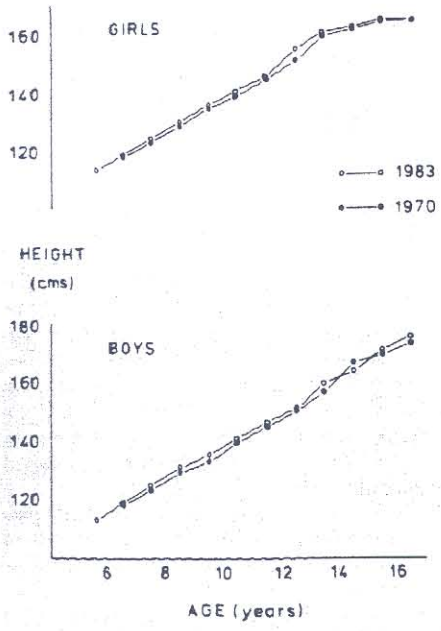

FIGURE 3: Mean heights of Busselton children in 1983 compared with those in 1970.[18]

Health Organization. The data from the Perth study[12] and from Busselton suggest that this single, international, well-documented and widely available reference could be used as an appropriate growth reference for children up to 16 years of age in Australia.

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Smokers' understandings of cigarette yield labels

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ABSTRACT An important part of public health policy on the control of smoking is the promotion of a reduction in intake of tar by persons who continue to smoke. One method that may contribute towards such a reduction is to encourage smokers to choose cigarette brands that contain low tar levels. This in turn might be promoted by the comprehensible labelling of cigarette packets with tar yields. We tested our hypothesis that the current information about tar yield on cigarette packets is incomprehensible to smokers on a sample of 498 persons (original sample, 500) who smoked. Only 10 (2%) smokers were able to state the correct tar content of their cigarette. On a scaled range of tar levels in all cigarette brands that are available in Australia, 344 (69.1%) smokers underestimated the level in their cigarette brand. On this scale, 280 (56%) smokers placed randomly chosen tar levels in the wrong category. It was agreed by 360 (72%) smokers that comparative tar yields should be displayed at all points of tobacco sale. It is recommended that a condition of issuing a licence to retail tobacco should be that the tar, nicotine and carbon monoxide yield information for all cigarette brands that are available in a national market should be displayed prominently to the consumer by the retailer.

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No reprints will be available.

In 1982, the Australian tobacco industry entered into a voluntary arrangement with the Federal government to label cigarette packets with information on tar and nicotine yields. The presentation of information to consumers was set out as in the following example:

12 mg C.P.M. ("tar") or less
1.2 mg nicotine or less
as per Government agreed method

In order to test the hypothesis that information presented in this way may be incomprehensible to most persons who smoke, we commissioned a research company for commercial surveys to investigate the knowledge and perception of cigarette tar levels of 500 smokers from the Adelaide region who were 16 years of age or older, in a "randomly selected household probability sample".

Subjects and methods

A random cluster sampling procedure was applied to the Commonwealth Statisticians Collectors' Districts'[1] definition of areas in the Adelaide Metropolitan Statistical Division. The method of selection was such that the probability of a district being selected was proportional to the size of that district. One starting point was then selected randomly within each of the 50 districts. In April 1986, 10 interviews were held at each point, in which the interviewer completed a questionnaire with the smoker's response. Two questionnaires from the original sample of 500 responses were excluded at analysis as they were incomplete. Of the original sample, 229 (45.8%) were men and 271 (54.2%) were women.

The regular brand consumed by each smoker was recorded and then coded to correspond to its tar content as listed in the latest yield table published by the Commonwealth Department of Health.[2]

The smokers in the sample were asked "Can you tell me, in milligrams, the tar content of your cigarettes?". Since exact yields are not printed on cigarette packets in Australia, and thus would probably be known only to smokers through the Commonwealth Department of Health's yield table which is published occasionally in the daily press, we thought it reasonable to enquire as to whether smokers understood where their brand was ranked on a relative scale of all brands that are available in Australia. Respondents were asked to rate their brand on a five-point scale that was developed by partitioning the range of tar levels on the Australian market into very low (1–3 mg/cigarette); low (4–6 mg/cigarette); medium (7–9 mg/cigarette); high (10–12 mg/cigarette); and very high (13–18 mg/cigarette). Their ratings were then compared with the actual tar yield of the brand of cigarette which they smoked.

All smokers in the sample were shown one of three cards which carried the figures of either 3 mg, 8 mg or 14 mg and were asked to rate this figure as a yield that was very low, low, medium, high or very high.

Results

Whereas 164 (32.8%) of the smokers in the original sample nominated a tar level for the brand that they smoked, only 11 (2.2%) of them did so correctly; 336 (67.2%) of the smokers made no attempt to nominate a tar level, stating that they did not know.

