

Aims and objectives

1. To evaluate four existing models for the probability of malignancy in the target population.
2. To create and validate prediction models for probability of malignancy for patients undergoing oncology follow-up for an indeterminate PN.

Methods Retrospective data on clinical and radiological characteristics were collected from the medical records of 61 patients with a PN (mean diameter 7 mm, SD 4 mm) that had an active or previous history (within 5 years) of primary lung or extra-thoracic malignancy. The gold standard diagnosis of the nodules was established by histology or 2-year stable follow-up.

Three multivariable logistic regression models were evaluated using a leave-one-out cross-validation strategy:

Model 1: Age, Sex, Smoking status, Emphysema, Nodule diameter.

Model 2: Age, Sex, Smoking status, Emphysema, CT Texture score.

Model 3: CT Texture score only.

The models' performance, measured using the area under the ROC curve (AUC), were reported and further compared to existing clinical models.

Results The highest AUC, 0.86, was obtained from Model 3 (texture score only). Utilising clinical parameters (Model 2) did not improve performance.

In comparison, AUCs for previously published clinical models were 0.76(Mayo), 0.84(Herder), 0.66(VA) and 0.70(McWilliams) (Figure.1).

Conclusion This texture feature model is successful at discriminating benign from malignant nodules in a population of patients undergoing oncology follow-up.

While not significantly better than the Herder model (which incorporates PET avidity), this model offers improved risk stratification for PNs in the absence of PET in this patient group.

REFERENCES

- 1 RSNA 2014, SSC03-05
- 2 IEEE International Conference doi: 10.1109/SMC.2013.663

S76 "STRAIGHT TO CT" IN PRIMARY CARE – IMPROVING THE LUNG CANCER PATIENT JOURNEY

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Although the advent of rapid access secondary care services has shortened the wait to timely diagnosis in lung cancer, significant delays and congestion can still occur through patients needing to attend clinic before appropriate investigations are organised.

To circumvent this, with primary care colleagues we designed a "straight to CT" system where if a general practitioner is concerned about a patient, or a chest X-ray in the community or emergency department shows suspicious changes, the radiology department automatically offers the patient a CT scan to be performed within 72 h with a same day report. This allows the primary care clinician to reassure patients with normal scans, or where necessary direct appropriately patients with scans showing non-malignant abnormalities. Patients with scans showing possible malignancy are intercepted by the lung cancer team who then organise appropriate further management.

We replaced our one stop rapid access lung cancer clinic with this new service in January 2014 and have now reviewed its use one year on.

468 patients from the local community were eligible for the "straight to CT" service. Of the 246 with a coded X-ray, 222 underwent a 72-hour CT scan (18 of the remainder declined or were not contactable), and of these 127 (57%) showed suspicious abnormalities and were intercepted by the lung cancer team. Of the 222 referred by a concerned clinician, 177 underwent a 72-hour scan (of the remainder 19 were not contactable or declined and the rest were deemed inappropriate) and 60 of these (34%) showed suspicious changes and were intercepted by the lung cancer team. Overall, 401 72-hour scans were performed in 2014: this is similar to the number of scans performed (402) in 2013 using the traditional rapid access clinic model.

As well as empowering primary care, by preventing unnecessary clinic attendance this innovative service has significantly reduced costs and by bringing forward investigations has reduced the lead time to diagnosis (to a mean of 19 days) in our patients. Furthermore, fears that such a service might increase unnecessarily the number of CT scans performed have proved groundless.

We recommend the use of such a service to colleagues to aid timely and economical investigation of patients with a suspected diagnosis of lung cancer.

The smoking gun

S77 PROCESSING OF CIGARETTE GRAPHIC HEALTH WARNING LABELS DECREASE WITH PROLONGED EXPOSURE

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Introduction Cigarette package graphic health warning labels (GHWL) remain an important means of communicating serious smoking risks. There were significant delays in implementing them in different countries around the world, partly due to tobacco company resistance; additionally, the messages used differ considerably. We expected a reduced cognitive processing of the messages based on the duration since launch. In order to address this question we compared a London (4 years) vs Singapore (8 years exposed) cohort.

Methods We used a 50-item structured interview; after recording demographics and smoking history, 10 country-specific warning labels were shown. In addition to the emotional response and impact on smoking cessation/prevention, cognitive processing was assessed on a scale from '1' ('not at all/never') to '5' ('all the time/a lot'). Smoking-risk knowledge and their importance in terms of prevention and treatment were elicited.

Results 266 participants were recruited, 163 from London (52 ± 18 years, 54% male, 35% smokers) and 103 from Singapore (58 ± 15 years, p = 0.012; 78% male, p < 0.001; 53% smokers, p = 0.003). Londoners read the labels more carefully and more often; they talked and thought more about them, even with no warning labels were in sight, and they kept packages more often as a reminder about their messages (overall, 2.0 ± 1.3 vs 1.5 ± 1.0, p < 0.001). The processing differences

between the cities were consistent when comparing the London and Singapore smokers (overall, 2.0 ± 1.1 vs 1.6 ± 1.1 , $p < 0.001$) and non-smokers (overall, 2.0 ± 1.4 vs 1.4 ± 0.8 , $p < 0.001$) (Table 1). Londoners experienced more disgust when viewing the images (79% vs 53%, $p < 0.001$) and felt they were more effective deterrents (51% vs 35%, $p = 0.011$). One-in-five participants in Singapore were unaware of the association between smoking and lung cancer, despite it being the most deterring risk; blindness was the least well-known consequence in London (24%) and Singapore (34%, $p = 0.075$) despite being ranked ahead of stroke, oral cancer, and in smokers, ahead of heart disease for importance to prevent/treat.

