

PostScript

LETTERS

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"At Face Value": age progression software provides personalised demonstration of the effects of smoking on appearance

The Task Force for Tobacco-Free Women and Girls in New York State is utilising a computer software program that provides personalised, science based illustrations of how smoking can affect facial appearance. The task force developed this program at the urging of young people who entered a 1998 essay contest in which middle and high school students were asked to submit their ideas for strategies to help girls reject tobacco. Twenty four per cent of the 2000 entrants from across the state advised that knowledge of the unattractive effects of tobacco use would deter girls from smoking. Their idea is supported by studies suggesting that self image and perception of smoker stereotype can play a role in the decision to initiate smoking.¹⁻³ Several of the students specifically recommended the use of computer imaging.

Task force members reviewed available literature on the association between smoking and premature facial wrinkling⁴⁻⁸ and provided parameters for customisation of the APRIL (age progression image launcher) program by its creators at C.O.R.E. Digital Productions, Inc in Toronto, Ontario, Canada. The original version of this program ages a picture of an 8 year old child to approximately age 80. The "At Face Value" adaptation is designed to add about 30 years to an adolescent face, in two versions: one as a non-smoker and another with the premature wrinkling and unhealthy skin tone of a pack-a-day smoker. The software is unique in that its wrinkling/aging algorithms are based

upon photographs of a population cohort of 2000 persons and on published data regarding facial changes associated with aging; therefore, the aging/wrinkling images are based in science and are not an artist's rendition of aging or the effects of cigarettes on facial wrinkling.

Demonstrations require approximately five minutes each, beginning with a photograph taken by a digital camera connected to the computer. The participant's sex and ethnic group are entered. When the picture is downloaded into the program, blue dots appear around the eyes, nose, and other "landmarks" of the face, identifying key positions to be employed in the aging progression. If necessary, the operator can refine the position of the dots by dragging them with the mouse. The picture is then processed within 55 seconds, producing a file of 21 pairs of pictures, beginning with two identical current pictures and progressing to two versions that illustrate how the participant might look in about 30 years (fig 1). Both versions reflect the structural changes that faces undergo in the normal aging process. The series of pictures can be animated to "morph" from the current to the future.

"At Face Value" is provided as a stand alone presentation, without any other tobacco use prevention program on that day, to allow for evaluation of its impact independent of other interventions. Questions asked by students are answered, however, and the New York State Smokers' Quitline telephone number is provided to those interested in cessation. An LCD projector can be used to show the images to a class of students or a larger audience, but smaller groups are preferred. Most people want to see their own picture and several peers' pictures and then move on. Approximately 10 feet by 10 feet (3 × 3 m) of floor space is needed, in an area where light from any other sources can be controlled. Hardware requirements include a PC or laptop computer with three dimensional graphics accelerator, compatible digital camera with tripod, a black backdrop, and two photography lights with stands and dimmers. Each software license is US\$5000.

Participating middle, high school, and college students completed surveys before and after being photographed, to establish their prior experiences with tobacco and to detect changes in attitudes about tobacco. The demonstration appears to affect current smokers and never smokers in different ways. In early data, smokers have shown significant

change between pre- and post-demonstration responses to the questions: "Do you think that you will smoke a cigarette anytime during the next year?" (86.7% answered "Yes" pre; 73.3% post; $p = 0.000$) and "I think that becoming a smoker reflects poor judgment" (33.3% answered "Yes" pre; 43.5% post; $p = 0.028$). Never smokers, on the other hand, have indicated a change in attitude on the questions: "Do you think that people risk harming themselves if they smoke one or less than one cigarette per day?" (79.2% answered "Yes" pre; 92.1% post; $p = 0.001$) and "Does concern about your appearance affect the choices you make from day to day?" (68.4% answered "Yes" pre; 78.5% post; $p = 0.043$).

This intervention tool often evokes strong reactions from young people. Shrieks, laughter, and exclamations of "I'm never going to look like that!" are frequent. Stunned silence is also common. Many participants comment that in their "aged" versions they resemble an older relative, supporting the software's projection of future appearance.

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Subsidised nicotine replacement therapy

Miller et al present results from a workplace based smoking cessation study where 39% of nicotine replacement therapy (NRT) vouchers were redeemed for NRT patches for half the recommended retail price (RRP \$US170, subsidised to US\$85).¹ However, the authors conclude that cost may not be a barrier to accessing NRT. The New Zealand experience shows that heavily subsidised NRT (92%)



Figure 1 Computer simulation of aging in a smoker and non-smoker.

provided through an existing Quitline service considerably enhances access to NRT for smokers.

A nationwide programme to provide subsidised NRT was implemented from November 2000 through the New Zealand Quitline, a free telephone service for people wanting to quit smoking. Long term cessation rates have been found to improve when NRT is used as part of a behavioural intervention such as counselling.^{2,3}

When smokers call the New Zealand Quitline they are assessed for their eligibility to receive vouchers for subsidised NRT (patches or gum). Eligibility criteria include being: a "heavier" smoker (10+ cigarettes/day); motivated to quit; and 18+ years of age. The subsidisation reduces the cost of NRT to the smoker from a maximum of NZ\$199 (US\$109) for eight weeks' product to NZ\$5 (US\$2.70) for the first four weeks' supply, and NZ\$10 (US\$5.40) for the second four weeks' supply. This fee covers dispensing costs and provides a means of encouraging some degree of motivation to quit among smokers. Redeemed NRT vouchers are claimed by pharmacists through the Ministry of Health's Health Payments, Agreements and Compliance Unit.

