

Time for Setting a Good Example: Physicians, Quit Smoking Now

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There are about 1.1 billion smokers in the world, and according to the World Health Organization up to half of them will eventually die prematurely as a result of their habit. Tobacco kills over 5 million people worldwide every year due to active or second-hand smoking, and as such is the single most important cause of preventable death. Physicians must assume a major role in addressing this threat, not only by providing primary care but also by quit-smoking advice, by educating their patients about the extreme danger of smoking and, not less importantly, by serving as role models by not smoking themselves [1].

Hospital doctors have an important and multifaceted role to play in tobacco control. Hospital doctors also serve as role models for healthy behavior, and the example they set in public is essential. Despite this argument, tobacco use has become an ingrained habit in a significant fraction of hospital doctors, although predictably it afflicts a smaller number than in the general population.

In 1971, Yarom and Lerer [2] published the first survey analyzing smoking habits among Israeli physicians. The established rate of 27.3% of smoking physicians in Israel at the beginning of the 1970s reported in that pioneering study was significantly lower than that in the general population at that period, 37.6%. More than 20 years later, Samuels

[3] conducted a similar survey among 300 physicians at Shaare Zedek Medical Center in Jerusalem, which revealed 41 current smokers among 260 responders to the anonymous self-completed questionnaire, representing 15.8% smokers equally divided between males and females.

The Shaare Zedek survey found an interesting distribution of current smokers according to their area of specialty: among pediatricians 8% were smokers, among interns 9%, among surgeons and anesthesiologists 25%, and among radiologists 40% (!). There was a significant difference in the rate of smoking between the various countries of origin, with 26% current smokers among those from the former USSR and Romania, 11% from continental Europe, 17% of those from South America, South Africa and Australia, 14% of Israeli born physicians, and only 2% of physicians born in North America and Great Britain.

In this issue of *IMAJ*, the updated survey of hospital physicians who smoke presented by Shkedy et al. [4] does not offer an improved picture regarding the smoking habits of hospital doctors in this country. This survey was performed at Rabin Medical Center (Beilinson) by means of a Web-based questionnaire via the institutional email; there were 90 responders (53 males), among whom 54 (60%) never smoked, 21 (23.3%) were past smokers and 15 (16.7%) were current smokers.

Although based on a cohort rather limited in size, this study somewhat echoes the situation of that described 15 years ago in the Samuel study, with 16.7% vs. 15.8% current smokers. However, since the 1997 survey, smoking rates in the general Israeli population declined from 26.1% in 1995 to 22.8% in 2008, so

the 6.1% decrease in smoking that hospital doctors can get credit for echoes also the 3.3% decline of smoking in the general population at that time. As expected from comparable surveys abroad, the proportion of current smokers was higher among physicians in surgical than in medical specialties. The finding that the percentage of current smokers was higher among residents (28.6%) than attending physicians (12.3%) could be predicted in line with the alarming increase in the rate of tobacco use by adolescents and young adults under 25 years old in Israel.

Exemplary compliance of physicians with the guidelines drawn by the WHO and other health agencies on the peril of tobacco use is evident in Australia. A review by Smith and Leggat [5] described the historical decline of tobacco smoking among Australian physicians from 1947 to 1997. In that country as many as 58% of men and 28% of women in the general population were smokers in 1964, the year when the negative health effects of smoking were first described by the U.S. Surgeon General Luther Terry. Since 1964 smoking has steadily declined in Australia; in 1997 it was estimated that 24% of men and 20% of women had not given up the habit. Nonetheless, Australian physicians seemed to heed this warning and the decline in their smoking went steadily from 27% in 1964 to 14% in 1974, to 6% in 1989, and eventually to the ultimate low 3% of physicians who still smoked in 1997.

