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showing areas at risk of drought or rainfall does not include that country.

A further point I would like to make is that the Review included only articles that involved human infectious diseases. Having worked in an emergency team in a community destroyed by the floods provoked by El Niño, I know that the most severe and immediate problems associated with the phenomenon, as with any other disasters, are the issues related to mental health and reconstruction.

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The hidden patient

Sir—I wonder whether general medicine might take a leaf out of the psychiatric model of care in its approach to the wellbeing of carers—the "hidden patients" (Nov 15, p 1682).[1] As a matter of course, when assessing a patient with a significant disease, the carer of the patient is automatically offered a carer's assessment. The result is that services are extended not only to the patient but also to the patient's social unit as a whole. Additionally, with the care programme approach, it is not infrequently the case that the carer is care programmed.

The benefits of these procedures are numerous and include issues such as illness education, medication concordance improvements, explanation of prognostic expectations, and various other psychosocial and practical inputs. Although it involves a lot of work, the payoff more than rewards the effort. Carers become virtual members of the multidisciplinary team, and their contribution to care plans is valued and respected. Relapses are spotted earlier and admissions become less frequent as carers become more adept at managing problems and knowing whom, where, and when to call for assistance. Further advantages are seen in carers' involvement in governmental and non-governmental bodies, and their provision of a voice for those who have difficulty in making themselves heard. The tragedy of the hidden patient can be avoided.

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Energy intake and obesity in Japanese patients with type 2 diabetes

Sir—Obesity is known to be one of the most important risk factors for the development and deterioration of type 2 diabetes. Nevertheless, we have previously revealed a discrepancy in body-mass indices (BMI) between white and Japanese patients with type 2 diabetes (about 29 kg/m^2 in white patients from the UK Prospective Diabetes Study [UKPDS] *vs* 23 kg/m^2 in Japanese patients from the Japan Diabetes Complications Study [JDCS]) whose other characteristics were very similar.[1] Moreover, by contrast with white patients with type 2 diabetes who have a higher BMI than does the white population as a whole (about 24 kg/m^2), the BMI of Japanese patients is similar to that of the general Japanese population, indicating that Japanese patients with type 2 diabetes are not obese, at least on average.[1]

We recently completed the baseline nutrition analysis of our JDCS patients. Comparing our results with those of the UKPDS,[2] we were surprised to find that the mean daily energy intake of both cohorts was almost the same despite the large differences in BMI and bodyweight (table). In other words, the UKPDS patients developed obesity with a relatively lower energy intake than the JDCS patients, considering the mean height difference between the groups. Accordingly, the daily energy intake per unit of bodyweight was 22% lower in the UKPDS patients than in the JDCS patients. Moreover, 19% of male (27% of female) patients in our cohort overate, taking more than 35 kcal per ideal bodyweight daily. Of those patients, 20% of men (29% of women) had a BMI greater than 25 kg/m^2, which is regarded as being overweight. Accordingly, only 3·8% of male and 7·8% of female patients in the JDCS study population had obesity associated with actual overeating.

This finding runs contrary to the conventional wisdom that the major pathophysiological background to type 2 diabetes is insulin resistance and obesity associated, at least to some extent, with excessive energy intake.

Obesity is known to have preceded and triggered the explosive increase in diabetes among Pacific Islanders and Pima Indians.[3] In Japan, however, despite the lack of a major increase in mean BMI and a decrease in mean total dietary intake since the 1970s, the prevalence of type 2 diabetes is now very high: a sixth of the adult population in Japan had known or strongly suspected diabetes in the most recent national survey. This proportion is much higher than in the European population,[3] and the prevalence is still increasing. The results of recent large-scale epidemiological surveys also suggested that a disturbance of insulin secretion rather than insulin resistance was strongly associated with the development of the disease in Japanese and Chinese patients, unlike in the European population.[4]

