable: agreement = 98%; data collection method for the ethnicity variable: agreement = 88%, $\kappa = 0.77$; actual measurement item reported or not in the paper: agreement = 96%, $\kappa = 0.32$ (possibly as a result of the imbalance in marginal totals: Feinstein and Cicchetti¹¹); and categories of race or ethnicity used: agreement = 99%. Coding disagreements generally arose from texts with vague terminology, or inconsistent use of terms in the tables and the text. The results of ED's coding are presented below.

RESULTS

Table 1 summarises the findings of the review. In 85 of 100 articles, the conceptualisation or definition of ethnicity in terms of theoretical reasoning or previous published definitions was not reported. In 98 of 100 articles, the actual measurement item (ie, the instrument that was used to assess ethnicity or race) was not reported.

Table 2 shows, in alphabetical order, the frequencies of the categories of ethnicity that appear in these 100 articles as abstracted by ED. The influence of US census-derived categories is clear, but there is also considerable variation in the terms used.

REFLECTION

In 2005, there was no perceptible indication in the highest-quality research on chronic disease that ethnicity and race were being treated with a reflective or theory-driven approach to conceptualisation and measurement. If these randomly selected articles are representative of current practice, highest-quality chronic disease research articles are generally devoid of any explanation of what the race or ethnicity variables used might be measuring in terms of health-related behaviours or environmental determinants, or indeed of whether the categories were relevant or meaningful to study participants. The use of multiple terms for groups that might be similar culturally, linguistically or in other ways, in this context of a complete lack of definitions, merely adds to the confusion. In particular, the use of variants of a catch-all or ill-defined "other" category is disturbing, as this category is almost always defined against "non-other" categories. Categories such as "non-white" are as crude as "white", and are likely equally meaningless.

Although we cannot know for certain whether authors are in fact working from more complex conceptualisations that they are simply failing to reflect in their texts, these results suggest to us that mainstream health research is still not very concerned with this issue. We would argue that this represents an enormous loss of opportunity to articulate and test hypotheses about the mechanisms underlying ethnic

group differences in chronic disease. Perhaps it is time for journal editorial policies to exercise leadership on reporting standards for these variables, as a means of inciting increased sensitisation and reflection among health researchers.

Table 2 Categories of race or ethnicity used

	No of articles
African-American	29
African-Brazilian	1
Afro-Caribbean	1
All others	1
American Indian	2
American Indian or Alaska Native	1
Arab	2
Ashkenazi Jewish	3
Asian	11
Asian American	2
Asian Indian	1
Asian of Chinese descent	1
Asian/other	1
Asian/Pacific Islander	8
Asian/Pacific Islander/Native Hawaiian	1
Black	31
Black (black Caribbean, black—African, black—other)	1
Black and other	1
Black South African, Xhosa speaking	1
British Isles	1
Cantonese	1
Caucasian	16
Caucasian-Brazilians	1
Chinese	2
East Asian	1
European	1
European American	2
Fula	1
Han Chinese	1
Hispanic	28
Hokkien	1
Indian	1
Indo-Asian	1
Italian	1
Japanese	1
Latino/Latina	3
Lumbee Indian	1
Malay	1
Mandinka	1
Mexican-American	1
Missing race	1
Mixed ancestry South African origin	1
Mixed European	1
Mixed Jewish origin	1
Native	1
Native American	4
Native American, Aleut, Eskimo	1
Non-Hispanic white (or white non-Hispanic)	10
Non-Hispanic Caucasian	2
Non-Hispanic black	1
Non-Hispanic other	1
Non-white	4
Northern Han	1
Oriental	1
Other	15
Other (ie, American Indian/Aleutian or Eskimo, mixed race/ethnicity or some other race/ethnicity)	1
Other (Chinese and other)	1
Other (Latino, Asian)	1
Other (Native American, Filipino, Chinese, Korean, Vietnamese and Indian/Pakistani)	1
Other (Native American/unknown)	1
Other/unknown or other/missing	2
Pima Indian	1
Qatar	1
Sephardic Jewish	1
South Asian (Indian, Pakistani and Bangladeshi)	1
Spanish American	1
West African	1
White	47
Wolof	1
Yemenite Jewish	1