The Table shows the association between the actual tar content of cigarette brands and the ranking by smokers of the tar level they consider to be present in the cigarette brand which they smoke. If information detailing tar content on cigarette labels was comprehensible, we could expect that the actual tar content of a cigarette would not differ significantly from the rating smokers gave for tar values in the cigarette brand that they smoked. This hypothesis was tested using a Wilcoxon matched-pairs signed-rank test.[3] Of the 498 smokers in the sample, 100 (20.1%) were correct, 45 (9%) overestimated the yield and 344 (69.1%) underestimated the yield. This constitutes a statistically significant difference between median actual tar values and the median rating by the smoker of tar values ($Z = 13.96$; $P < 0.0001$).

When the 500 smokers in the original sample were shown a card at random, on which one of three printed yields was printed, 70 (14%) of them did not know where to place the yield on the five-point scale, 150 (30%) of them estimated the position on the scale correctly, 150 (30%) of them underestimated the position and 130 (26%) of them overestimated the position.

Of the 500 smokers in the original sample, 200 (40%) said that they did not know where to obtain information on the yield of the cigarette brand that they smoked; 245 (49%) named the packet as a source of information while very small numbers of smokers named various other sources. Only 10 (2%) smokers said that they were able to obtain information from a health organization or by asking a tobacco retailer.

TABLE: Smokers' rating of tar level of cigarette brand which they smoke compared with actual tar level

Perceived tar level	Actual tar level				
	Very low	Low	Medium	High	Very high
Very low	10	6	6	3	1
Low	1	18	36	35	12
Medium	0	24	35	127	75
High	0	6	6	30	43
Very high	0	0	1	7	7
Don't know	0	3	1	3	2

All persons in the original sample were asked whether they agreed or disagreed that tar yields should be displayed wherever cigarettes were purchased: 360 (72%) of them agreed; 75 (15%) of them disagreed; and 65 (13%) of them were unsure.

Discussion

The results of this survey corroborate the hypothesis that information on tar and nicotine yields as presented on cigarette packets in Australia is incomprehensible to most persons who smoke, if they do not have access to information that compares the yield of the cigarette brand which they smoke with that of other brands on the market. In the United Kingdom, tobacco advertisements clearly state the tar range in which the advertised brand lies (for example, "middle tar"). Australian tobacco companies clearly had the option to adopt voluntarily the British system, whereby choice of cigarette brand by the smoker could be influenced by intelligible information. However, Australian tobacco companies have chosen to adopt a form of presentation of information on tar and nicotine yields on cigarette packet labels that is shown here to be incomprehensible to most smokers.

How should these results be interpreted? It is reasonable to assume that the tobacco industry's prediction of the costs of meeting greatly increased consumer demand for low tar cigarette brands, that may be generated by intelligible labelling of cigarette packets, may have influenced its decision to provide information about tar and nicotine levels on cigarette packets in an incomprehensible form. Consumer preference for low tar brands of cigarettes may have caused significant dislocation of predominant patterns of supply within the industry and might incur increased costs in the importation and processing of tobacco leaves. Thus, it would seem that a concern for profits in the tobacco industry took priority over its concern for public health; this priority is consistent with the tobacco industry's position in systematically denying the evidence on the effects of smoking on health since the early 1960s.[4]

While it is fundamental to any public health policy on the control of smoking that the prevalence of smoking should be reduced, it is, nonetheless, an important step in a comprehensive policy to influence persons who do not wish to stop smoking to choose brands of cigarettes with low yields of tar and nicotine. A recent international conference reached a consensus that efforts to encourage the decline in tar levels in cigarettes had been beneficial and that tar yields in cigarettes should be reduced further.[5] Prospective epidemiological studies of lung cancer have shown an average reduction of 20% in risks associated with low tar or filter cigarettes as compared with high tar or plain types.[6–8]

The current arrangement on labelling of cigarette packets, that was established under the Liberal government of Malcolm Fraser, should be replaced with a requirement for each cigarette packet to be labelled with its actual tar, nicotine and carbon monoxide level (as in Sweden[9]) and for the words "high", "middle" or "low" to accompany the figures. However, there is a recent history of very protracted negotiations at the meetings of the Australian Health Ministers to introduce new, stronger health warnings on cigarette packets. Discussions which began in 1984 (Australian Health Minister's Conference. Confidential record of proceedings, Melbourne, December 9, 1984) on the need to strengthen the warnings still have not been concluded. Such a protracted episode might well be repeated with moves to reform the labelling of cigarette packets in the manner suggested earlier in this article.