There was significant media interest as a result of the government coordinated NRT media release in November 2000 and the Quitline service was flooded with calls following the launch. Since this time calls have levelled to 9000 per month. Currently, around 41 000 smokers a year register with the Quitline to give up smoking and are issued with vouchers for NRT (from a national smoker population of 740 000). This is a large increase on the number of smokers accessing the Quitline only service before the introduction of the NRT voucher scheme.

Redemption analysis shows that 73% of vouchers issued through the Quitline are redeemed, considerably higher than that experienced by Miller *et al*¹ (39%).⁴ Additional New Zealand research found that delivery of the voucher programme through the Quitline is enhancing access to NRT.⁵ A survey of Quitline callers who were positively assessed for NRT found that the process of receiving vouchers and redeeming these for nicotine patches and gum ran smoothly for respondents. Once respondents had the NRT, they were quick to start using it (80% started using their first four week supply within three days of receiving it) and they appeared to have a good understanding about how to use the patches and gum appropriately. Overall, there was little wastage of the nicotine patches and gum. Of those who redeemed their first voucher most (70%) reported using the whole four week course.

The enhancement of the New Zealand Quitline service through the provision of subsidised NRT has been viewed positively by smokers using the service and has greatly increased the number of people accessing the Quitline. Research results indicate that considerable subsidisation of NRT (92% in New Zealand's case) as part of an enhanced Quitline counselling service indeed provides an incentive to smokers who want to quit.

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Smoking among workers from small companies in the Paris area 10 years after the French tobacco law

Since the introduction of a tobacco law in 1991, smoking in enclosed public areas, including the workplace, has been forbidden in France. At the time this law was introduced we conducted several studies concerning smoking behaviour and the implementation of smoking regulations in the workplace.¹ We believed that it was interesting to repeat this study 10 years later: (1) to assess the prevalence of active smokers in small companies in the Paris area; (2) to assess the prevalence of passive smokers in these companies; (3) to describe the impact of the French tobacco ban in these places of work.

In the French occupational health system, every worker undergoes a medical examination at least once a year regardless of whether they are exposed to occupational hazards. The occupational physician is required to spend one third of their time studying each worker's work station. The data were collected among a population of 900 000 workers employed in all job categories in the Paris area. These workers belonged to companies employing between one and 3500 workers. The mean number of employees was nine, indicating that most of these companies were very small. We choose a double observation method: one in the physician's office and the other in the workplace. During September 2001, 173 physicians interviewed 3065 workers selected at random. A total of 3044 questionnaires were suitable for analysis. The sample consisted of 1654 men (54.3%) and 1390 women (45.7%). The mean (SD) age was 36 (11) years (range 15–77 years).

In the whole sample, the prevalence of regular smokers was 36.9%, the prevalence of workers exposed to environmental tobacco smoke at work was 14.6%, and the prevalence of workers who were disturbed by environmental tobacco smoke at work was 18.3%. Nearly all regular smokers smoked cigarettes (98%) and the mean (SD) consumption was 15 (8) cigarettes per day (range 1–60 cigarettes). The 296 non-smoking workers (9.7%) who were exposed to a tobacco smoke environment at work were considered to be passive smokers. Over two thirds (68.4%) of the workers were banned from smoking at their work station,

with the highest rate among clerks (72.2%). About three quarters (76%) of workers worked in a public room. Thirty eight per cent of workers stated that their direct supervisor was a smoker.

During the same period, 160 occupational physicians completed 690 questionnaires in workplaces selected at random, 678 of which could be analysed. The physician noted whether smoking was banned in every workplace (company or agency). Several questionnaires were completed for a single workplace if it included several departments (offices, workshops, etc). Smoking was banned in 68% of workplaces (n = 461). Bans were most prevalent in shops, workshops, and warehouses. Smokers and non-smokers worked together in 66% of the workplaces visited (n = 447). Smoking was banned in the whole company for 51% of them, and more often in those employing more than 300 workers (76.2%).

The results allowed us to address our three objectives:

(1) The prevalence of smokers (37%) in small companies in the Paris area has decreased with time. The prevalence was 44% in 1979, 42% in 1987, and 43% in 1991.¹ During this 12 year period the prevalence remained stable; however, it seemed to fall by about 6% between 1991 and 2001.

(2) The prevalence of passive smokers in these small companies was 9.7%, according to our restrictive definition of passive smoking. This restrictive definition did not make it possible to compare our data with those published in the literature. Several factors were significantly associated with passive smoking: being male, being a blue collar worker, being 25–34 years old, and having a supervisor who smoked.

(3) The ban on smoking at the work station was mentioned by 68% of the workers and smoking was banned in 68% of the workplaces visited. This percentage is higher than that reported by Grizeau and Baudier in 1995 (59%).² This difference may represent progress in the last six years since the application of the French tobacco law.

The 1991 French tobacco law, the initial purpose of which was to protect non-smokers, seems to have led to a decrease in the prevalence of smoking and to a decrease in cigarette consumption, as shown by other studies on smoking policies.³ The prevalence of regular smokers decreased by 6% in accordance with the conclusions of Farrelly *et al* that "the ban on smoking in all workplaces should reduce the prevalence of smokers by 10%".⁴ In the Paris area, real progress in the fight against smoking in the workplace was only made after the introduction of a national smokefree legislation, as in Finland.⁵ This situation could probably be enhanced further if the authorities boosted the French tobacco ban by introducing new stronger national smoking legislation.

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One suggestion for Philip Morris . . . err, sorry, Altria's new logo . . .