

Major Causes of Death in China

TO THE EDITOR: The epidemiologic analysis of deaths in China by He et al. (Sept. 15 issue)¹ suggests a change in pattern toward that in Western societies: heart disease, cancer, and cerebrovascular disease are now listed as the top three causes of death. However, respiratory diseases are clearly underrepresented in their report, because of the way the causes of death were classified. The conclusions of the authors may perpetuate the chronic underrecognition of lung diseases and lessen the pressure on governments to promote their prevention and management. Simply acknowledging (in the legend to Fig. 1 of the article) that “chronic pulmonary heart disease . . . is usually caused by chronic obstructive pulmonary disease [COPD]” is insufficient. Those who read the article will focus on heart disease, cancer, and stroke, because these are what the authors conclude are the major causes of death.

We challenge the authors to reanalyze their data and present total mortality from COPD, asthma, pulmonary infections (including tuberculosis), other less common lung diseases, and lung cancer (because of its close relationship to smoking and COPD). We believe that, if the causes of death were properly classified, a picture would emerge showing that lung diseases as defined here are at least as important a public health target as heart disease, cancer, and stroke.

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1. He J, Gu D, Wu X, et al. Major causes of death among men and women in China. *N Engl J Med* 2005;353:1124-34.

TO THE EDITOR: In the study by He et al., overweight or obesity, as compared with normal weight, was not associated with increased mortality. This finding is inconsistent with the growing literature indicating that obesity is a major risk factor for cardiovascular diseases, type 2 diabetes, stroke, and certain types of cancer as well as death from all causes. However, other data indicate that obesity is positively related to socioeconomic status in China.¹ Higher socioeconomic status is associated with better access to health care, better nutrition, and less depression. Low socioeconomic status is well known to be a powerful predictor of all-cause mortality, as shown in many previous studies.^{2,3} Further analysis of the associations among socioeconomic status, obesity, and mortality in the data of He et al. may clarify this issue.

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TO THE EDITOR: He and colleagues assessed physical activity by categorizing the physical labor involved in a participant's work. Other data indicate that other types of physical activity are important to consider with regard to Chinese persons. First, in other studies, cycling and a combination of walking and riding buses were the most common means of transportation, and less than 10 percent of adults reported an absence of physical activity during commuting in urban China.^{1,2} Second, housework, as one of the daily physical activities of adult women, accounted for 50 percent of the overall physical activity among adult women.³ Third, traditional Chinese tai chi, or morning exercises, was commonly practiced by many Chinese adults and elderly persons.⁴ Previous studies in China showed no reduction in the risk of cardiovascular disease in association with heavy physical activity related to occupation, whereas

the risk of colon cancer was inversely related to commuting-related physical activities and mortality was reduced with greater leisure-time physical activity.¹⁻⁴

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TO THE EDITOR: The analysis of mortality in China by He and colleagues includes more than 1000 deaths per 100,000 person-years in China due to respiratory causes (infections and COPD). The sole risk factor for respiratory illness that they examined was a history of cigarette smoking (defined as smoking at least one cigarette per day for one or more years). Solid-fuel use has been linked to respiratory diseases, including COPD, and in the case of coal, to lung cancer.¹ In Guangdong province, a recent survey showed that only 10.9 percent of women with COPD had ever smoked, but solid-fuel use was a significant risk factor.²

The World Health Organization has estimated that 80 percent of Chinese households use biomass fuel, with coal used in 31 percent of households. The attributable mortality of solid-fuel use in the Western Pacific region (primarily China) has been estimated to be more than half

a million lives.³ Exposure to solid-fuel use is an important preventable contributor to mortality that was not addressed in an otherwise fine study. The limitation of exposure to biomass combustion should be added to the list of preventive measures.