Abstract S77 Table 1 Processing of GHWL; comparing all participants, non-smokers and smokers in London vs Singapore

Processing (/5) (SD)	All			Non-smokers			Smokers		
	Sing	London	p	Sing	London	p	Sing	London	p
Carefully read labels	1.8 (1.1)	2.2(1.2)	0.004	1.6 (0.9)	2.1(1.3)	0.024	1.9 (1.2)	2.4(1.1)	0.028
Often read labels	1.7 (1.1)	2.2(1.3)	<0.001	1.5 (0.9)	2.2(1.4)	0.001	1.9 (1.2)	2.3(1.0)	0.095
Ever talked about	1.5 (1.1)	2.2(1.4)	<0.001	1.6 (1.1)	2.3(1.5)	0.001	1.5 (1.2)	2.0(1.1)	0.039
Often think about	1.6 (1.0)	2.4(1.4)	<0.001	1.5 (0.9)	2.5(1.4)	0.001	1.8 (1.1)	2.4(1.3)	0.006
Inc. when not in sight	1.3 (0.7)	1.8(1.1)	<0.001	1.1 (0.6)	1.8(1.2)	0.001	1.4 (0.9)	1.8(1.0)	0.040
Kept labels as reminder	1.0 (0.3)	1.3(0.8)	0.001	1.0 (0.2)	1.3(0.9)	0.021	1.0 (0.3)	1.3(0.8)	0.023

Conclusion A desensitisation to graphic health warning labels occurs with extended exposure. Non-smokers are prone to the same desensitisation as smokers are. In pre-empting this, the awareness and impact of specific health risks need to be actively utilised, in concerted public health campaigns, to help maintain label efficacy.

S78 ELECTRONIC CIGARETTE ADVERTISING IMPACTS ADVERSELY ON SMOKING BEHAVIOUR WITHIN A LONDON STUDENT COHORT: A CROSS-SECTIONAL SURVEY

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Introduction In contrast to tobacco smoking, electronic cigarette ("vaping") advertisement has been approved in the UK since January 2013. Currently, there are 2.6 million e-cigarette users in the UK. The impact of e-cigarette advertisement on tobacco use has not been studied in detail. We hypothesised that e-cigarette advertisement impacts on smoking behaviour.

Methods A structured survey was constructed to assess the impact of e-cigarette advertising on the perceived social acceptability of cigarette smoking; and, on trying both cigarettes and e-cigarettes (on a scale of 1 to 5/'not at all' to 'a great deal'). The survey was administered between January to March 2015 to

London university students, before and after viewing 5 UK adverts including a TV commercial.

Results Data were collected from 106 participants (22 ± 2 years, 66%male), comprising 34 current cigarette-smokers, 57 non-smokers and 15 ex-smokers. There were 17 vapers, 82 non-vapers and 7 ex-vapers. After viewing the adverts, both smokers (2.6 ± 1.0 vs 3.8 ± 1.1 , $p = 0.0002$) and non-smokers (3.2 ± 0.7 vs 3.7 ± 0.8 , $p = 0.004$) felt e-cigarette advertising increased the social acceptability of smoking; and, both smokers and non-smokers were more likely to try e-cigarettes (3.6 ± 1.0 and 2.6 ± 1.0 respectively, $p < 0.0001$) as well as conventional cigarettes (3.4 ± 1.0 and 1.5 ± 0.9 respectively, $p < 0.0001$). Additionally after viewing, vapers felt e-cigarettes were 'less effective' at helping people stop smoking compared to before (3.6 ± 0.7 vs 4.0 ± 0.6 , $p = 0.004$).

Conclusion E-cigarette advertising encourages e-cigarette and conventional cigarette use in young smokers and non-smokers. The adverts impact on the social acceptability of smoking without regarding the importance of smoking cessation.

S79 THE ELECTRONIC CASE-BASED DISCUSSION; A NOVEL TEACHING METHOD APPLIED TO SMOKING CESSATION

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Introduction Current smoking cessation training in U. K. medical schools fails to equip junior doctors with the skills necessary to effectively combat the leading preventable cause of death and disease.¹ Here I present a novel teaching method using an electronic Case-Based Discussion (eCBD) which streamlines the process of workplace-based assessments, facilitates high-quality learning and provides new insights into what students know about this critically important subject.

Methods An electronic learning module was developed by the author based on existing NICE guidelines.² Candidates described a case of a smoker they had seen and were quizzed about the case by the learning module with some instant feedback, then deeper discussion with the author via e-mail. When the candidate was ready a CBD form was completed. Finally feedback was collected using an anonymous, online feedback form.

Results Thirty students and junior doctors have completed the eCBD. The eCBD had excellent feedback with 94% rating the eCBD as "very useful" and 100% feeling more confident in giving smoking cessation advice. Ninety-four percent rated the eCBD as "easier" or "much easier" to arrange and 53% rated it "much better" at assessing knowledge than conventional CBDs.

Analysis of responses revealed deficiencies in knowledge of medications to treat tobacco dependence; 97% knew of nicotine replacement therapy (NRT) but knowledge of some formulations was poor (none mentioned oral strips, 3% microtabs, 17% lozenges); 43% knew of varenicline and 40% bupropion. Only 37% thought that combination NRT was safe and effective and thematic analysis revealed widespread concerns about the risks of overdose. 57% would consider recommending e-cigarettes for selected patients although only 7% had already recommended them to patients.

Conclusions The eCBD can be an effective method of encouraging learning in important and neglected subject areas. It also illustrates an often-wasted opportunity to collect data from online learning modules that could guide curriculum development and facilitate better training in future.