Table 1 Summary of article review results

	No of articles
Conceptualisation/definition of race or ethnicity	
Not reported	85
Defined in terms of number of grandparents or ancestry	5
Reported in terms of coding rules	4
Defined in terms of geography/dialect	3
Defined in terms of immigration/settlement origins	3
Actual measurement item for race or ethnicity	
Not reported	99
Reported	1
Reference to 1990 US census categories	0

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- Bhopal R, Donaldson L. White, Western, Caucasian or What? Inappropriate labelling in research on race, ethnicity and health. *Am J Public Health* 1998;**88**:1303-7.
- Cockerham W. Health lifestyle theory and the convergence of agency and structure. *J Health Soc Behav* 2005;**46**:51-67.
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- Robbin A. Classifying racial and ethnic group data in the United States: the politics of negotiation and accommodation. *J Gov Inf* 2000;**27**:129-56.
- Jones C, LaVeist T, Lillie-Blanton M. "Race" in the epidemiologic literature: an examination of the American Journal of Epidemiology, 1921-1990. *Am J Epidemiol* 1991;**134**:1079-84.
- Ahdiel L, Hahn R. Use of the terms "race", "ethnicity" and "national origins": a review of articles in the American Journal of Public Health, 1980-1989. *Ethn Health* 1996;**1**:95-8.
- Williams D. The concept of 'race' in Health Services Research, 1966 to 1990. *Health Serv Res* 1994;**29**:261-74.
- Feinstein AR, Cicchetti DV. High agreement but low kappa: I. The problems of two paradoxes. *J Clin Epidemiol* 1990;**43**:543-9.

