

Original Research Article

Utilisation of physician reminders about smoking cessation improves patient outcome

Mohammed Qasim Darr*, Sanaulla Sheik

Department of Family Medicine, Primary Health Care Corporation, Doha, Qatar

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*Correspondence:

Dr. Mohammed Qasim Darr,

E-mail: m.q.darr@doctors.org.uk

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ABSTRACT

Background: Smoking is a major risk factor for cardiovascular disease and is prevalent amongst 18-64-year-olds (31.9%) in Qatar. Disease prevention through health promotion remains the cornerstone of physicians workload in primary care. Physician reminders (PR) be it electronic or physical can prompt doctors to offer smoking cessation services, hopefully reducing disease burden. The objective was to improve the identification of smokers and provision of smoking cessation services using a PR system in primary care.

Methods: A prospective quality improvement project in a primary care health centre focusing on physician practices towards smokers. We analyzed physicians' documentation post consultation looking for specific end points like use of the code "smoker" and referral rates to the smoking cessation clinic (SCC). Data was collected with and without use of a PR (used to identify smoker) and then compared for the difference in documentation and services offered.

Results: The use of a physician reminder vastly improved the identification of smokers. This led to an increase in the use of the code 'smoker' by physicians by 43.5%. Documentation of smoking status and the provision of smoking cessation counselling both improved by 32.8%. There was an increase in referral rates (18.8%) to the SCC due to use of the physician reminder. There was a 7.9% rise in smokers attending the SCC.

Conclusions: Using a physician reminder helped to improve the identification of smokers and patient provision of smoking cessation services such as referral to the SCC. Repeating the study using an electronic physician reminder incorporated within the EMR system would be beneficial given the findings from this study.

Keywords: Documentation, Physician reminder, Smoking

INTRODUCTION

Smoking is an important risk factor for cardiovascular disease. In 2012, Qatar STEPS survey found 31.9% prevalence of smoking tobacco in 18-64yr age group.¹ Primary Health Care Corporation (PHCC) guideline defines smoking as "the inhalation in any way or form of the smoke of burning tobacco encased cigarettes, pipes, cigars and other type of smoking including e-cigarettes, shisha etc".² The risk of cardiovascular disease (CVD) is much higher in people who smoke tobacco compared to those who do not smoke. Qatar has high prevalence of people with diabetes (13.9%) according to IDF atlas.³

Having smoking habit in a person who is diabetic or metabolic syndrome further increases the risk of CVD. According to Center for Disease Control and Prevention, US, (CDC), smokers are 30-40% more likely to develop type 2 diabetes than those who do not smoke tobacco.⁴ Preventive medicine is a PHCC strategy and advising on smoking cessation would prevent many people developing chronic illnesses like COPD, CVD and decrease incidence of lung tumors. For this reason, PHCC guidelines on patient medical assessment recommends that every adult patient should be asked about smoking habit by a physician or dentist and advised as necessary.⁵

Physician reminders are tools which help prompt doctors complete key tasks in a timely manner. These reminders can be in a physical form like a post on a notice board or a sticker over the computer monitor and many more. They can also be in an electronic form like an email, an alert, a notification, pop up, or an update. The alert will pop-up whenever the required input like a diagnostic code or a lab test request is entered. Research has shown that physician reminders can improve the patient care by keeping the healthcare providers up to date on current clinical guidelines and best practices.

In current practice, patients were infrequently being asked about their smoking status unless they were attending a chronic disease review clinic or perhaps when presenting with respiratory symptoms. Despite there being a social assessment tool on the current electronic medical record (EMR) system which includes documentation of smoking status and the offering of smoking cessation counselling, the completion rate is low. Further the social assessment tool is not easily accessible on the EMR system and so it seldom used by any of the physicians. So clearly there was need for an intervention.

Primary care is synonymous with opportunistic screening and with the increased footfall in such clinical settings, we are missing a chance to offer counselling to smokers and perhaps improve their overall health.

However, there are barriers to accessing the smoking cessation clinics (SCC) in the locality. Culturally, some patients do not wish to disclose their smoking status and feel a sense of guilt or shame attached to smoking. Further, the closest smoking cessation clinic is about 10 km away from where the QI project was being conducted. So, distance is another issue which limits access to SCC's.

Currently, SCCs are only offered in designated health centers. Though the physician in general clinic can counsel on stopping smoking, they will however not be able to prescribe any pharmacotherapy to support their patients. They must refer the patient to the designated smoking cessation clinic for an appointment on another day. We feel that this is a missed opportunity and every physician in general clinic should be trained and utilized for the purpose of smoking cessation intervention.