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THE AUTHORS REPLY: Wagner and colleagues correctly point out that chronic pulmonary heart disease can be classified as either respiratory disease or cardiovascular disease. In our study, the causes of death were coded according to the *International Classification of Diseases, 9th Revision (ICD-9)*.¹ Respiratory disease would be a leading cause of death in China if chronic pulmonary heart disease were included in that category (Table 1). Dr. Barnett suggests that solid-fuel use is an important risk factor for COPD, besides cigarette smoking, in China. Unfortunately, data on solid-fuel use were not collected in our study.

As indicated by Drs. Wei and K. Wang, socioeconomic status and access to health care are important potential confounders of the association between body-mass index and mortality from all causes. In addition, hypertension and diabetes are key intermediate factors in the causal pathway between body-mass index and mortality.²

Table 1. Age-Standardized Mortality Associated with Respiratory Disease.

Group	Cause of Death					Total Deaths
	COPD and Related Conditions*	Asthma	Lung Cancer	Pulmonary Tuberculosis	Chronic Pulmonary Heart Disease	
	<i>deaths/100,000 person-years</i>					
All subjects	24.3	4.5	71.5	15.4	137.6	248.7
Men	27.3	4.3	96.9	19.3	152.6	296.1
Women	21.0	4.7	46.7	11.0	120.6	199.1

* The category of COPD and related conditions (ICD-9 codes 490 through 496) includes asthma (ICD-9 code 493).

Without adjustment for hypertension and diabetes, we found that obesity was associated with increased mortality from all causes (relative risk of death, 1.20; 95 percent confidence interval, 1.08 to 1.30) among urban residents but not among rural residents (relative risk, 0.90, 95 percent confidence interval, 0.73 to 1.19). In our study, only work-related physical activity was measured at the baseline examination. We agree with Dr. B. Wang that other forms of physical activity are important in China. Lack of data on leisure-time physical activity was identified as a limitation of our study.

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The Evolving Chinese Health Care System

TO THE EDITOR: The otherwise excellent article by Blumenthal and Hsiao (Sept. 15 issue)¹ overlooks three critical points regarding Western medicine in China. First, institutions such as ours serve as points of introduction for concepts such as infection control, pain management, peer review, palliative care, evidence-based medicine, quality control, and even primary care — this last being arguably the most cost-effective way of dealing with emerging diseases of industrialization and urbanization, as documented in the same issue of the *Journal*.² I can personally vouch for ample experiences of this phenomenon during the severe acute respiratory syndrome epidemic, and it is also evident in the ongoing regular visits of groups of hospital, medical, and nursing directors.

Second, that a small but growing minority of Chinese patients has access to compassionate and patient-centered care, adequate pain relief, and treatment with clean instruments should not be a point of indignation. The goal is to find a way to deliver the same standard of care to every patient. Finally, to dismiss Chinese physicians' access to advances in technology denies the scientific contribution of this highly skilled and talented group to the global understanding and progress of health and illness.³

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3. Hou FF, Zhang X, Zhang GH, et al. Efficacy and safety of benazepril for advanced chronic renal insufficiency. *N Engl J Med* 2006;354:131-40.

THE AUTHORS REPLY: Dr. Mahmoudi suggests that private, investor-owned hospitals in China play an important part by introducing new forms of technology and approaches to service and by meeting the demands of a “growing minority” of affluent Chinese. However, the growth of a for-profit sector serving a society's elite leads inevitably to inequalities in service. The single greatest problem facing the Chinese health care system is how to reduce inequities by providing all citizens with basic protection against the cost of services and by making services of adequate quality available throughout the country's vast expanse. Furthermore, Dr. Mahmoudi assumes that an investor-owned sector that provides services modeled on the care provided in Western countries will necessarily be more efficient than that provided in the mainstream Chinese sector. That assumption remains to be tested. Certainly, experience with high-technology medicine in the United States suggests that it is plagued with inefficiencies related to the overuse of services. The struggling Chinese health care system can ill afford to replicate the inefficiencies found in much more affluent Western health sectors.

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