

## Letter from North America

### E-CIGARETTES

Despite the widespread awareness of tobacco smoking and its harmful effects, a new form of smoking, electronic cigarette (e-cigarette), is on the rise worldwide. In an attempt to invent an alternative method for smoking cessation, Hon Lik<sup>1</sup> invented the e-cigarette. E-cigarettes in the market are a diverse range of battery-powered devices that vaporize nicotine for inhalation. Currently, there are 2.5 million e-cigarette smokers in the USA.<sup>2</sup> Sales are increasing rapidly and are predicted to surpass traditional cigarette sales within a decade.<sup>3</sup>

E-cigarette users report buying them to help quit smoking, reduce traditional cigarette consumption, relieve tobacco withdrawal symptoms and to continue to have a 'smoking' experience but with reduced health risks. The role of e-cigarettes in smoking cessation is controversial. Some studies suggest that e-cigarettes have the potential to deliver nicotine into the bloodstream, lessening the desire to smoke and tobacco withdrawal symptoms.<sup>4</sup> Contrary to belief, e-cigarettes, with or without nicotine, have shown a modest effect at helping smokers quit.<sup>5</sup> Further research evaluating the potential for long-term use and efficacy of e-cigarettes is needed.

E-cigarette aerosols may contain propylene glycol, glycerol, flavourings, other chemicals and, usually, nicotine, which could present risks of unintentional nicotine exposure and are potential choking hazards. The number of calls to emergency services reporting e-cigarette poisoning in the USA went up from 1 to 215 per month in the past 2 years.<sup>6</sup> Half of the calls to emergency services were for e-cigarette exposure to children 0–5 years of age. Common adverse effects reported were vomiting, nausea and eye irritation.<sup>6</sup> The dangers of second-hand and third-hand aerosol exposure have not been thoroughly evaluated. However, the inhalation of cartridge nicotine solution in e-cigarettes may exacerbate asthmatic symptoms.<sup>7</sup> While e-cigarette aerosol may contain fewer toxic substances than traditional cigarette smoke, studies evaluating whether e-cigarettes are less harmful than traditional cigarettes are inconclusive.

It is a matter of greater concern that a report from the US Centers for Disease Control and Prevention has shown that the use of e-cigarettes among high school students doubled to 10% over 2 years, resulting in 1.78 million e-cigarettes being consumed by adolescents.<sup>8</sup> E-cigarette companies advertise their products to an audience that includes 24 million youth.<sup>9</sup> The proximity of e-cigarette retail outlets to schools has also been suggested to influence consumption among youth.<sup>10</sup> A recent study comparing the frequency of tobacco retailers and proximity of e-cigarette stores to schools in two US counties showed that 88% of evaluated schools had a tobacco retailer and 68% had an e-cigarette distributor within a mile.<sup>10</sup> In addition, e-cigarettes are available in flavours that could appeal to children and adolescents.<sup>11</sup> Data indicate that youth awareness is high and use is increasing rapidly. In addition to the perceived notion that e-cigarettes are harmless, one study noted that children and adolescents feel confident that they can control or stop e-cigarette use without difficulty, which may be the reason for its widespread use. The extent to which e-cigarette use in youth will result in nicotine dependence and subsequent use of other tobacco products is unknown. A better understanding of the

impact of e-cigarettes on children is needed and will be important in the evaluation of the effects of these products on public health.

On 30 December 2013, Michael Bloomberg (then mayor of New York City, USA) subjected e-cigarettes to the same regulations as traditional cigarettes, which will now be prohibited in public places including restaurants and places of employment.<sup>12</sup> Similarly, three additional states have passed legislation prohibiting e-cigarettes. Legislation imposing age limitations that restrict the sale of e-cigarettes to minors have been passed in four states.<sup>2</sup> The US Court of Appeals voided the Food and Drug Administration's (FDA's) decision to regulate e-cigarettes as drug-delivery devices but could regulate them as 'tobacco products'.<sup>13</sup> In April 2014, the FDA proposed banning sales of e-cigarettes to minors, adding warning labels for nicotine addiction and requiring approval for new products.<sup>14</sup> The American Medical Association supports the FDA proposal for federal regulations with additional requirements including childproofing, restrictions on flavours and prohibiting unsupported claims as a tobacco cessation tool.<sup>15</sup>

