

Is there a role for community pharmacists in promoting oral health?

R. S. Mann,¹ W. Marcenes¹ and D. G. Gillam^{*2}

IN BRIEF

- Highlights that community pharmacists can play an important role in oral health promotion.
- Proposes that the addition of specific oral health subjects in the pharmacy curriculum may enable pharmacists to provide better oral health advice.
- Suggests that collaboration between pharmacists and other healthcare professionals could offer more effective oral health promotion strategies.

Aim The main aim of the present study was to investigate whether pharmacists recognised that they have a role in the promotion of oral health advice within the community. **Methods** A cross sectional survey was conducted using a structured questionnaire which was distributed to randomly selected pharmacies (n = 1,500) in the London area. **Results** Six hundred and forty-five pharmacies (43%) responded to the initial invitation and 589 (39%) of pharmacy participants acknowledged that pharmacists should have a role in oral health promotion. Participants from 354 pharmacies (23.6%) subsequently agreed to complete the questionnaire. Of those pharmacies completing the questionnaire, 99.4% of the pharmacy participants recognised that there was a role for pharmacists in oral health promotion. Although 91.5% of the pharmacists reported a fairly high level of knowledge for most of the common oral conditions, they also indicated that they were interested in receiving further training on oral conditions through continuing professional development (CPD) courses. A number of the pharmacies (72.5%) expressed a willingness to incorporate oral health promotion within the NHS pharmacy contract. **Conclusion** Pharmacies may be used effectively in oral health promotion by virtue of their frequent contact with members of public. As a result of their established role in promoting and improving the health within the community, it may possible to incorporate oral health within the existing NHS contract.

INTRODUCTION

Oral health is fundamental for both general health and wellbeing; therefore, oral health education should be incorporated in any proposed healthcare promotion within the community. It has been reported that oral conditions affect approximately half of the world's population and some 3.9 billion people suffer from a variety of oral diseases (dental caries, periodontal disease etc) which form a significant global burden of disease.¹ Therefore, in the future, public health services may face a severe challenge to their ability to maintain an adequate health service. This burden will have a major impact on both the health and economy of nations. The response to this mounting burden of disease is for health services to focus on preventing disease by incorporating health promotion into existing services, thereby maximising the available resources in order to safeguard future resources.

It is evident that health promotion requires a multidisciplinary approach. Recently, pharmacists have been considered for an active and more integrated role in the preventive services within the National Health Services (NHS).² The General Pharmaceutical Council, UK listed the primary role of the pharmacist to 1) supply medicine to the patients and 2) check the quality of medicine provided. They also advise patients about medications, frequency of intake, and possible adverse reactions, as well as answering to any other queries related to medications. Pharmacists may also have a key role in providing quality healthcare to patients and they are currently being promoted as the first point of contact in the UK.³

Pharmacists are ideal for this type of extended role because pharmacies have extended opening hours, convenient accessibility, are frequently visited and are based within the centre of the local community. Furthermore, the pharmacist may be asked for advice related to oral conditions by individuals who lack access to dental care services and those from the lower economic strata of the society.⁴ Teamwork has always been acknowledged as a fundamental concept in delivering oral care. Therefore, pharmacists may liaise and cooperate with local dental practitioners in order to meet the needs of the population.⁵

The new NHS pharmacy contractual framework identifies three tiers of services to be provided by UK pharmacists: 1) essential services, 2) advanced services and 3) enhanced services. The contract states that essential services must be provided by all community pharmacists, although they are allowed to choose whether they want to provide advanced or enhanced services.⁶ Of these essential services two are of note in the context of the present study: 1) the promotion of public health² and 2) the provision of a referral service for pharmacy clients to other health professionals.⁶

There is existing evidence on the effectiveness of pharmacists in health promotion in other areas of healthcare and therefore, there is currently a real opportunity to use the knowledge and skills of the pharmacist in oral health promotion.⁷ For example, published studies from various countries have demonstrated the effectiveness of the pharmacist in providing services in certain areas of health: toothache management,⁴ sugar free medications,⁸ smoking cessation, hyperlipidemia, diabetes, contraception and osteoporosis.⁹

However, there are limited data available that support the role for the community pharmacist in oral health promotion and prevention. This is despite the various

¹Dental Public Health/Clinical and Diagnostic Oral Sciences; ²Centre for Adult Oral Health, 4th Floor, Institute of Dentistry, Barts and The London School of Medicine and Dentistry, QMUL, London, E1 2AD
^{*}Correspondence to: David Gillam
Email: d.g.gillam@qmul.ac.uk

initiatives that have encouraged the pharmacy profession to move towards a more active and integrated role in healthcare with an emphasis on the prevention of the various health concerns within the community.⁷ The main aim of this study was to collect any relevant information on the potential role of pharmacists in the promotion of oral health advice and to determine the level of knowledge that pharmacists may already possess concerning oral health. This would help identify any future training requirements that may enhance their overall knowledge of oral conditions.