APPENDIX 1

List of randomly selected articles reviewed

Reference	Journal impact factor (2004)	Country of origin of research
Agno FS, Chinali M, Bella JN, <i>et al.</i> Aortic valve sclerosis is associated with preclinical cardiovascular disease in hypertensive adults: the Hypertension Genetic Epidemiology Network study. <i>J Hyperten</i> 2005; 23 :867-73.	4.871	USA
An P, Teran-Garcia M, Rice T, <i>et al.</i> Genome-wide linkage scans for prediabetes phenotypes in response to 20 weeks of endurance exercise training in non-diabetic whites and blacks: the HERITAGE Family Study. <i>Diabetologia</i> 2005; 48 :1142-9.	5.583	USA
Apelberg BJ, Buckley TJ, White RH. Socioeconomic and racial disparities in cancer risk from air toxics in Maryland. <i>Environ Health Perspect</i> 2005; 113 :693-9.	3.929	USA
Ayanian JZ, Zaslavsky AM, Guadagnoli E, <i>et al.</i> Patients' perceptions of quality of care for colorectal cancer by race, ethnicity, and language. <i>J Clin Oncol</i> 2005; 23 :6576-86.	9.835	USA
Azar AR, Murrell SA, Mast BT. Race and vascular depression risk in community-dwelling older adults. <i>Am J Geriatr Psychiatry</i> 2005; 13 :329-32.	3.469	USA
Baker KS, Loberiza Jr FR, Yu H, <i>et al.</i> Outcome of ethnic minorities with acute or chronic leukemia treated with hematopoietic stem-cell transplantation in the United States. <i>J Clin Oncol</i> 2005; 23 :7032-42.	9.835	USA
Barbeau EM, Wolin KY, Naumova EN, <i>et al.</i> Tobacco advertising in communities: association with race and class. <i>Prev Med</i> 2005; 40 :16-22.	2.327	USA
Barnholtz-Sloan JS, Chakraborty R, Sellers TA, <i>et al.</i> Examining population stratifications via individual ancestry estimates versus self-reported race. <i>Cancer Epidemiol Biomarkers Prev</i> 2005; 14 :1545-51.	4.500	USA
Barnholtz-Sloan JS, Severson RK, Stanton B, <i>et al.</i> Pediatric brain tumors in Non-Hispanics, Hispanics, African Americans and Asians: differences in survival after diagnosis. <i>Cancer Causes Control</i> 2005; 16 :587-92.	2.847	USA
Bell RA, Smith SL, Arcury TA, <i>et al.</i> Prevalence and correlates of depressive symptoms among rural older African-Americans, native Americans, and whites with diabetes. <i>Diabetes Care</i> 2005; 28 :823-9.	7.071	USA
Bener A, Suwaidi JA, Ghaffar A. Is hypertension a predictor for heart failure? A cross cultural comparison over a 10-year period. <i>Eur J Heart Failure</i> 2005; 7 :784-6.	2.796	Qatar
Benton JL, Blumenthal RS, Becker DM, <i>et al.</i> Predictors of low-density lipoprotein particle size in a high-risk African-American population. <i>Am J Cardiol</i> 2005; 95 :1320-3.	3.140	USA
Bhalodkar NC, Blum S, Rana T, <i>et al.</i> Effect of leisure time exercise on high-density lipoprotein cholesterol, its subclasses, and size in Asian Indians. <i>Am J Cardiol</i> 2005; 96 :98-100.	3.140	USA
Bozerman CB, Carver BS, Caldito G, <i>et al.</i> Prostate cancer in patients with an abnormal digital rectal examination and serum prostate-specific antigen less than 4.0 ng/ml. <i>Urology</i> 2005; 66 :803-7.	2.585	USA
Claeys GB, Sarma AV, Dunn RL, <i>et al.</i> <i>INS PstI</i> polymorphism and prostate cancer in African-American men. <i>Prostate</i> 2005; 65 :83-7.	4.331	USA
Claus EB, Petruzella S, Matloff E, <i>et al.</i> Prevalence of <i>BRCA1</i> and <i>BRCA2</i> mutations in women diagnosed with ductal carcinoma in situ. <i>JAMA</i> 2005; 293 :964-9.	24.831	USA
Dandara C, Ballo R, Parker ML. CYP3A5 genotypes and risk of oesophageal cancer in two South African populations. <i>Cancer Lett</i> 2005; 225 :275-82.	2.938	South Africa
Danigelis NL, Worden JK, Flynn BS, <i>et al.</i> Increasing mammography screening among low-income African American women with limited access to health information. <i>Prev Med</i> 2005; 40 :880-7.	2.327	USA
Davis JN, Ventura EE, Weigensberg MJ, <i>et al.</i> The relation of sugar intake to β cell function in overweight Latino children. <i>Am J Clin Nutr</i> 2005; 82 :1004-10.	5.433	USA
De Simone G, Roman MJ, Alderman MH, <i>et al.</i> Is high pulse pressure a marker of preclinical cardiovascular disease? <i>Hypertension</i> 2005; 45 :575-9.	5.342	Italy and USA
DeUgarte CM, Bartolucci AA, Azziz R. Prevalence of insulin resistance in the polycystic ovary syndrome using the homeostasis model assessment. <i>Fertil Steril</i> 2005; 83 :1454-60.	3.170	USA
Dwight-Johnson M, Ell K, Lee P-J. Can collaborative care address the need of low-income Latinos with comorbid depression and cancer? Results from a randomized pilot study. <i>Psychosomatics</i> 2005; 46 :224-32.	2.115	USA

