their use of "gender," given that the topic at hand is clearly "sex," not gender. Certainly, *gender* long ago subsumed *sex* as a generic reference in popular culture to all manner of traits associated with the 2 basic sexual divisions. However, proper use of technical terms is not a trivial matter, especially in scientific and clinical publications.

Confusion of *sex* for *gender* blurs significant aspects of their respective meanings.[2] The former denotes objective biological capacities and constraints of a physical organism. The latter denotes more subjective features of sociocultural roles acquired in specific cultural and social milieux. These are not trivial differentiating concepts but, in fact, are analogous to and as important as *genotype* and *phenotype*.

Commonly, gender and sex characteristics closely converge; however, individuals sometimes experience marked contradictions.[3] Moreover, gender entails a degree of self-definition that is impossible for sex. Female "sex" denotes ovate bodily forms productive of offspring whereas gender is a far more fluid matter of self-conceptualization as masculine or feminine. Indeed, a person who asserts a given gender is, in some sense, "verifiably" that gender.

The authors introduce a series of errors by conflating the 2 terms. For example, it was not coherent to assert, "The ostensible goal of gender verification is to ensure that female athletes do not unwittingly compete against men." This confuses gender for sex. It would have been coherent to say the same of sex verification but "gender verification" has to do with issues of self-classification.

Hence, it seems the authors intended to encourage the International Olympic Committee (IOC) to revise its stance on verification of sex, not gender.

Daniel R. Wilson, MD, PhD
Departments of Psychiatry and Anthropology
Creighton University
Omaha, Neb

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In Reply: The purpose of our Commentary was to inform readers that the IOC has abolished laboratory-based gender verification tests, a change in a policy initiated in 1968. Dr Wilson's concerns are semantic, specifically how to designate individuals with disorders of sex differentiation. We are certainly aware of the argument for biological precision using "sex" and thus would acknowledge Wilson's contention that consistency and scientific accuracy should dictate its use. However, convention among health care professionals has long been that *gender* is preferable in describing intersex individuals, given the charged nature of the word *sex* and given that *gender* connotes self-identification of a person's rearing. Of course, it is sometimes necessary to describe both gender and sex when referring to specific individuals. In addition, the IOC has always used the phrase "gender verification" and to

have used a different term in our Commentary would have been confusing.

Joe Leigh Simpson, MD
Arne Ljungqvist, MD
Malcolm A. Ferguson-Smith, MB, ChB, FRCPath
Albert de la Chapelle, MD, PhD
Louis J. Elsas II, MD
Anke A. Ehrhardt, PhD
Myron Genel, MD
Elizabeth A. Ferris, MBBS
Alison Carlson

RESEARCH LETTER

Acute Myocardial Infarction and Prior Antibiotic Use

To the Editor: Chronic infections, particularly with *Chlamydia pneumoniae*, may contribute to the development of atherosclerosis. Use of fluoroquinolones and tetracyclines has been associated with protection against myocardial infarction (MI).[1] We performed a case-control study to determine whether patients receiving antibiotics effective against *C pneumoniae* were less likely to have been admitted for a first acute MI.

Methods. Data were obtained from the PHARMO system, which includes information on hospital admissions and drug-dispensing records for all 450 000 residents of 8 Dutch cities. The drug-dispensing records were obtained from pharmacy files and are linked to a nationwide database of hospital discharge records.[2]

We identified all persons aged 35 to 75 years with a first hospitalization (1985-1995) for MI (*International Classification of Diseases, 9th Revision, Clinical Modification* [*ICD-9-CM*] code 410) and a PHARMO registration period of at least 3 years. For each patient, we identified as many as 4 control patients who were matched on dispensing pharmacy, sex, year of birth, and same date of first entry in the PHARMO system. We included 628 case patients and 1615 age-, sex-, exposure window– and pharmacy-matched control patients. We excluded all cases and controls with a known history of prior MI (*ICD-9-CM* code 412), cardiac aneurysm (*ICD-9-CM* code 414.1), prolonged angina pectoris or other atherosclerotic coronary diseases (*ICD-9-CM* codes 411, 413, 414.0, 414.8, and 414.9), hospitalization for hypertension (*ICD-9-CM* codes 401-405), ischemic and other forms of heart disease (*ICD-9-CM* codes 410-414), or cerebrovascular accidents (*ICD-9-CM* codes 430-438), as well as those with a history of prescriptions for cardiovascular or antihyperglycemic drugs.