Risk factors other than obesity and insulin resistance seem to affect the development of type 2 diabetes in Japanese people. Additionally, even relatively mild obesity could have a major effect on the pathogenesis of diabetes in the Japanese population.[5]

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	JDCS	UKPDS
Patients (men/women)	1076 (576/500)	108 (61/47)
Age (years)	59·4 (7·4)	55·1 (7·7)
Bodyweight (kg)	58·6 (10·1)	78·2 (12·2)
Body-mass index (kg/m^2)	23·1 (3·0)	27·9 (4·3)
Glycohaemoglobin A1C (%)	7·7 (1·4)	7·1 (1·5)
Total energy intake (kcal/day)	1580 (398)	1650 (424)
Men	1778 (428)	1797 (63)*
Women	1598 (390)	1439 (44)*
Total energy intake per kg weight (kcal/kg daily, mean)	27·0	21·1

Values are mean (SD) unless otherwise indicated. *SE.

Total energy intake and other characteristics of patients with type 2 diabetes from Japan Diabetes Complications Study (JDCS) and UK Prospective Diabetes Study (UKPDS)

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Underestimation of allergies in elderly patients

Sir—The incidence of immediate (type 1) allergy is increasing worldwide. We did a MEDLINE search using the terms "epidemiology and allergy" and found many references covering children, fewer in adults, and hardly any in elderly people.

Our findings show that there is a lack of research on the incidence and prevalence of allergic sensitisation in the non-paediatric population. However, the few studies that have been done suggest that allergies in elderly people are not rare. In the 1980s, Wüthrich and colleagues[1] did a study in an unselected Swiss population, which showed that more than 4% still had atopic diseases after their 60th birthday. We have described a case of newly developed allergic conjunctivitis in a woman of 70 years,[2] and Huss and colleagues[3] found 74·7% positive test results to a type 1 allergy skin test battery in 80 elderly patients.

Because of changing world demographics, it is estimated that the elderly population will increase by 75% between 2010 and 2030.[4] Hence, an ever-growing proportion of allergy patients will be from this population, and it will become increasingly important not to miss the not-so-rare differential diagnosis of allergy, especially in patients with rather mild symptoms such as conjunctivitis or rhinitis.

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Lyme borreliosis

Sir—In their review on Lyme borreliosis (Nov 15, p 1639),[1] Gerold Stanek and Franc Strle do not mention the organism's association with cutaneous B-cell lymphomas (CBCLs). Myself[2] and others[3] have detected the presence of *Borrelia burgdorferi* DNA within skin lesions of various types of CBCL in endemic and non-endemic regions, proving that this micro-organism can be involved in the pathogenesis of malignant lymphomas of the skin. These studies revealed that about 20% of cases of CBCL harboured borrelial DNA. There might be some regional differences, however, since two studies on patients from the USA that used immunohistochemical and molecular techniques gave negative results.

The link between disorders associated with *B burgdorferi* and CBCLs was suggested more than 50 years ago on the basis of clinical findings (although at that time, of course, *B burgdorferi* was not yet known about), and similar observations have been made more recently on clinical or serological bases.[4] This association is conceptually and clinically similar to that seen in B-cell lymphomas of the stomach (mucosa-associated lymphoid tissue [MALT] lymphomas), a distinct proportion of which are associated with infection by *Helicobacter pylori*. In fact, in a manner similar to that observed in the MALT lymphomas of the stomach, complete regression of CBCL lesions has been seen after effective antibiotic treatment for *B burgdorferi*. In regions endemic for *B burgdorferi*, antibiotics should be considered among the first-line treatments for patients with low-grade CBCL.