New Zealand has historically displayed one of the lowest smoking prevalences among doctors. In 1963, one year before

WHO = World Health Organization

the Surgeon General's first landmark report on smoking and disease, 39% of physicians in New Zealand smoked (41% and 29% among male and female doctors, respectively). Four subsequent surveys of physicians in that country – in 1972, 1976, 1981 and 1996 – showed a sustained decline in smoking habits among doctors, with reduced smoking percentages of 32%, 20%, 15% and 5% among all physicians in New Zealand, respectively [6].

A more recent survey by Edwards and co-researchers [7] reports that 14.2% of New Zealand doctors smoked in 1981, yet only 3.2% of them report smoking in 2006. Such an impressive decline in smoking among New Zealand physicians must be praised in view of the general smoking rates in that country that diminished from 35.3% in 1981 to 21.7% in 2006.

A recent survey among 19,705 male American physicians with a mean age of 58.3 at the beginning of the follow-up found that 41.7% were past smokers and 6.7% were current smokers [8]. In 1960 as many as 35.4% of U.S. male physicians were smoking. Compared with never smokers, both present and past smokers had a higher body mass index, were more likely to consume alcohol daily, and were more likely to have a history of hypertension or diabetes. Current smokers were less likely to vigorously exercise five or more times a week than never smokers.

Britain is a country with active tobacco control measures. A cross-sectional survey of 500 health care professionals reported a lower rate of current smoking (7%) than in the general population (24%). Doctors (2.6%) and medical students (7.0%) were less likely to be current smokers than nurses (8.7%). Almost all responders were in favor of restrictions on smoking on health care premises. A higher proportion of UK doctors (69%) than nurses (52%) favored a complete ban [9].

If Australia, New Zealand, the USA and Britain represent, as might be expected, impressively low numbers of physicians who smoke, let us turn to countries that have a long way to go in this regard. China remains one of the highest per capita

tobacco users in the world, and according to a WHO Global survey in 2010 around 53% of Chinese men smoke [10]. In such a heavy atmosphere of smokers, no one was surprised by the most recent survey by Smith and colleagues [10], published in 2012, on the smoking habits of physicians in various provinces in mainland China. Accordingly, in Beijing, 55% of male physicians were smoking in the capital province in 2006, 47% of male physicians enjoyed the cigarette in Shandong in 2008, 46% of male doctors were smoking in Guangzhou in 2006, and 36% of male doctors smoked in Hunan in 2003, to mention just a fraction of representative samples of the main Chinese provinces. Noteworthy is the very low percentage of only 4% of physicians of the two genders who smoked in Hong Kong in 2002. The exceptionally low number of smoking physicians in Hong Kong, 7 years after this city was annexed by the People's Republic of China in 1997, reflects a long tradition of non-smoking physicians in British Commonwealth countries and colonies.

A change in smoking behavior among physicians in Fukuoka prefecture in Japan was evident in a longitudinal survey from 1983 to 1990 [11]. A decline in the actual prevalence of smoking was demonstrated among 2656 physicians (2543 men and 113 women). In 1983, among physicians surveyed, 1099 male and 7 female doctors were current smokers (43.2% and 6.2% respectively). In 1990, these figures declined to 32.8% for male doctors and 5.3% for female doctors. In the most recent survey of smoking among Japanese doctors in 2000, the rates were 27.1% for male doctors and 7.0% for female doctors. When the 1990 survey in Japan addressed those physicians who had given up smoking during the 7 year period since 1983, it was found that a large proportion of them were attempting a healthier lifestyle in terms of earlier bedtime, higher consumption of fresh fruit and vegetables and lower consumption of coffee, and they suffered less from mental stress [11].

At St. James Hospital in Dublin, 106 non-consultant doctors filled confidential

questionnaires on smoking. Ninety percent of the responders were aged 24–35 years, among whom 26% had smoked for the previous 10–15 years. Seventy-five percent of the physicians were smoking more than 10 cigarettes daily, and 97% of the smokers wanted to stop smoking, while 74% had unsuccessfully attempted to quit [12].

