THE FIRST AUTHOR REPLIES

We thank Drs. Brody and Potterat for their letter (1) on our study (2). In response to the concerns they expressed, we wish to clarify the definition of two terms that are widely understood in the public health community but may pose a challenge to researchers in academic settings. "Validity" refers to the accuracy of a measurement not due to chance (3). "Surveillance" refers to population-based information that is collected, analyzed, and disseminated for public health action (4).

To evaluate the validity of surveillance systems in contrast to the validity of clinical research studies, chart reviews are usually conducted (4). Although a "gold standard" source of information on human immunodeficiency virus (HIV) risk has not been determined, in our study we considered medical charts to be the most accurate source among the sources accessible to health departments. Physicians conduct individual assessments of patients' medical and social histories; we should not assume that the confidential information a patient shares with his or her medical care provider is untrue. Drug use has legal implications; however, self-reported information on drug use is considered valid (5).

Having multiple sources of the same information is ideal but is more difficult to implement in a representative population. In our multisite validation study (2), in addition to the chart reviews, we interviewed persons with acquired immunodeficiency syndrome (AIDS) and their medical care providers. The Chicago HIV/AIDS surveillance program (Illinois) that validated mode of HTV transmission used chart reviews and interviews (6). However, differences in surveillance practices strongly determine the quality of risk information reported to surveillance programs to begin with.

We found wide variation in the likelihood of misclassification by area; findings from the Chicago study are consistent with these variations. Analysis of the interview component of our study is ongoing and should provide further insight into the issue of secondary transmission.

HIV/AIDS surveillance at the Centers for Disease Control and Prevention uses categories of transmission risk (7) that are ordered hierarchically on the basis of the risk factors most likely to have resulted in infection in the population. This structure is crucial for monitoring patterns of transmission and is not intended for ascribing risk to persons.

REFERENCES


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RE: "WEIGHT HISTORY, GLUCOSE INTOLERANCE, AND INSULIN LEVELS IN MIDDLE-AGED SWEDISH MEN"

Carlsson et al. (1) found that the odds ratio for impaired glucose tolerance and type 2 diabetes mellitus increased with the length of time that the subject had been overweight (body mass index (weight (kg)/height (m)) ≥25.0). Duration of overweight provided information about risk in addition to that given by recent body mass index.

We had the opportunity to examine duration of overweight as an independent risk factor for impaired glucose tolerance and diabetes mellitus in data from the Air Force Health Study. In that study, the health status of male Air Force veterans who participated in Operation Ranch Hand in the 1960s (1962–1971) and of a comparable group of male Air Force veterans who served in Southeast Asia during the same period was studied systematically (2). Operation Ranch Hand involved potential exposure to the herbicide Agent Orange. The veterans in the comparison group were matched to Ranch Hand subjects by age, race, and military occupation. Physical examinations have been conducted periodically since 1982. The 1992 examination included a glucose tolerance test, during which 100 g of glucose was given orally and serum glucose was measured 2 hours later (3).

We analyzed these data by using methods nearly identical to those used by Carlsson et al. for their table 1 (1, p. 542). Our subjects were classified as having normal glucose tolerance, impaired glucose tolerance (2-hour postprandial glucose level >140 mg/dl (>7.8 mmol/liter) and <200 mg/dl (<11.1 mmol/liter)), or type 2 diabetes mellitus (2-hour postprandial glucose level ≥200 mg/dl (≥11.1 mmol/liter)). Data on waist circumference but not on hip circumference were available to us. Family history of diabetes mellitus was based on the subject's report of diabetes in a parent or sibling. Data on body habitus at the time of service in Southeast Asia (>20 years previous) were based on military records.

We included in our analysis only those subjects who had complete data for body mass index at the time of military service (>20 years previous), in 1982, and in 1992; who had available data on waist circumference; and who had undergone the glucose tolerance test in 1992 (308 subjects were...
excluded on that basis). Like Carlsson et al. (1), we also excluded subjects whose body mass index had decreased from \( \geq 25 \) to \(<25\) between any two time points used in the analysis (n = 125) and subjects known to have diabetes (n = 153). The average age of the 1,664 subjects included in our analysis was 54 years (range, 42–78 years); 94 percent were White, and the majority of the remaining 6 percent were Black. Of the 1,664 subjects, 1,345 had normal glucose tolerance, 205 had impaired glucose tolerance, and 114 were found to be diabetic.

Regarding the relation of body mass index and waist circumference to risk of impaired glucose tolerance or diabetes mellitus, our results (table 1) generally agreed with those presented by Carlsson et al. (1) in their table 1. However, we found little to suggest that duration of overweight was independently related to risk. Although our cell sizes were limited, they exceeded many of those on which Carlsson et al. based their analysis. Further adjustment of our results for serum dioxin level or military occupation had essentially no effect (not shown).

The younger age of the Swedish subjects (35–56 years) compared with our subjects (42–78 years) might have accounted for the difference in findings. Therefore, we fitted models similar to those shown in table 1 (lower panel) with an interaction term for duration of overweight (ordinal variable) \( \times \) age (continuous variable). The only suggestion of a stronger effect of weight history among younger subjects was for the risk of diabetes, where the \( p \) value for interaction was 0.20. Therefore, the reason for the differing results in the two studies remains unclear.

### TABLE 1. Odds ratios for the associations of overweight with impaired glucose tolerance and diabetes mellitus, Air Force Health Study, 1992

<table>
<thead>
<tr>
<th>Variable</th>
<th>Impaired glucose tolerance</th>
<th>Diabetes mellitus†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No family history of diabetes</td>
<td>Family history of diabetes</td>
</tr>
<tr>
<td>Present BMI†‡,§</td>
<td>219 (17) 1</td>
<td>66 (3) 1</td>
</tr>
<tr>
<td>( \leq 24.9 )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0–27.9</td>
<td>381 (35) 1.2</td>
<td>81 (13) 3.5</td>
</tr>
<tr>
<td>( \geq 28.0 )</td>
<td>464 (101) 2.8</td>
<td>134 (36) 5.6</td>
</tr>
<tr>
<td>Present waist circumference (cm)†</td>
<td>282 (17) 1</td>
<td>81 (3) 3</td>
</tr>
<tr>
<td>&lt;92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>92–105</td>
<td>588 (71) 1.4</td>
<td>132 (27) 3.0</td>
</tr>
<tr>
<td>( \geq 106 )</td>
<td>194 (65) 2.4</td>
<td>68 (22) 1.9</td>
</tr>
<tr>
<td>Duration of overweight (BMI ( \geq 25.0 ) (years)†</td>
<td>219 (17) 1</td>
<td>66 (3) 1</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;0–9</td>
<td>190 (20) 0.9</td>
<td>39 (4) 1.6</td>
</tr>
<tr>
<td>10–20</td>
<td>267 (29) 0.6</td>
<td>56 (12) 2.5</td>
</tr>
<tr>
<td>&gt;20</td>
<td>388 (87) 0.9</td>
<td>120 (33) 1.9</td>
</tr>
</tbody>
</table>

* All odds ratios were adjusted for age (continuous variable) and race (White vs. Nonwhite).
† Results for diabetes were adjusted for family history of diabetes.
‡ GT, glucose tolerance; CI, confidence interval; BMI, body mass index.
§ Weight (kg)/height (m)².
¶ Odds ratios for waist circumference and duration of overweight were adjusted for 1992 body mass index as a continuous measure.
# Body mass index less than 25.0 at all three time points.

### REFERENCES