

LETTER TO THE EDITOR

RE: ON JOHN SNOW'S UNQUESTIONED LONG DIVISION

Recently, during an epidemiology lecture for undergraduates, one student noticed that there's a mistake in John Snow's calculation of the death rate of cholera for the "rest of London" in the 1854 epidemic described in *On the Mode of Communication of Cholera* (1). The correct rate, derived by dividing 1,422 deaths by 256,423 houses, should be 55 instead of 59 deaths in each of 10,000 houses, as presented in Snow's table IX, reprinted below as table 1.

Snow got the number of deaths from cholera from the Registrar-General (1, p. 72) and the number of houses from the last census of London (1, p. 80). However, Snow's citations of house counts for all or parts of London are frequently contradictory and could be the root of his calculation mistake for the "rest of London."

This minor mistake has no bearing on the overall conclusions nor the importance of Snow's work. What is, perhaps, worthy of comment is the fact that the mistake has been very often repeated in epidemiology textbooks in which the story has been told (2–10). Snow's fieldwork has become the paragon of scientific inquiry, presented as the classic epidemiologic case study leading to preventive action. *On the Mode of Communication of Cholera* is considered a turning point in the epidemiologic research paradigm. Snow's work is used to demonstrate the importance of high-quality primary data as the basic material for the investigative process that epitomizes epidemiologic reasoning.

All over the world, introductory courses of epidemiology start with the classic exercise, "Snow on cholera" (10), drawing upon tables and maps of the London cholera epidemic of 1854. As Vandenbroucke et al. (11) reported, the didactic use of this case study can be traced back at least

as far as Wade Hampton Frost in his pioneering epidemiology course at Johns Hopkins University. A casual survey of epidemiology textbooks revealed that at least nine have reproduced Snow's table IX exactly as it was presented in his book, without noting or correcting the error (2, p. 25; 3, p. 17; 4, p. 46; 5, p. 9; 6, p. 7; 7, p. 21; 8, p. 7; 9, p. 9; 10, p. 435). As a learning tool, we encourage our fellow teachers of epidemiology to continue to use Snow's important book, but even heroes make mistakes, and errors in long division should not be passed along to our students.

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TABLE 1. Proportion of deaths to 10,000 houses, during the first 7 weeks of the epidemic, in the population supplied by the Southwark and Vauxhall Company, in that supplied by the Lambeth Company, and in the rest of London*

	Number of houses	Deaths from Cholera	Deaths in each 10,000 houses
Southwark and Vauxhall Company	40,046	1,263	315
Lambeth Company	26,107	98	37
Rest of London	256,423	1,422	59

* Table as originally published in *On the Mode of Communication of Cholera* by John Snow (1, p. 86) as "table IX."

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