Finally, I and others have shown that in patients with B-cell chronic lymphocytic leukaemia (B-CLL), *B burgdorferi* can trigger the development of specific infiltrates at sites that are typical for borrelial lymphocytoma (eg, the nipples and scrotum).[5] In the past, lesions of B-CLL arising at these sites were well known, and were described as "leukaemia lymphatica mamillae" in old textbooks. Development of specific infiltrates of B-CLL at sites of antigenic stimulation is well known, and post-herpetic specific skin manifestations are a typical example of it. The onset of leukaemic infiltrates at sites typical for lymphocytoma, and the detection of borrelial DNA within these skin lesions, confirms the hypothesis that many so-called specific cutaneous manifestations of B-CLL are in fact antigen-driven, and that neoplastic cells in patients with B-CLL are capable of responding to antigenic stimulation.

Borrelia spp are the cause of several cutaneous and extracutaneous disorders with protean clinical features, ranging from mild manifestations such as erythema migrans to potentially life-threatening disorders such as complete heart block. CBCLs should be included among the most important aspects of Lyme borreliosis, since they represent one of its most serious manifestations.

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Sonography-guided injection of botulinum toxin in children with cerebral palsy

Sir—Botulinum toxins are used to treat spastic muscles and drooling in children with cerebral palsy. For anatomically correct application to the salivary glands, sonography is the standard procedure.[1] However, palpation of anatomical landmarks is assumed to be sufficiently accurate for precise injection into spastic muscles.

Chin and colleagues[2] have shown that needle placement by palpation in

Appropriate body-mass index for Asians

Sir—Vivien Choo (July 20, p 235)[1] reports WHO's recommendation for a narrower body-mass index (BMI) range (18·5–23·0 kg/m²) for Asians, based on data from body-fat percentage and BMI from ten Asian countries. We have completed a study of cardiovascular risk factors in a community of Indian migrants living in the UK (n=242) and their contemporaries in rural India (305). Using standardised methods in age-matched and sex-matched cohorts, we found that the rates of obesity were different between the two populations.

BMI was greater in Indian migrants (26·3 kg/m² [95% CI 25·8–26·9]) than their rural contemporaries (21·1 kg/m² [20·6–21·5]). Only 24% of Indian men and 21% of Indian women living in the UK were within the suggested Asian BMI range. Migrant men aged 25–44 years were also significantly taller than their rural counterparts ($p<0·05$). Hence, migration is an important consideration that needs to be taken into account before an Asian BMI range is accepted. Furthermore, we do not think it appropriate to pool people from different Asian countries under a single Asian category. India alone is home to people of Indo-Aryan, Dravidian, and Mongolian origin,[2] and anthropometric features are likely to differ between them.

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Obesity and type 2 diabetes in Japanese patients

Sir—The incidence and morbidity of type 2 diabetes mellitus is known to be higher in obese individuals, and is especially high in ethnic groups with high body-mass indices (BMI), such as Pacific Islanders and Pima Indians. However, few studies have compared the BMIs of type 2 diabetic patients from different ethnic groups, and this scarcity perhaps reflects the difficulties in obtaining large matched-sample cohorts from different ethnic groups.

Comparison of data from two prospective studies (table) reveals a striking difference in the average BMI of type 2 diabetic patients from two different ethnic populations—white individuals from the UK Prospective Diabetes Study (UKPDS)[1] and Japanese patients from the Japan Diabetes Complication Study (JDCS).[2] Both groups were similar in terms of numbers of patients, age, glycohaemoglobin A_{1c} concentration, and disease duration. However, the BMI of white diabetic patients was much higher than that of the Japanese patients. Moreover, whereas the BMI of white diabetic patients was higher than that reported for non-diabetics of the same ethnic origin,[3] the BMI of Japanese diabetic patients was normal compared with that of the Japanese non-diabetic population.[4] The average BMI of the white UKPDS patients continued to increase during the 10 years after diagnosis, and although we do not have retrospective BMI data from the time of diagnosis in the JDCS cohort, there has been no significant increase in the average BMI over the 6 years of the study.