The situation among Italian hospital physicians is rather bleak. A 2010 study [13] shows that 33.9% of them smoke, which is just barely lower than the percentage of smokers in the general population in the Italian cities surveyed (38.5%). In Greece, despite existing legislation that forbids smoking in health care centers, smoking is evident. A survey of physicians in a large university hospital in Athens found that 34.5% of physicians were current smokers [14]. In November 2007, a Portuguese teaching hospital surveyed smoking behavior and smoking control attitudes before the national ban on smoking in line with the WHO recommendation for a “100% smoke-free” policy was enforced in January 2008. It was found that 18.9% of the physicians in Portugal were still smoking [15].

If current trends of smoking-induced fatality continue, the result will be around 10 million deaths annually by 2020 [16]. Smoking represents a key issue in the medical profession, as physicians can play a leading role not only in curbing tobacco usage in the community but in the development of overall public health policy as well. Medical professionals are on the front line of primary health care, and research has shown that medical interventions could be more effective if physicians would make a greater effort in attempting to convince their patients to quit smoking. Physicians are widely viewed by their patients and by the community as exemplars, and as such should be a model of non-smoking behavior. Clearly, as Garfinkel and Stellman [17] assert, physicians could best convince their patients to give up smoking by not smoking themselves.

Indeed, smoking prevalence among doctors in the last 50 years has dimin-

ished to a greater extent than in the general population. As the perils of smoking became more obvious, the medical profession responded by throwing away their pack of cigarettes earlier than did the general population. It so happened that some of the first epidemiological studies pointing to the adverse health effects of smoking were actually conducted in a cohort of British physicians by Doll and Hill in 1954. Regarded as a milestone in demonstrating mortality in relation to smoking, their study was republished by the *British Medical Journal* 50 years later [18]. Medical doctors' response to such warnings was disappointing, reflecting the contradiction between their commitment to promote health and the self-destructive nature of their own smoking habit.

Physicians who smoke raise public skepticism as people ask why they should stop smoking if their physician still smokes [19]. A health care worker who smokes undermines the message that "smoking is no good for you." Sachs stated in a 1983 study [20] that 80% of U.S. subjects expected their physicians to be non-smokers, and that physicians maintaining good personal health habits will counsel their patients more effectively. The steady estimate of "one smoking hospital doctor out of six" in the last two available surveys in Israel seems to rank our country in a position not inferior to that of many industrialized countries, but we are still far behind USA, Britain, Australia and New Zealand.

Every Israeli physician who currently smokes must use all of his or her inner resources to attempt to quit smoking. The role of physicians is not only to cure their patients of their maladies, but also to educate them towards healthier life habits. They owe it to their patients, the more so to themselves.

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Capsule

Chemotherapy-induced bone marrow nerve injury impairs hematopoietic regeneration

Anticancer chemotherapy drugs challenge hematopoietic tissues to regenerate but commonly produce long-term sequelae. Chemotherapy-induced deficits in hematopoietic stem or stromal cell function have been described, but the mechanisms mediating hematopoietic dysfunction remain unclear. Administration of multiple cycles of cisplatin chemotherapy causes substantial sensory neuropathy. Lucas et al. demonstrate that chemotherapy-induced nerve injury in the bone marrow of mice is a crucial lesion impairing hematopoietic regeneration. Using pharmacological and genetic models, the authors show that the selective loss

of adrenergic innervation in the bone marrow alters its regeneration after genotoxic insult. Sympathetic nerves in the marrow promote the survival of constituents of the stem cell niche that initiate recovery. Neuroprotection by deletion of *Trp53* in sympathetic neurons or neuroregeneration by administration of 4-methylcatechol or glial-derived neurotrophic factor (GDNF) promotes hematopoietic recovery. These results demonstrate the potential benefit of adrenergic nerve protection for shielding hematopoietic niches from injury

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