The rising use and awareness of e-cigarettes are not limited to the USA alone. Being the second largest consumer of tobacco in the world<sup>16</sup> and with more than 65% of its population below the age of 35 years, India may face a public health challenge in the near future with e-cigarettes. E-cigarettes are increasingly used by Indian youths as a safer substitute for traditional cigarettes.<sup>17</sup> The e-cigarette market in India is expected to quadruple in the next 2 years.<sup>18</sup> In India, the packages are imported from Hong Kong or China and mostly sold via online portals or high-end malls. E-cigarettes do not adhere to safety standards set by the Food Safety Standard Act of India and has been banned in only two Indian states.<sup>17</sup> The Central Government now plans to come out with legislation to prohibit sales of electronic inhalers. Recently, the Indian health ministry has written to the civil aviation ministry complaining that the national carrier Air India is selling e-cigarettes on board through the discount booklet known as *Air Bazaar*, in contravention of rules banning the advertising of cigarettes and other tobacco products.<sup>19</sup>

While the social and governmental efforts are continuing to curb the rise of e-cigarettes across the continents, much needed scientific research investigating the role of e-cigarettes in smoking cessation and its effects on health are ongoing. Public health advocates fear that e-cigarettes could act as a gateway to traditional cigarettes, potentially undermining decades of hard work in eradicating smoking.

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## Letter from Mumbai

### THE ILLS OF SPECIALIZATION AND SUPERSPECIALIZATION

During a recent conversation with a respected ophthalmic surgeon, I learnt about his expertise in the management of disorders of the cornea. Others in his specialty have concentrated on squint, diseases resulting in glaucoma, abnormalities in the vitreous humour and, of course, retinal disorders.

It is easy to see the advantages of such superspecialization—the acquisition of great experience in a narrow field, ability to focus sharply on a topic that may be ignored by the generalist and, of course, the resultant benefit to the patient suffering from a specific malady.

As I expressed my admiration for his contributions to his field, he pointed to a drawback he and others are witnessing in younger colleagues and students. The superspecialty is developed at the expense of understanding and experience of the broad field. Modern Indian superspecialists are learning more and more about less and less and, in the process, diminishing their comprehensive proficiency. Such tunnel vision is detrimental to patients, especially in India.

Continuing with disorders of the eye but going well beyond this organ, it is sad to see the young ophthalmic surgeon unwilling to update his education on how the eye is involved in systemic disease. This makes his patient run the risk of misdiagnosis or delayed diagnosis of serious illness, perhaps in the liver.

All of us are witness to the terrible consequences following the visit by a specialist to the patient in the intensive care unit. The heart specialist studies merely the heart and at best the cardiovascular system; the chest physician looks only at the lungs; the diabetes specialist merely ensures that the blood sugar levels remain within internationally accepted norms... They remind us of Saxe's *The blind men and the elephant*. I reproduce the first and last verses from the poem:

*It was six men of Indostan  
To learning much inclined,  
Who went to see the Elephant  
(Though all of them were blind),  
That each by observation  
Might satisfy his mind...  
...And so these men of Indostan  
Disputed loud and long,  
Each in his own opinion  
Exceeding stiff and strong,  
Though each was partly in the right,  
And all were in the wrong!*

Unfortunately, in the field of medicine and especially in the setting of the intensive care unit, the consequences of such diversity of opinions, interests, tests and prescriptions by individuals blind to all that lies outside their chosen specialty is not in the best interests of the patient.

### CARING FOR THE ENTIRE PATIENT

A neurosurgeon in Mumbai had operated upon an ageing patient for chronic subdural clot that recurred despite three attempts at drainage through burr holes. He successfully performed a craniectomy and excised the subdural membrane that caused the recurrent clots. Some months later, the patient was readmitted to the hospital under a physician's care. This consultant referred the patient to the neurosurgeon, requesting surgery for recurrent subdural clot. The neurosurgeon was greeted warmly by the patient and his wife. Queries regarding headache, nausea, visual deficiency and limb weakness were dismissed as there were no such symptoms. Examination showed the scalp over the operative bone defect to be sunken. Obviously, intracranial pressure was low. The puzzled neurosurgeon asked for the cause that prompted readmission. 'I have episodic, severe pain in my abdomen',