The origin of this large difference in BMI is unknown, but it might reflect differences in insulin secretion and sensitivity between the two ethnic groups. Unfortunately, this hypothesis is difficult to prove because plasma insulin concentrations were measured only at baseline in the UKPDS, and are not comparable with the subsequent insulin measurements taken in the JDCS. In general, diabetic patients who are obese have greater insulin secretion and lower insulin sensitivity (ie, insulin resistance) than non-obese diabetics, and the white population is regarded as more obese and insulin resistant than the east Asian population.[5]

Notwithstanding the lack of comparative insulin data, the higher systolic blood pressure and triglyceride concentrations in the UKPDS patients compared with those in the JDCS patients (table) could imply that they have insulin resistance syndrome, which is characterised by the accumulation of multiple cardiovascular risk factors. The lower fasting plasma glucose concentrations in the face of higher glycohaemoglobin concentrations in the UKPDS patients could suggest a more severe postprandial hyperglycaemia than that in the JDCS patients; postprandial hyperglycaemia is also known to be an independent risk factor for cardiovascular disease. This association might partly explain the higher incidence of cardiovascular complications in white diabetics than in east Asian diabetics.

	UKPDS (n=2015)	JDCS (n=2205)
Age (years)	62	59
Diabetes duration (years)	9	11
Blood pressure (mm Hg)	140/80	132/77
Fasting plasma glucose (mmol/L)	8·14	8·75
Glycohaemoglobin A_{1c} (%)	7·9	7·7
Total cholesterol (mmol/L)	5·3	5·2
Triglycerides (mmol/L)	1·53	1·40
BMI (kg/m²)	29·4	23·1
Mean BMI of whole population	24·1	22·7

Comparison of mean baseline characteristics from the Japan Diabetes Complication Study (JDCS) and averaged year-9 data for white individuals from the UK Prospective Diabetes Study (UKPDS)

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Reversible ocular myasthenia gravis or mitochondrial myopathy from statins?

Sir—Ever-increasing millions of people are being treated to lower their cholesterol concentration. In a Correspondence letter, Parmar and colleagues (Aug 31, p 717)[1] report a patient who developed "ocular myasthenia" of 2 years' duration, associated with proximal limb-muscle weakness, induced by treatment with each of three statins and by a fibrate. To determine the mechanism of this

variable. In the largest Japanese series of patients with left ventricular apical ballooning, 90 percent of the patients had ST-segment elevation.[2] This finding is in contrast to the less frequent observation of ST-segment elevation in our experience and that reported by others.[3,4]

We thank Dr. Kadhiravan for highlighting the clinical features of scorpion envenomation. Many of the cardiac abnormalities seen with this catecholamine-mediated disorder are similar to those observed with stress cardiomyopathy. The observation that prazosin may reduce the risk of pulmonary edema and death after a scorpion sting suggests that adrenergic blockade may indeed have a role in the management of stress cardiomyopathy.

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Vascular Risk Factors and Diabetic Neuropathy

TO THE EDITOR: In the article by Tesfaye et al. (Jan. 27 issue)[1] on the European Diabetes (EURODIAB) Prospective Complications Study, which looked at modifiable risk factors for diabetic neuropathy, the first line of the abstract states, "Other than glycemic control, there are no treatments for diabetic neuropathy." Although there have been no prospective, randomized trials to date, there is a growing literature regarding the role of nerve decompression in carefully selected patients with diabetic distal, large-fiber, symmetric polyneuropathy.

A recent analysis of 50 patients with diabetes who underwent decompression of the tibial and peroneal nerves in one leg and not the other showed that no ulcers or amputations occurred in the leg that had been operated on, whereas in 15 patients, there were 12 ulcers and three amputations in the unoperated leg, with an average follow-up of 4.5 years ($P<0.001$).[2] A recent review that included our series of 25 patients showed that "in properly selected patients, surgical releases can decrease pain and improve sensation."[3]

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TO THE EDITOR: Tesfaye et al. report that the incidence of diabetic neuropathy is associated with a history of cardiovascular disease at baseline and with cardiovascular risk factors. Additional information might further elucidate their important findings.