Given the potential long-term consequences of smoking, we felt it was necessary to focus on smoking as an important modifiable risk factor. This would be done through utilization of physician reminders to encourage smoking cessation counselling and onward referral to the smoking cessation clinics.

There is good evidence which shows that physician questioning about smoking status and thus advising to stop smoking, doubles the success rate of smoking cessation.⁶ Not obtaining the smoking history could be

regarded as a missed opportunity to encourage health promotion and disease prevention.

Our aim in this project was to improve the provision of smoking cessation advice/counselling given by physicians through a physician reminder system. By doing so we hope to improve the referral rate to the smoking cessation clinic and thus clinical intervention provided to patients. In turn, we hope this will have a knock-on effect and reduce morbidity and mortality associated with smoking. Although the latter was not being measured in this QI project.

We hypothesized that physician reminders would increase the identification of smokers and thus improve the smoking cessation counselling given to patient and increase referral rates to the SCC.

METHODS

This was a prospective quality improvement project carried out at Al Khor health centre, Primary health care corporation (PHCC), Qatar between November 2020 and January 2021.

As baseline, pre-intervention data was collected for 1 month during November 2020 on physician practices towards smokers. The data collected included, number of smokers identified (tobacco and shisha), smokers that were coded correctly, the numbers offered advice/counselling to stop smoking and those offered referral to smoking cessation clinic and the number of patients seen in SCC.

All physicians were interviewed individually and informed about the process of quality improvement project. They were informed about the initial baseline data and given feedback on their current management of smokers. They were also made aware of local PHCC clinical guideline on tobacco smoking and the availability of a 'smoking cessation clinic' at a nearby health centre and hospitals. Finally, they were briefed about the intervention taking place in form of a 'physician reminder' system which would aid identification of smokers and thus act a prompt for physicians to offer smoking cessation services.

The intervention

The physician's reminder card

During the nurse triage process, any patient with history of smoking would be given a small blue laminated card along with a patient identifier sticker. The patients were informed to hand this to the attending physician for consultation. This would serve as a reminder for the physician to ask the patients about their smoking habits.

Post intervention, data was collected for 1 month during January 2021. The parameters which were collected at the

end of both phases were: number of patients being identified and coded as smokers; number of patients with history of smoking tobacco being given advice/counselling on stopping smoking (management plan documented); number of patients with history of smoking tobacco being referred to smoking cessation clinic; number of patients with history of smoking tobacco being seen in the smoking cessation clinic.

Post intervention results were compared with the baseline data which was collected at the start of the QI project. Microsoft excel was used to tabulate data for both pre and post intervention data. The data was then converted into bar charts to compare the end points between both phases. The data was represented as a percentage of total number of smokers triaged during each phase of the project.

Selection criteria

All adult patients visiting the health centre as walk-in or with appointments (but excluding any emergency cases) were questioned about their smoking habits. The sample

size for each phase of the was determined by number of smokers that were identified within the time frame for each phase.

RESULTS

The initial data collected validated the need for a physician reminder system as documentation of smoking status, coding, offering of smoking cessation advice and referral rates to the SCC were very low. Without the physician reminder (blue card), the percentage of smokers that had their smoking status documented on the EMR was only 17.6%. A further 14.7% had a smoking management plan/counselling documented. However, none of these patients were coded as a “smoker” and neither were any of these patients referred on to or seen in the smoking cessation clinic (Table 1).

With a physician reminder (blue card), smoking status was recorded 50.4% of the times. That’s an improvement of almost 33% (Figure 1) as compared to when no physician reminder system was used.

Table 1: End point data for both phases represented in figures and percentages.

	Pre-intervention (no. of patients)	Pre-intervention (%)	Post-intervention (no. of patients)	Post-intervention (%)
Smoking history documented by Triage nurse	34	7.7	101	15.3
Smoking status documented by doctor	6	17.6	51	50.4
Smoking cessation management plan documented	5	14.7	48	47.5
Patients coded as “smoker”	0	0	44	43.5
Referred to smoking cessation clinic	0	0	19	18.8
Stop-smoking clinic attended	0	0	8	7.9
Total Number of patients triaged	439	-	657	-

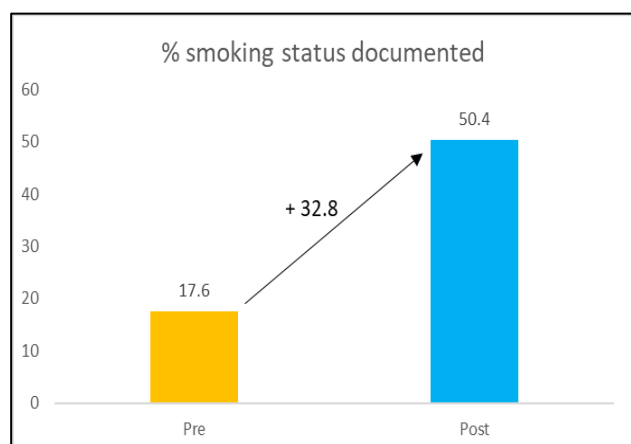


Figure 1: Comparison between smoking status documentation.

