



Recording of smoking status in GP electronic records

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“The most valuable repository about
the current health of the population
may well be GP records and it is
ironic that these are virtually
unused for local health surveillance
and service audit.”

NHS Executive, Information for
Health, 1998



Overview

- Measuring smoking prevalence
 - Current methods
 - Potential of GP EMRs
- Aim of this study
- Predict and methods of PES
- Recording of smoking status/Read-coding of smoking status and factors associated with increase
- Study validity, generalisability, comparison with other studies
- Conclusions



Prevalence of smoking

- Tobacco smoking - significance
- Smoking prevalence data needed
- Current methods
- Limitations



Potential of GP EMRs

- 80% of adults see GP at least annually
- Identifying smoking status
 - ↑clinician intervention
 - ↑smoking cessation
- Almost all NZ general practices computerised (NB extent variable)
- Reorientation of primary care:
individual → population health



Aim

- Investigate:
 - Recording of smoking status in GP EMRs
 - Suitability of this source as a prevalence measure



How?

- Piggy back on Predict Evaluation Study



Predict

- Web-based, electronic decision support programme for CVD risk assessment and management in primary care
- Developed by University of Auckland and Enigma
- Fully integrated with PMS MedTech-32 in ProCARE as “Prompt”



Predict Evaluation Study (PES)

Aim:

To determine whether PREDICT risk assessment (among those that require risk assessment) increases when integrated with electronic medical record software.



Methods (PES + this study)

- Retrospective before-after study involving audit of EMRs
- Eligible GPs:
 - ProCARE
 - Used MedTech-32 (EMRs + labs) for ≥ 1 year
 - PREDICT integrated with PMS
 - Registered patients



Methods cont . . .

- Patient EMRs audited:
 - Seen by eligible + consenting GP
 - 4-week period, 1 month after 1st use of Predict
 - Same 4-week period 12 months previously
 - **Required CVD risk assessment according to NZ guidelines (age/sex/ethnicity) ie high risk population**
 - All Maori; 15% random selection of non-Maori



Methods cont . . .

- Variables audited included:
 - Smoking status:
 - Current
 - Non
 - Past (not smoking 12 months)
 - If smoking status was recorded:
 - Read-coded
 - Not Read-coded

● ● ● | Methods cont . . .

- Mixed logistic regression model
 - GP (primary sampling unit; random effects)
 - Practice
 - Patient characteristics (age group, sex, ethnicity, CVD, DM, HUHC, CSC)
 - Predict (pre vs post)

● ● ● | Results - GPs

- 84/104 (78.5%) participated
 - 18 declined
 - 4 on leave
 - 1 could not be contacted
- Non-participants vs participants:
 - More likely to have had Predict installed later
 - Age, sex, mean number of years since graduation similar



Results –EMRs

- 3564 EMRs audited
 - 1680 pre-Predict (Aug 01-Jun 03)
 - 1884 post-Predict (Aug 02-Jun 04)
- Pre-vs post-Predict EMRs
 - Smaller proportion with CVD (19.5 vs 23.0%)
 - Age, sex, ethnicity, DM, HUHC and CSC similar



Results – recording of smoking status (Maori)

	Pre-PREDICT-CVD		Post-PREDICT-CVD	
	n	%	n	%
Total EMRs audited	474		484	
Smoking status recorded (among all EMRs audited)	235	49.6	287	59.3
Smoking status Read-coded (among EMRs with smoking status recorded)	117	49.8	147	51.2



Results – recording of smoking status (non-Maori)

	Pre-PREDICT-CVD		Post-PREDICT-CVD	
	n	%	n	%
Total EMRs audited	1206		1400	
Smoking status recorded (among all EMRs audited)	462	38.3	670	47.9
Smoking status Read-coded (among EMRs with smoking status recorded)	288	62.3	449	67.0



Results – mixed logistic regression model

- Factors associated with increased recording of smoking status:
 - PREDICT OR 1.60 (1.4-1.9)
 - Male sex OR 1.27 (1.1-1.5)
 - Maori OR 1.78 (1.4-2.2)
 - CVD OR 1.44 (1.2-1.8)
 - Diabetes OR 2.40 (1.9-3.0)



Results – mixed logistic regression model

- Factors associated with increased Read-coding of recorded smoking status:
 - PREDICT OR 1.41 (1.1-1.8)
 - Diabetes OR 1.63 (1.2-2.)



Results – smoking prevalence

- Post-Predict vs other methods*
 - ACNielsen 2002
 - Census 1996 (NB no smoking question in Census 2001)
- Post-Predict generally greater
 - ? Smokers more likely to have smoking status recorded
 - ? Smokers more likely to see GP

* Couldn't compare with HHS



Key findings

- Majority of EMRs did not have smoking status recorded
- Even if recorded, large proportion did not have smoking status Read-coded
- Installation of Predict associated with an increase in:
 - Recording of smoking status
 - Read-coding of recorded smoking status



Study validity

- Only able to measure smoking status if documented electronically
- Accuracy of smoking status not verified
- Not an RCT but:
 - Pre- and post-Predict groups similar demographics
 - No significant changes in health practice over time of the study



Generalisability

- GPs members of the same EDS-supportive PHO and were adopters of an electronic decision support system
→ ? Overestimate of recording



Comparison with other studies

- Similar to other GP EMR morbidity studies in NZ
- UK GPs recording and coding smoking status more than NZ GPs
 - Why?
 - ? Points and therefore funding associated with recording of smoking status and referral to smoking cessation services in UK



Conclusions

- Poor results despite:
 1. Importance and priority given to recording smoking status
 2. Increasing need for accurate and useful info to enable reorientation of primary health care
- Installation of EDSS, eg Predict, may
 - ↑ recording and Read-coding
 - ↑ data availability and accessibility



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