About 35 percent of the patients who qualified for follow-up either did not reach follow-up or were not assessed for neuropathy. Although the authors compared baseline data between patients who were assessed and those who were not, data on two of the major risk factors they identified (i.e., cardiovascular disease and smoking) were not included in that comparison. This raises the question of whether those data were collected only retrospectively, at the time of assessment for neuropathy, with a possibility of recall bias. If that is not the case, it is important to know whether there was differential loss to follow-up with regard to these factors, which could potentially compromise validity. Additional information on the role of variables known to be associated both with vascular risk factors and glycemic control and with the risk of diabetic complications — specifically, socioeconomic status,[1,2] ethnic group,[3] and the presence or absence of depression[4] — would be instructive.

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TO THE EDITOR: Tesfaye et al. report that, apart from glycemic control, the incidence of neuropathy in a European cohort of patients with type 1 diabetes was associated with potentially modifiable cardiovascular risk factors, including a raised triglyceride level, a high body-mass index, smoking, and hypertension. We analyzed the database of subjects with type 2 diabetes who had participated in our Japan Diabetes Complications Study[1-3] for factors that were associated with neuropathy, defined as either the lack of an ankle tendon reflex or the development of abnormal sensation. During the seven-year study, neuropathy developed in 332 of 1618 patients. Odds ratios were calculated with the use of most of the variables included in the study by Tesfaye et al., and we similarly controlled for the glycosylated hemoglobin level and the duration of diabetes. Our data indicate that only obesity was a risk factor for neuropathy in our Japanese subjects (Table 1). These results support the notion that risk factors for diabetic neuropathy vary depending on the ethnic group of patients and on the type of diabetes.

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Table 1. Risk Factors for Neuropathy after Adjustment for Glycosylated Hemoglobin and Duration of Diabetes in 1618 Japanese Patients with Type 2 Diabetes.*

Variable	Unit Increase	Odds Ratio (95% CI)	P Value
Body-mass index	1	1.10 (1.00–1.21)	0.051
Waist-to-hip ratio	0.1	1.65 (1.14–2.39)	0.008
Systolic blood pressure	10 mm Hg	1.01 (0.84–1.21)	0.93
Diastolic blood pressure	10 mm Hg	1.11 (0.82–1.51)	0.50
Low-density lipoprotein cholesterol	10 mg/dl	0.99 (0.90–1.09)	0.82
High-density lipoprotein cholesterol	10 mg/dl	0.95 (0.79–1.14)	0.57
Triglycerides	10 mg/dl	1.02 (0.98–1.05)	0.37
Lp(a) lipoprotein	1 mg/dl†	0.86 (0.63–1.19)	0.36
Urinary albumin excretion	10 mg/g of creatinine†	0.99 (0.76–1.29)	0.95
Fasting plasma insulin	5 μU/ml‡	1.10 (0.88–1.38)	0.40
Insulin use		1.47 (0.75–2.88)	0.26
Smoking at baseline		1.31 (0.69–2.48)	0.41
Excessive alcohol intake at baseline§		1.43 (0.51–4.03)	0.50

* The patients included 877 men and 741 women (mean [±SD] age, 58.4±7.4 years). Each risk factor was evaluated individually by discrete-type Cox regression. CI denotes confidence interval.
† Values were log-transformed.
‡ Patients receiving insulin therapy were excluded from this analysis.
§ Excessive intake was defined as more than 3 drinks (approximately 38 g of ethanol) per day.