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Reference	Journal impact factor (2004)	Country of origin of research
Ell K, Snachez K, Vourlekis B, <i>et al.</i> Depression, correlates of depression, and receipt of depression care among low-income women with breast of gynecologic cancer. <i>J Clin Oncol</i> 2005; 23 :3052–60.	9.835	USA
Flavell DM, Ireland H, Stephens JW, <i>et al.</i> Peroxisome proliferator-activated receptor α gene variation influences age of onset and progression of type 2 diabetes. <i>Diabetes</i> 2005; 54 :582–6.	8.848	Great Britain
Franks PW, Ravussin E, Hanson RL, <i>et al.</i> Habitual physical activity in children: the role of gene and the environment. <i>Am J Clin Nutr</i> 2005; 82 :901–8.	5.433	USA
Freedland SJ, Grubb KA, Yiu SK, <i>et al.</i> Obesity and capsular incision at the time of open retropubic radical prostatectomy. <i>J Urol</i> 2005; 174 :1798–801.	3.713	USA
Freedland SJ, Mangold LA, Walsh PC, <i>et al.</i> The prostatic specific antigen era is alive and well: prostatic specific antigen and biochemical progression following radical prostatectomy. <i>J Urol</i> 2005; 174 :1276–81.	3.713	USA
Frumovitz M, Sun CC, Schover LR, <i>et al.</i> Quality of life and sexual functioning in cervical cancer survivors. <i>J Clin Oncol</i> 2005; 23 :7428–36.	9.835	USA
Fussel Haws AL, Woeber S, Gomez M, <i>et al.</i> Human papillomavirus infection and P53 codon 72 genotypes in a Hispanic population at high-risk for cervical cancer. <i>J Med Virol</i> 2005; 77 :265–72.	2.331	USA
Giordano SH, Kuo Y-F, Freeman JL, <i>et al.</i> Risk of cardiac death after adjuvant radiotherapy for breast cancer. <i>J Natl Cancer Inst</i> 2005; 97 :419–24.	13.856	USA
Goncalves dos Santos K, Canani LH, Gross JL, <i>et al.</i> The -374A allele of the receptor for advanced glycation end products gene is associated with a decreased risk of ischemic heart disease in African-Brazilians with type 2 diabetes. <i>Mol Genet Metab</i> 2005; 85 :149–56.	2.502	Brazil
Grann VR, Troxel AB, Zojwalla NJ, <i>et al.</i> Hormone receptor status and survival in a population-based cohort of patients with breast carcinoma. <i>Cancer</i> 2005; 103 :2241–51.	4.434	USA
Groeneveld PW, Heidenreich PA, Garber AM. Trends in implantable – cardioverter-defibrillator racial disparity. <i>J Am Coll Cardiol</i> 2005; 45 :72–8.	9.133	USA
Gross CP, Herrin J, Wong N, <i>et al.</i> Enrolling older persons in cancer trials: the effect of sociodemographic, protocol, and recruitment center characteristics. <i>J Clin Oncol</i> 2005; 23 :4755–63.	9.835	USA
Harthun NL, Kongable GL, Baglioni Jr AJ, <i>et al.</i> Examination of sex as an independent risk factor for adverse events after carotid endarterectomy. <i>J Vasc Surg</i> 2005; 41 :223–30.	2.730	USA
Hendrix KH, Mayhan S, Lackland DT, <i>et al.</i> Prevalence, treatment, and control of chest pain syndromes and associated risk factors in hypertensive patients. <i>Am J Hypertens</i> 2005; 18 :1026–32.	3.382	USA
Ho C, Murray N, Laskin J, <i>et al.</i> Asian ethnicity and adenocarcinoma histology continues to predict response to gefitinib in patients treated for advanced non-small cell carcinoma of the lung in North America. <i>Lung Cancer</i> 2005; 49 :225–31.	2.914	Canada
Hou L, Chatterjee N, Huang W-Y, <i>et al.</i> CYP1A1 Val ₄₆₂ and NQO1 Ser ₁₈₇ polymorphisms, cigarette use, and risk for colorectal adenoma. <i>Carcinogenesis</i> 2005; 26 :1122–8.	5.375	USA
Inamo J, Lang T, Atallah A, <i>et al.</i> Prevalence and therapeutic control of hypertension in French Caribbean regions. <i>J Hypertens</i> 2005; 23 :1341–6.	4.871	Martinique, Guadeloupe, and French Guyana
Ingram SS, Seo PH, Sloane R, <i>et al.</i> The association between oral health and general health and quality of life in older male cancer patients. <i>J Am Geriatr Soc</i> 2005; 53 :1504–9.	3.361	USA