Exposure to antibiotics was restricted to the calendar time prior to the index date and was classified into 7 classes: tetracyclines, macrolides, sulfonamides, fluoroquinolones, quinolones, penicillins, and cephalosporins. We defined high doses

Table. Hospitalization for Acute Myocardial Infarction for Use of Selected Antibiotics by Dose*

Group of Antibiotics	Cases (n = 628)	Controls (n = 1615)	Matched Odds Ratio (95% CI)
Fluoroquinolones			
Low dose	5 (0.8)	14 (0.9)	1.05 (0.35-3.15)
High dose	5 (0.8)	32 (2.0)	0.34 (0.12-0.93)
Quinolones			
Low dose	1 (0.2)	3 (0.2)	1.01 (0.09-10.8)
High dose	4 (0.6)	11 (0.7)	0.81 (0.24-2.73)
Tetracyclines			
Low dose	170 (27.1)	379 (23.5)	1.13 (0.90-1.42)
High dose	6 (1.0)	13 (0.8)	0.95 (0.35-2.62)
Macrolides			
Low dose	11 (1.8)	25 (1.5)	1.02 (0.48-2.14)
High dose	13 (2.1)	22 (1.4)	1.58 (0.74-3.35)
Other			
Low dose	131 (20.9)	290 (18.0)	1.22 (0.95-1.57)
High dose	100 (15.9)	247 (15.3)	1.04 (0.78-1.38)

*"Use" is defined as receiving a course of antibiotics for more than 5 days; "high dose" as a course longer than 6 days with standard doses. Data are presented as number (percent) of subjects hospitalized for acute myocardial infarction. CI indicates confidence interval.

as courses longer than 6 days with standard doses (details are available from the authors). Patients with several courses of antibiotics were classified as having received a high-dose based on at least a single high dose course. Analysis was by conditional logistic regression analysis using version 2.0.3 for Windows (Cytel Software Corp, Seattle, Wash).

Results. Case and control groups were not different with respect to age, sex, person-years of registration (median, 4.5 years), number of hospitalizations, treatment for respiratory complaints, or presence of chronic diseases. The median age was 57 years (25th-75th percentile, 49-65 years). Nearly 80% of the case and control patients were male.

Only high doses of fluoroquinolones were associated with a lower risk of acute MI (**TABLE**). For those who took more than 1 course of fluoroquinolones, the odds ratio was 0.12 (95% CI, 0.02-0.94). For all other antibiotics, no significant association was observed.

Comment. Our study found an association of fluoroquinolones in the same direction as Meier et al[1] but our results are not completely compatible with an inhibitory effect on *C pneumoniae*. Particular tetracyclines and macrolides were not associated with a lower risk of acute MI even if given in high doses or given in multiple courses during a sufficient time. These results are consistent with those of Jackson et al.[3] Fluoroquino-

lones and quinolones have been reported to have a stabilizing effect on the cytoskeleton of endothelial cells[4] and have an effect on chondrocytes in humans.[5] Because calcification also plays a major role in the later stages of plaque formation in atherosclerosis,[6] it is possible that the negative association of fluoroquinolones with MI may be mediated via their nonbacterial inhibitory actions.

R. M. C. Herings, PhD
H. G. M. Leufkens, PhD
Department of Pharmacoepidemiology and Pharmacotherapy
Utrecht University
Utrecht, the Netherlands

J. P. Vandenbroucke, PhD
Department of Clinical Epidemiology
Leiden University
Leiden, the Netherlands

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CORRECTIONS

Incorrect Wording: In the Research Letter entitled "Supplemental Oxygen and Mountaineer Death Rates on Everest and K2" published in the July 12, 2000, issue of THE JOURNAL (2000;284:181), the final sentence was worded incorrectly. The sentence that read "Mountaineers considering whether to use supplemental oxygen should consider the risk of death during descent" should have read "Mountaineers considering whether to use supplemental oxygen can now consider the associated fatality risks during descent."

Incorrect Wording: In the Commentary entitled "Current and Future Public Health Challenges" published in the October 4, 2000, issue of THE JOURNAL (2000;284: 1696-1698), there was incorrect wording. On page 1697, under "Achieve a Longer 'Healthspan,'" the sentence that read "In 1900, about 1 in 25 Americans was elderly; in 1990, the proportion was 1 in 8, or 10 times greater than in 1900" should end after "1 in 8." A new sentence should then read, "In absolute terms, the number of elderly Americans had increased 10-fold."