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THE AUTHORS REPLY: Dr. Gross comments on the completeness of information and follow-up. None of the data in the EURODIAB Prospective Complications Study were collected retrospectively. Recall bias is therefore not an issue. When we compare the presence of cardiovascular disease and smoking at baseline between patients with and those without a full neuropathy assessment at follow-up, we find no significant difference in the prevalence of cardiovascular disease at baseline. There were 6 percent more smokers among those who did not have a neuropathy assessment at follow-up. A possible consequence of the association between patients who were lost to follow-up and a slightly higher cardiovascular risk profile might be that our results underestimate the true incidence of neuropathy. However, loss of patients to follow-up is unlikely to bias observed associations between risk factors and disease, because a situation in which a poor cardiovascular risk profile reduces the risk of neuropathy in those lost to follow-up and increases the risk in those returning for follow-up is unlikely. All study

centers were instructed not to include subjects from ethnic minority groups, since this would have generated small but extremely heterogeneous subgroups. The population of the EURODIAB Prospective Complications Study can thus be regarded as white European. Because of the varying situations in the 15 countries from which participants were recruited, it was difficult to assess socioeconomic status. Information was gathered concerning higher education; however, adjustment for this variable did not affect our findings. Information on depression was not collected, although we think that depression may be more a consequence of rather than a cause of diabetic complications.

We are aware of surgical decompression of peripheral nerves as a possible treatment for diabetic distal symmetric polyneuropathy. However, the review cited in the letter by Drs. Rosson and Dellon concludes that "the role that this surgery can play remains controversial."[1] Thus, this promising form of treatment will need to be confirmed in a randomized controlled trial involving several centers.

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Health Care in the 21st Century

TO THE EDITOR: In his Shattuck Lecture on health care in the 21st century (Jan. 20 issue),[1] William Frist takes pride in the "tough but wise dec isions" by America's leaders that "unleashed the creative power of the competitively driven marketplace," promising to bring "lower costs, higher quality, greater efficiency, and better access to care" by 2015. Frist's confidence seems strangely misplaced, since it is precisely this marketplace model that has brought us our currently escalating health care costs, shrinking access to care, and mounting dissatisfaction on the part of patients and the medical profession alike. We in the United States are unique in the world in regarding health care as a commodity, and as a consequence, we spend more for health care than any other country does. At the same time, the United States ranks 37th in quality of service, according to the World Health Organization, and 27th in rates of infant mortality, and our life expectancy is shorter than that in several European countries that spend far less on health care. This is hardly a record that merits such praise and confidence in our system. Rather, it is one that should call into question the industrial model that, Frist maintains, holds such promise for our future health care.

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1. Frist WH. Shattuck Lecture health care in the 21st century. N Engl J Med 2005;352:267-72.

TO THE EDITOR: Dr. Frist's vision of health care in the 21st century is imaginative but risky. His reliance on "consumer-driven health care" threatens to exacerbate the inequalities and inefficiencies in U.S. health care. His call for "affordable health coverage for all Americans" does not equal affordable health care for all Americans. High-deductible insurance with health savings accounts is less expensive than traditional coverage, but the financial barriers with this approach discourage primary and preventive care.[1] If his fictitious patient, Mr. Rogers, had a low or moderate income, he might question, while having chest pain, whether he could afford "nanocath" laboratory services.

Instead, everyone should have an inviting medical home[2,3] where they can get the care they need. We should make high-quality information more available to patients, but the burden of reducing costs should be focused on policy makers, hospitals, and clinicians through a realignment of care incentives. We encourage Congress to follow the recent recommendations of the Institute of Medicine by "taking action to achieve universal health insurance . . . with enactment by 2010."[4]

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The New Worldwide Definition of Metabolic Syndrome Is Not a Better Diagnostic Predictor of Cardiovascular Disease in Japanese Diabetic Patients Than the Existing Definitions

Additional analysis from the Japan Diabetes Complications Study

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We previously reported (1) the limited clinical significance for Japanese diabetic patients of the widely used World Health Organization (WHO) (2) and National Cholesterol Education Program (NCEP) (3) definitions of metabolic syndrome and suggested that an international definition of metabolic syndrome that was applicable regardless of ethnicity was necessary (1).