Jacobs EJ, Rodriguez C, Mondul AM, <i>et al.</i> A large cohort study of aspirin and other nonsteroidal anti-inflammatory drugs and prostate cancer incidence. <i>J Natl Cancer Inst</i> 2005; 97 :975–80.	13.856	USA
Jadaon MM, Dashti AR. HR2 haplotype in Arab population and patients with venous thrombosis in Kuwait. <i>J Thromb Haemostasis</i> 2005; 3 :1467–71.	4.831	Kuwait
Jayagopal V, Kilpatrick ES, Holding S, <i>et al.</i> Orlistat is as beneficial as metformin in the treatment of polycystic ovarian syndrome. <i>J Clin Endocrinol Metab</i> 2005; 90 :729–33.	5.778	UK
Kerner R, Sabo E, Gershoni-Baruch R, <i>et al.</i> Expression of cell cycle regulatory proteins in ovaries prophylactically removed from Jewish Ashkenazi BRCA1 and BRCA2 mutation carriers: correlation with histopathology. <i>Gynecol Oncol</i> 2005; 99 :367–75.	2.083	Israel
Kinney YA, Bloor LE, Martin C, <i>et al.</i> Social ties and colorectal cancer screening among blacks and whites in North Carolina. <i>Cancer Epidemiol Biomarkers Prev</i> 2005; 14 :182–9.	4.500	USA
Lafata JE, Williams LK, Ben-Menachem T, <i>et al.</i> Colorectal carcinoma screening procedure use among primary care patients. <i>Cancer</i> 2005; 104 :1356–61.	4.434	USA
Lakosi SG, Cushman M, Palmas W, <i>et al.</i> The relationship between blood pressure and C-reactive protein in the Multi-Ethnic Study of Atherosclerosis (MESA). <i>J Am Coll Cardiol</i> 2005; 46 :1869–74.	9.133	USA
Langer RD, Ho E, Denenberg JO, <i>et al.</i> Relationships between symptoms and venous disease – The San Diego Population Study. <i>Arch Intern Med</i> 2005; 165 :1420–4.	7.508	USA
Lehman DM, Fu D-J, Freeman AB, <i>et al.</i> A single nucleotide polymorphism in MGEA5 encoding O-GlcNAc-selective N-acetyl- β -D glucosaminidase is associated with type 2 diabetes in Mexican American. <i>Diabetes</i> 2005; 54 :1214–21.	8.848	USA
Lemley KV, Boothroyd DB, Blouch KL, <i>et al.</i> Modeling GFR trajectories in diabetic nephropathy. <i>Am J Physiol Renal Physiol</i> 2005; 289 :863–70.	4.354	USA
Liu Z, Wang L-E, Wang L, <i>et al.</i> Methylation and messenger RNA expression of p15 ^{INK4b} but not p16 ^{INK4a} are independent risk factors for ovarian cancer. <i>Clin Cancer Res</i> 2005; 11 :4968–76.	5.623	USA
Lombardi DG, Barton JR, O'Brien JM, <i>et al.</i> Does an obese prepregnancy body mass index influence outcome in pregnancies complicated by mild gestational hypertension remote from term? <i>Am J Obstet Gynecol</i> 2005; 192 :1472–4.	2.437	USA
Lowe LC, Guy M, Mansi JL, <i>et al.</i> Plasma 25-hydroxy vitamin D concentrations, vitamin D receptor genotype and breast cancer risk in a UK Caucasian population. <i>Eur J Cancer</i> 2005; 41 :1164–9.	3.302	UK
Ludwig MS, Goodman M, Miller DL, <i>et al.</i> Postoperative survival and the number of lymph nodes sampled during resection of node-negative non-small cell lung cancer. <i>Chest</i> 2005; 128 :1545–50.	3.118	USA
Ma YQ, Thomas GN, Tomlinson B. Association of two apolipoprotein A-I gene MspI polymorphisms with lipid and blood pressure levels. <i>Int J Cardiol</i> 2005; 102 :309–14.	2.095	China
Maizlish NA, Herrera L. A record linkage protocol for a diabetes registry at ethnically diverse community health centers. <i>J Am Med Informatics Assoc</i> 2005; 12 :331–7.	2.612	USA
Majani G, Giardini A, Opasich C, <i>et al.</i> Effect of valsartan on quality of life when added to usual therapy for heart failure: results from the valsartan heart failure trial. <i>J Cardiac Failure</i> 2005; 11 :253–9.	2.879	USA
Maliski SL, Kwan L, Orecklin JR, <i>et al.</i> Predictors of fatigue after treatment for prostate cancer. <i>Urology</i> 2005; 65 :101–8.	2.585	USA