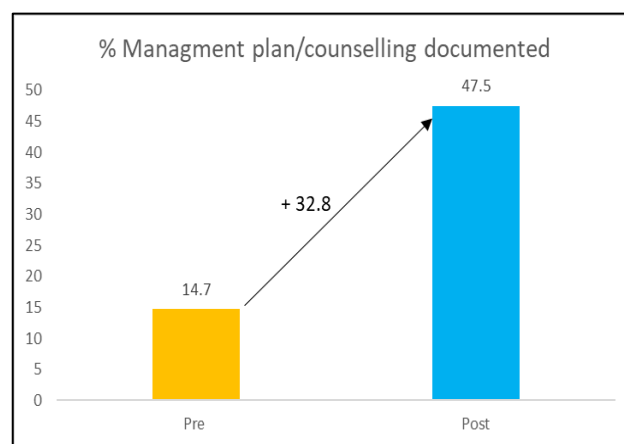


Figure 2: Comparison between management plan/counselling documentation

Smoking cessation counseling/management plan was documented approximately 47.5% of the time by physicians that received the reminders cards as opposed to 14.7% without the physician reminder. So, a smoker is three times more likely to receive smoking cessation advice if the physician is reminded of his smoking status at the start of the consult (Figure 2).

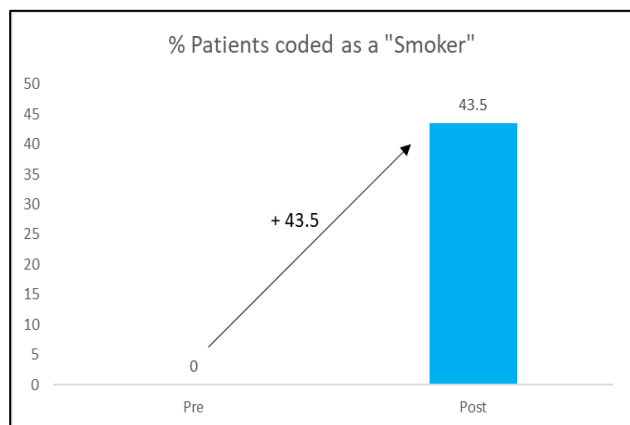


Figure 3: Comparison between use of code: “smoker”.

There was an improved rate of coding too by the physicians. 43.5% of identified smokers were now read coded as smokers when the physician reminder was used (Figure 3).

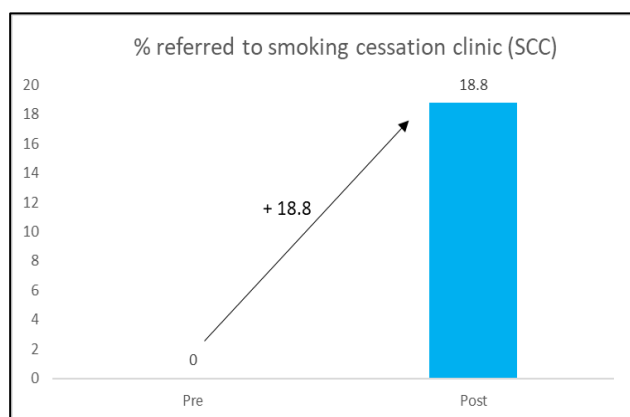


Figure 4: Comparison between referral rates to SCC.

Moreover, referral rates to the smoking cessation clinic (SCC) increased by almost 19% when the physician reminder card was used as opposed to 0% when there was no physician reminder. This approximates to one in every 5 identified smokers being referred to the SCC (Figure 4).

A physician reminder meant that almost 8% more smokers were seen in SCC as compared to when no reminder was used (Figure 5).

To note, of those 19 patients referred to the SCC, 42% (8 patients) went onto being seen in the SCC clinic, which is almost half of the patients that were referred.

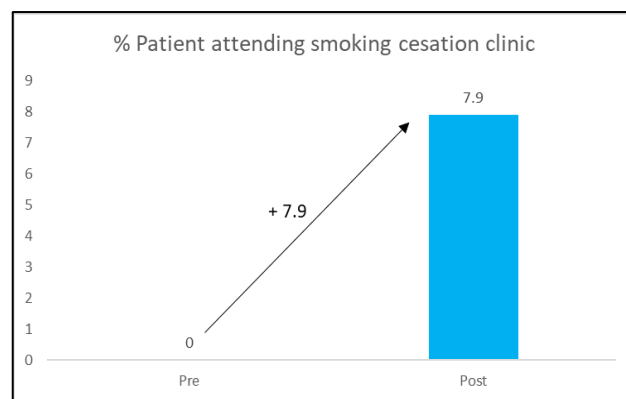


Figure 5: Comparison between patient attending SCC.