Recently, the International Diabetes Federation published a long-awaited new worldwide definition of metabolic syndrome (4) that is intended to be applicable to various ethnic groups. The new definition is similar to the NCEP definition (3) but has several important differences. Notably, most components of the new definition now include subjects who are receiving specific treatments for the abnormalities that comprise metabolic syndrome. Also, central obesity (defined by waist circumference with ethnic modification in its thresholds) has become a mandatory component in the new definition. In this report, we evaluated the predictive power of the new international definition for cardiovascular disease (CVD), as compared with that of previous definitions, in Japanese diabetic patients.

RESEARCH DESIGN AND METHODS— The Japan Diabetes Complications Study (JDCS) has been described in detail elsewhere (1,5). The same dataset was used for evaluation so that the new definition of metabolic syndrome could be directly compared with the WHO and NCEP definitions (1–4). A total of 1,424 Japanese patients (771 men and 653 women, age 58.4 ± 7.4 years [means ± SD]) with previously diagnosed type 2 diabetes but without known CVD were followed for 8 years for coronary heart disease (CHD) and stroke events. Fatal and nonfatal CHD and stroke were defined as previously reported (1). The new International Diabetes Federation definition (4) was used with a recommended ethnic modification for Japanese subjects in relation to waist circumference (men ≥85 cm, women ≥90 cm). Since all of the subjects had diabetes, metabolic syndrome diagnosis was made in patients who met criteria for central obesity plus one or more of the following: increased triglycerides, increased blood pressure, or reduced HDL cholesterol (see Table 1 for detailed thresholds). Incidence rates in the two groups (with and without metabolic syndrome) were estimated under the Poisson assumption using person-year methods. Cox regression analysis was used to calculate the age-adjusted hazard ratio (HR) and 95% CI of metabolic syndrome risk factors with CHD, stroke, or both. The SAS software package (version 8.0; SAS Institute, Cary, NC) was used for all analyses. $P < 0.05$ was considered statistically significant.

RESULTS— At baseline, the prevalence of metabolic syndrome, using the new definition (Table 1), was notably lower, especially in female patients, than the prevalence under the WHO (2) and NCEP (3) definitions, which was ~50% on average (1). Diabetes duration in patients with (9.9 ± 6.9 years) or without (10.7 ± 7.3 years) metabolic syndrome did not differ significantly ($P = 0.07$). The proportion of patients that met the central obesity criterion (an essential component of the new definition) was 36.7% for men and 9.7% for women, such that 87% of men and 95% of women with central obesity had metabolic syndrome.

The incidence (per 1,000 patient-years) of CHD (13.5 [with metabolic syn-

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Abbreviations: CHD, coronary heart disease; CVD, cardiovascular disease; JDCS, Japan Diabetes Complications Study; NCEP, National Cholesterol Education Program; WHO, World Health Organization.

A table elsewhere in this issue shows conventional and Système International (SI) units and conversion factors for many substances.

Table 1—*Patient prevalence at baseline, age-adjusted HRs with 95% CIs, and incidence of CHD, stroke, or both in 1,424 Japanese patients with type 2 diabetes (771 men and 653 women) according to individual cardiovascular risk factors comprising the metabolic syndrome as defined by the International Diabetes Federation* (b, c, and d include specific treatment for each abnormality)

	Prevalence at baseline (%)		HR for CHD		HR for stroke		HR for CHD and/or stroke	
	Men	Women	Men	Women	Men	Women	Men	Women
a) Waist circumference ≥85 cm (men), ≥90 cm (women)	36.7	9.7	1.68 (0.92–3.08)	1.13 (0.26–4.86)	0.91 (0.44–1.86)	1.11 (0.31–4.05)	1.32 (0.83–2.10)	1.13 (0.43–2.97)
b) Triglycerides ≥150 mg/dl	26.5	23.4	2.93 (1.55–5.53)	2.03 (0.81–5.04)	1.10 (0.51–2.36)	0.59 (0.20–1.78)	1.96 (1.21–3.19)	1.13 (0.56–2.26)
c) HDL cholesterol <40 mg/dl (men), <50 mg/dl (women)	19.3	36.3	1.82 (0.94–3.54)	1.48 (0.63–3.49)	0.99 (0.41–2.40)	1.34 (0.61–2.94)	1.53 (0.90–2.61)	1.34 (0.74–2.40)
d) SBP ≥130 mmHg or DBP ≥85 mmHg	64.1	68.8	1.04 (0.53–2.01)	1.05 (0.39–2.84)	2.08 (0.90–4.82)	1.63 (0.60–4.37)	1.29 (0.77–2.17)	1.29 (0.64–2.59)
a plus one or more of *b*, *c*, or *d*	32.0	9.2	1.72 (0.94–3.15)	1.15 (0.27–4.90)	1.14 (0.56–2.34)	1.13 (0.31–4.11)	1.47 (0.91–2.35)	1.14 (0.44–3.01)

