statements above. There have in fact been both experimental and anecdotal reports of effectiveness (*1-4*).

The *JAMA* reference "Abdominal Binding During CPR" assesses the effectiveness of chest compression on arterial pressures and does not address airflow dynamics from the trachea. The two references from *Pediatrics* are a letter to the editor and a commentary article—both by Dr. Heimlich.

A great deal of effort has been made in the past 5 years to educate the public regarding the prevention of choking in children from accidental inhalation of foods or small objects. Concomitantly, a campaign has been taking place to teach first aid measures essential for proper evaluation and treatment of choking. The medical and lay literature have widely aired the controversy in treatment recommendations. The results have contributed to a heightened awareness and, happily, a reduction in deaths due to choking in the 0–4-year-old age group—from 600 out of a total 2,900 in 1974 (*5*) and 600 out of a total 3,100 in 1980 (*6*), to 300 out of a total of 3,100 in 1984 (*7*). This record is much superior to results in the elderly where the rates have risen.

There is room for a period of assessment and evaluation of the current recommendations without further recriminations. Dr. Heimlich has made a major contribution that deserves wide acclaim. There is an opportunity now to monitor and evaluate both methods in the young child versus infant age group and assess the data in the future for a need to change recommendations in this fragile age group.

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## Smoking Study Formula May Yield Big Errors

Dr. Waldron's formula for calculating the percentage of the sex mortality differential attributable to smoking at age $x$ is

$$Sx = 100(1 - \frac{Nx}{Tx})$$

where $Nx$ is the excess of the male over the female death rate for nonsmokers, and $Tx$ is the corresponding excess for the total population (*Public Health Reports*, March-April 1986).

$Sx$ is subject to great error, relative to the errors in the death rates themselves, because it depends on $Nx$ and $Tx$, each of which is derived by subtracting two numbers close in value. For example, suppose the death rates at age 40 are as follows:

*Death rates*

| | *Males* | *Females* | *Difference* |
|---|---|---|---|
| Nonsmokers | .00255 | .00155 | .00100 |
| Total population | .00303 | .00163 | .00140 |

These data yield a 28.6 percent value for $S$ when $x$ = 40. But death rates for nonsmokers often are not determinable to five places of accuracy because of the limited size of studies with data classified by smoking habits. If the nonsmoker rates are determined as shown below, the value of $S40$ is affected greatly.

*Nonsmoker death rates*

| *Males* | *Females* | *Difference* | *S40 (percent)* |
|---|---|---|---|
| .0027 | .0014 | .0013 | 7.1 |
| .0023 | .0017 | .0006 | 57.1 |

Thus a small error in $Nx$ can lead to a great error in $Sx$.

Dr. Waldron points out many difficulties in comparing studies which use different methods. One problem is the classification by smoking habits. Even where studies use identical definitions of "smoker," "former smoker," and "nonsmoker," actual classifications can differ because of the way questions are asked. Not only do individuals tend to underreport their smoking (whether or not they have a financial reason to do so), they also tend to classify former smokers as "nonsmokers." Followup questions must be used to ensure accuracy of the classifications. I believe Dr. Miller's study of Erie County nonsmokers did a very good job of separating the smoking classes.

Because men took up smoking earlier and to a greater degree than women did in this and in other developed countries, inaccuracies of smoking classifications tend to overstate nonsmoker mortality rates for males relative to females.

Dr. Waldron's paper contains much useful information. I believe it is not yet possible to determine precisely the percentage of the sex mortality differential attributable to smoking. Nevertheless, we can conclude with certainty that smoking has a powerful effect on the mortality of both men and women.

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