Clearly more can be done by physicians to combat smoking but results are encouraging with implementation of a physician reminder system for smoking as smokers are 47% more likely to be counselled on quitting smoking and approximately 19% more likely to be referred onto a SCC when compared to not using physician reminders. The numbers transpire to shows that almost 1 in every 5 smoker was being referred onto the SCC.

DISCUSSION

Physician reminders are a form of tools which help the physician with patient care and improve the outcome. The physician reminder could be a computerised reminder like a pop-up or an alert on the use of respective data inputs like read-codes or diagnosis or management plan. The automatic digital reminders in response to a trigger would be efficient as no human input is required to trigger the reminder. These are being used in many healthcare facilities across the globe to improve the system efficiency, quality of care and better patient health out-comes. A similar physician reminder system in the form of checklist on the gestational diabetes mellitus patient chart had increased the odds of being screened for gestational diabetes mellitus during postpartum by 3 fold and follow-up postpartum visit by 4 fold.⁷

A data-driven clinician reminder system based on computer order entry by the clinicians has shown to reduce the length of stay, diagnostic test charges and pharmacy charges.⁸

In a meta-analysis study of RCTs on reminder-based interventions, the authors found statistically significant increase in patient adherence to medication of 66.61% compared to 54.71% of the control groups.⁹

The preventive care measures like vaccinations, cancer screening are under-utilised by the by the healthcare system.¹⁰ In the meta-analysis, the authors found that clinician reminders increased rates of delivering preventive care, especially cardiac care and smoking cessation reminders, though their effectiveness remained modest.¹¹

All physician reminders may not be beneficial. The physician reminders for long term effectiveness should be dynamic. In a study, the authors found that a fixed reminder over one year did not bring any statistical benefit in management of patients with coronary artery disease.¹² The author believes that it could be desensitization of the physicians for long term fixed reminder causing its lack of efficiency.

The reminder system would be effective when the patients are reminded compared to the physician reminder. In a comparison study on preventative procedures in primary care setting, the randomised controlled trial of 8502 patients found that the patients who received reminders either by phone or by letter had 42% chances of completion of procedure, compared to 33.7% of that where only physician reminder was done.¹³

The physician electronic reminders may have to be sent more than one time to be effective. In a randomised controlled study, the authors found that the screening for colon cancer was higher among patients with 3 or more primary care visits with electronic physician reminder than those with single visit (59.5% versus 52.7%), and the same RCT involving 21860 participants, found that the screening rates were similar among single visit patients of physicians receiving electronic reminders and the control group (41.9% versus 40.2%).¹⁴

Similarly, the reminders can be used in many other areas of practice like chronic disease management, cancer prevention, emergency admissions to A and E department, laboratory investigations or imaging, preventive practices including vaccinations and more. These can also be helpful for physicians to keep track of details like vaccination schedules, medication renewals and follow-up appointments.

The limitations of the study were that the sample size was not equally comparable and this due to the fact we wanted to give each phase the same time frame to collect data. Further, discussing smoking habits is a taboo in middle eastern culture and it is also possible that some patients didn't feel comfortable discussing this. Our project has a small sample size. This could be increased by doing the same project in bigger primary care centers or by increasing the duration of the project. The population represents the residents in Qatar and there may be difference in outcome if this project is run in other parts of the world, so thus may not be representative of all population samples. So, there is a need for a bigger prospective qualitative study to be done in multi-centers around the globe to know the impact of physician reminders.

CONCLUSION

Tobacco use is responsible for more than 8 million deaths around the world per year. On its own, smoking is a leading cause of preventable illness and death

worldwide.¹⁵ Although behavioral therapy and pharmacotherapy are each effective interventions for increasing quit rates when used alone, combining them is more effective and represents the “gold standard” in smoking cessation treatment.¹⁶ Therefore, it is imperative that we have smokers referred to the smoking cessation clinic to receive expert intervention.

Our project has demonstrated the positive effect of using a physician reminder system to increase identification of smokers and improve referral rates to SCC. We hope in turn this is more likely to lead to more patients giving up smoking and thus reduce the chances of developing chronic disease. Incorporation of an EMR equipped with an automated physician reminder would be further recommendations that we endorse in promoting smoking cessation.

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