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Reference	Journal impact factor (2004)	Country of origin of research
Mensah GA, Mokdad AH, Ford ES, <i>et al.</i> State of disparities in cardiovascular health in the United States. <i>Circulation</i> 2005; 111 :1233–41.	12.563	USA
Milne RL, Knight JA, John EM, <i>et al.</i> Oral contraceptive use and risk of early-onset breast cancer in carriers and noncarriers of BRCA1 and BRCA2 mutations. <i>Cancer Epidemiol Biomarkers Prev</i> 2005; 14 :350–6.	4.500	USA, Canada and Australia
Mintzer LL, Stuber ML, Seacord D, <i>et al.</i> Traumatic stress symptoms in adolescent organ transplant recipients. <i>Pediatrics</i> 2005; 115 :1640–4.	3.903	USA
Neal RD, Allgar VL. Sociodemographic factors and delays in the diagnosis of six cancers: analysis of data from the 'National Survey of NHS Patients: Cancer'. <i>Br J Cancer</i> 2005; 92 :1971–5.	3.742	England
Need AG, O'Loughlin PD, Horowitz M, <i>et al.</i> Relationship between fasting serum glucose, age, body mass index and serum 25 hydroxyvitamin D in postmenopausal women. <i>Clin Endocrinol</i> 2005; 62 :738–41.	3.023	Australia
O'Mahony S, Goulet J, Kornblith A, <i>et al.</i> Desire for hastened death, cancer pain and depression: report of a longitudinal observational study. <i>J Pain Symptom Manage</i> 2005; 29 :446–57.	2.187	USA
O'Meera AT, Cress R, Xing G, <i>et al.</i> Malignant melanoma in pregnancy – a population-based evaluation. <i>Cancer</i> 2005; 103 :1217–26.	4.434	USA
Orchard TJ, Tempresa M, Goldberg R, <i>et al.</i> The effect of metformin and intensive lifestyle intervention on the metabolic syndrome: The Diabetes Prevention Program Randomized Trial. <i>Ann Intern Med</i> 2005; 142 :611–19.	13.114	USA
Pankow JS, Dunn DM, Hunt SC, <i>et al.</i> Further evidence of a quantitative trait locus on chromosome 18 influencing postural change in systolic blood pressure: The Hypertension Genetic Epidemiology Network (HyperGEN) Study. <i>Am J Hypertens</i> 2005; 18 :672–8.	3.382	USA
Qi L, Tai ES, Tan CE, <i>et al.</i> Intragenic linkage disequilibrium structure of the human perilipin gene (<i>PLIN</i>) and haplotype association with increased obesity risk in a multiethnic Asian population. <i>J Mol Med</i> 2005; 83 :448–56.	4.256	Singapore
Ramsey PS, White AM, Guinn DA, <i>et al.</i> Subcutaneous tissue reapproximation, alone or in combination with drain, in obese women undergoing cesarean delivery. <i>Obstet Gynecol</i> 2005; 105 :967–73.	3.512	USA
Rennert H, Zeigler-Johnson CM, Addya K, <i>et al.</i> Association of susceptibility alleles in <i>ELAC2/HPC2</i> , <i>RNASEL/HPC1</i> , and <i>MSR1</i> with prostate cancer severity in European American and African American men. <i>Cancer Epidemiol Biomarkers Prev</i> 2005; 14 :949–57.	4.500	USA
Reynolds P, Hurley SE, Petreas M, <i>et al.</i> Adipose levels of dioxins and risk of breast cancer. <i>Cancer Causes Control</i> 2005; 16 :525–35.	2.847	USA
Rozek LS, Lipkin SM, Fearon ER, <i>et al.</i> <i>CDX2</i> polymorphisms, RNA expression, and risk of colorectal cancer. <i>Cancer Res</i> 2005; 65 :5488–92.	7.690	Israel
Sanchez CD, Newby LK, McGuire DK, <i>et al.</i> Diabetes-related knowledge atherosclerotic risk factor control, and outcomes in acute coronary syndromes. <i>Am J Cardiol</i> 2005; 95 :1290–4.	3.140	USA
Saydah SH, Chandra A, Eberhardt MS. Pregnancy experience among women with and without gestational diabetes in the U.S., 1995 National Survey of Family Growth. <i>Diabetes Care</i> 2005; 28 :1035–40.	7.071	USA
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