DJF/SEW/5.1.1

R.M. Gibb, Esq.,
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10th January, 1973

Dear Bob,

Thank you for your letter of 21st December, which got a bit delayed in the post-Christmas mail.

As you will see from the enclosed copy letter to Geoff Todd at TRC, some of your views got an airing at a recent TRC meeting. One difficulty is to decide at what point in time should one select the consumption pattern in order to compare it with current lung cancer incidence. We opted for roughly a 15-year lag period for no really valid reason except that earlier than 1950, the war and post-war consumption patterns were not really stable. There is the additional complication that individual smokers probably have their own individual sensitivities and any group of current lung cancer decedents may well have smoked to different extents and for different "lag periods". It is certainly not a straightforward correlation.

Your other suggestions have been considered here, with varying degrees of agreement. Your proposed safety index:

$$\frac{\text{Mg nicotine absorbed}}{\text{cc smoke inhaled}}$$

has been criticised over the definition of "cc smoke inhaled" and how this might be measured. I thought at first you merely meant "total puff volume" i.e. integrated over the cigarette, but that would not fit in with your wish to administer nicotine without any inhalation. Perhaps you may care to reconsider the definition.

Most people agree with your suggestion 1, provided you mean "habitual smokers of flue-cured vs. habitual smokers of air-cured cigarettes".

Your suggestion 2 was given a bit of a test both under JANUS and by TRC, when it was found that specific activity of condensate did depend upon the puff volume and, in particular, the puff airflow; but the small difference in specific activity was entirely swamped by the big difference in TPM delivery in the opposite direction, e.g. small puffs of low puff velocity gave <u>increased</u> specific activity (about 60% when comparing 10 ml vs. 35 ml puffs) but greatly reduced TPM delivery (about 250%). A subsidiary criticism

was that the irregular spacing of puffs down the cigarette should be taken into account and particularly the degree of inhalation and degree of retention which have yet to be quantified. The same difficulty will apply to your suggestion 3.

You have raised some interesting thoughts, however, and have pointed to areas in which we remain fairly ignorant. In the future, when the techniques for monitoring smoking behaviour unobtrusively are more polished, we may be able to tackle some of these aspects adequately, though perhaps the measurement of biological activity of condensates may be insufficiently precise to answer the questions in your suggestions 2 and 3.

With kind regards,

Yours sincerely,

D.G. FELTON

cc: Dr. S.J. Green ✓

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