DBP, diastolic blood pressure; SBP, systolic blood pressure.

drome] vs. 8.1 [without metabolic syndrome] in men; 5.8 vs. 5.5 in women) or stroke (8.1 vs. 7.5 in men; 8.8 vs. 7.0 in women) did not differ significantly between subjects with or without metabolic syndrome. Age-adjusted HRs were calculated to determine whether the new metabolic syndrome definition or its components could predict cardiovascular events (Table 1). Patients diagnosed as having metabolic syndrome, even when subgrouped by therapeutic contents (oral hypoglycemic agents or insulin use), did not show significantly raised HRs for CHD, stroke, or both compared with subjects without metabolic syndrome. However, male patients with raised triglyceride levels and/or having specific treatment for this condition had a significantly increased risk of CHD (HR 2.93, $P < 0.001$) and combined CHD and stroke (1.96, $P = 0.006$), regardless of whether they had metabolic syndrome (Table 1).

CONCLUSIONS— Our previous analysis (1) showed that HRs for CVD in patients with WHO-defined metabolic syndrome were significantly elevated compared with HRs in subjects without metabolic syndrome (although the HR for CHD in male patients was not elevated). Diagnosis of metabolic syndrome by the NCEP definition was less predictive but still associated with a significantly elevated HR for CHD in male patients. However, metabolic syndrome diagnosis by the new definition was not predictive for CVD in either male or female patients in the same prospective setting. Therefore, the new definition did not improve the prediction of adverse cardiovascular events, and its clinical usefulness in Japanese diabetic patients is rather less than that of the existing definitions or of hypertriglyceridemia alone in male patients.

The indispensability of central obesity to the new definition was a major cause of the decrease in the prevalence of metabolic syndrome observed using the new definition. The fact that most patients with central obesity were classified as having metabolic syndrome revealed that metabolic syndrome diagnosis by the new definition was highly dependent on waist circumference when applied to Japanese diabetic subjects. It also denoted that most patients with central obesity had at least one other cardiovascular risk factor, suggesting a close relationship between central obesity and other cardiovascular risk factors. However, this combination was not necessarily associated with an increased risk of CVD in our patients. This latter observation led us to further evaluate the significance of waist circumference in our patients by modifying the threshold within the 65- and 105-cm range and recalculating the HRs. Interestingly, we could not find any thresholds associated with significantly elevated HRs for cardiovascular events in either male or female subjects (data not shown). Therefore, the new definition's lower prediction power for CVD seemed to be derived from the indispensability of the waist circumference component.

To date, prospective trials examining the significance of metabolic syndrome as a predictor of CVD in diabetic patients (1,6–9) have been inadequate (10,11). Many important issues remain to be resolved. *1*) Is the new definition of metabolic syndrome a good predictor of CVD in diabetic patients of differing ethnicities (12)? 2) Are there any other combinations of components (or different thresholds) that are better predictors of CVD in Asian diabetic patients (13–15)? 3) Is the concept of metabolic syndrome truly applicable or relevant to diabetic patients in general? Investigations of these issues would aid the screening of diabetic patients at especially high risk of CVD, as well as inform and direct ethnic group–specific management of diabetes (16–19).

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