An alternative that would not require the uniform consent of all States would permit the individual States to require all tobacco retailers to display prominently, at the point of sale, a full tar, nicotine and carbon monoxide table. Such a table should list all cigarette brands which are available, from lowest to highest tar yield, and provide an immediate comparative overview of the information to smokers at each purchase of cigarettes. The requirement to display the table could be made a condition of issuing a licence to retail tobacco, just as all retailers of alcohol are required to display notices about restrictions on sales to minors. This proposal has been adopted recently by the State cabinet in South Australia and will become law in late 1986.

Some readers might believe that public statements by officials of the tobacco industry would suggest support for this proposal. For example, John Dollisson, Chief Executive Officer of the Tobacco

Institute of Australia said on Sydney radio 2GB on June 12, 1984:

> "[. . .] every consumer should be entitled to product information about a particular product he wishes to purchase [. . .] it's very important that we don't infringe the basic right of the individual."

However, the fact that most smokers find the presentation of information on packets of cigarettes to be incomprehensible, at present, indicates that the apparent desire of the tobacco industry to provide smokers with adequate product information is insincere. This is similar to the continued claims by the tobacco industry that their advertising is never directed at children. We predict that the industry will oppose strongly any efforts to reform the labelling of cigarette packets with yields or to introduce yield tables that compare brands of cigarettes at the point-of-sale.

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The case for scoliosis screening in Australian adolescents

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ABSTRACT A survey of 3660 Year 10 students, with an average age of 15 years, was carried out in a random sample of Adelaide secondary schools to determine the prevalence of structural scoliosis and the need for implementing a programme of scoliosis screening. By means of the Forward Bending Test and a specially devised scoring system 144 (3.9%) children were found to have signs that were suggestive of scoliosis; all but 12 were assessed subsequently by standardized clinical and radiological examinations. One hundred and three children were found to have structural scoliosis of 5° or more; this represented a prevalence of 3.1%. The prevalence in girls (4.3%) was significantly higher than in boys (1.9%), and girls tended to have more severe curves and require treatment more frequently. Only one third (34) of the cases of structural scoliosis had been detected before this survey; most (28) of these had been detected through an earlier, subsequently discontinued, school screening programme.

This study concludes that screening for scoliosis by means of a scored Forward Bending Test should be carried out in South Australian schools for all students in Year 8 and for girls in Year 10. The policy of screening boys in Year 8 should be the subject of further research. An educational programme for health professionals, parents, students and physical education teachers should support the programme.

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Structural scoliosis with a curvature of 5° or more is a condition which has been found to affect 2.8%–4.6% of adolescents;[1-4] girls are more frequently and more severely affected than boys.[3-5] Most cases are idiopathic, and the justification for establishing an adolescent screening programme for this condition has been debated widely.[6-15]

The following conditions have been associated with severe untreated cases of structural scoliosis: reduced pulmonary function and cardiopulmonary decompensation,[16-25] backache which may be incapacitating,[26] psychological effects of the cosmetic deformity[16,26,27] and reduced work capacity with its associated community costs.[21,22,28] An increased mortality rate that is twice that in the general population has also been reported.[21,22]

The case for screening has been strengthened by recent work. In centres in Sweden (Göteborg[28] and Malmö[4]) and the United States (Minnesota[29]), where screening has been conducted over periods of eight to 10 years, progressive falls have been noted in the proportion of children who have been screened who require surgery, and in the average degree of curvature for which the surgery is carried out. Conversely, in the absence of screening, cases are frequently presented too late for conservative treatment, which is most successful when growth is still occurring and where curvatures are less than 40°.[30,31] Belstead and Edgar, in their five-year study of cases that were referred to the Royal National Orthopaedic Hospital in London after identification by doctors, relatives or friends, reported that in 85%–88% of cases the curvatures were 40° or more.[32] While the advances in surgery have made it safer and generally more efficacious (50%–60% correction achieved[33]), it is more expensive than the conservative methods of bracing or electrical muscle stimulation, and surgery in adults is considerably more difficult and hazardous than it is in adolescents.[34]

The present study, which was concluded in 1982–1983, was designed to achieve the following objectives:[35,36] to determine the prevalence of structural scoliosis and, in particular, of idiopathic scoliosis in Year 10 (14- to 16-year-old) school children in Adelaide (the capital city of South Australia, with a population of about one million); to determine the effectiveness of the presently available services (other than screening) in detecting scoliosis in these children; and to make recommendations about the need for scoliosis screening, or other methods of early case detection, in adolescent students.

Year 10 students were studied for several reasons. By virtue of their age, most of the students were approaching skeletal maturity, thus there would have been adequate opportunity for the development of idiopathic scoliosis and its identification by other agencies. Some of the students would have been screened earlier in Years 7 or 8 — during an earlier and discontinued School Health Service programme — making it possible to determine the relative contribution that this earlier programme had made