METHODOLOGY

This quantitative study adopted an observational cross-sectional survey design. The study was conducted between January 2013 and September 2013. Ethical approval was obtained from the Queen Mary Research Ethics Committee, London, United Kingdom (Reference number QMREC1174).

The sample frame included all ($n = 2,563$) pharmacies registered with the NHS (<http://www.nhs.uk>) in the London area. All pharmacies having direct contact with members of the public were eligible to participate in the study. These included any pharmacies in a community setting; for example, hospital attached pharmacies, retail stores, independent pharmacies and pharmacy chains. Ancillary staff, for example, dispensing assistants working at these sites were not invited to participate in the present study. Any pharmacies in other sites not designated as situated in a community setting (for example, industrial pharmacies, nuclear pharmacies, research pharmacies, veterinary pharmacies and those pharmacies not having any direct contact with the public) were also excluded from the study.

A total of 1,500 pharmacies were selected and invited to participate in the study. The sample was selected using a simple random sample selection technique. Computer random number sequence generation using the Statistical Programme for Social Sciences (SPSS v. 21, IBM UK Guildford) was carried out to select the pharmacies randomly from the sampling frame.

An invitational letter was sent to each of the selected pharmacies to determine whether a pharmacist would be willing to participate in the study. All pharmacists having direct contact with members of the public were eligible to participate in the study.

Data collection was conducted using a structured questionnaire. The pharmacists were asked for their preferred method for completing the questionnaire, by an online survey or through a postal questionnaire. An email, containing a web link and information

on how to complete the web survey, was sent to those participants who preferred the online approach. Participants who preferred a hard copy were sent a postal questionnaire with a stamped addressed return envelope. A second reminder was subsequently sent to those pharmacists from whom the response to the initial invitation was not obtained. A third and final reminder was made by contacting any of the non-respondents by telephone contact (carried out a single author: RSM).

A questionnaire was constructed to specifically address the role of pharmacists in oral health promotion. The questionnaire included a cover letter and 17 multiple choice and open ended questions. It was divided into six sections collecting information on (1) the demographic characteristics of the pharmacists; (2) the perception and attitude of pharmacists in oral health promotion (measured on five point scale from strongly agree to strongly disagree); (3) the confidence level of the pharmacists when delivering advice on oral health problems (also measured on five point scale from strongly agree to strongly disagree); (4) the pharmacists' involvement in the provision of services for oral diseases and the level of interest expressed by pharmacists in receiving further training on oral conditions; (5) their awareness about providing referral services for their clients to external sources (for example, general dental practitioners [GDPs]); (6) the willingness to incorporate oral health promotion as a part of the NHS pharmacy contract (also measured on five point scale from strongly agree to strongly disagree). A web-based version of the questionnaire was designed using an online survey tool (Bristol Online Survey) made available from the University of Bristol, UK.

The data were analysed using the Statistical Package for Social Science (SPSS v. 21) (IBM UK Guildford). The characteristics of the pharmacists were described using both descriptive statistics and frequency distributions of the variables.

RESULTS

A positive response to the invitation to participate was received from 583 pharmacies (39%). The sample was composed of 386 (66.2%) independent pharmacies, 118 (20.2%) retail stores and 79 (13.6%) pharmacy chains. A pharmacist in each pharmacy agreed to answer the questionnaire. All answered the question about 'whether they perceive a role for pharmacists in oral health promotion?' However, the number of completed questionnaires was poor and only 354 provided an answer to *all* relevant questions (23.6%).

Table 1 Demographic characteristics of the participants ($n = 354$)

Demographic characteristics	N (%)
Gender	
Male	201 (56.8%)
Female	153 (43.2%)
Age	
20–29	56 (15.8%)
30–39	118 (33.3%)
40–49	118 (33.3%)
50–59	55 (15.5%)
>60	7 (2%)
Years since graduation	
≤5	62 (17.5%)
6–14	65 (18.4%)
15–24	111 (31.4%)
25–34	86 (24.3%)
≥35	30 (8.5%)
Access to journals	
Yes	340 (96%)
No	14 (4%)
Continuing professional education entries*	
≤9	5 (1.4%)
10–29.9	86 (24.3%)
30–49.9	185 (52.3%)
50–69.9	47 (13.3%)
70–89.9	14 (4.0%)
≥90	17 (4.8%)

*Pharmacists are required to make a minimum of nine CPE entries per year which reflect the context and scope of their practice. Most registrants will be expected to have at least 45 entries in their CPE records over a 5 year period.

A total of 354 participants provided the requested demographic information. The mean age of the respondents was 40.18 years with a standard deviation 9.62 years; the age range of the participants was from 24 to 69 years. Two hundred and one (56.8%) of the participants were male and 153 (43.2%) were female.

A total of 583 out of 645 participants from the pharmacies (90.4%) stated that they perceived a role for pharmacists in oral health promotion. Three hundred and forty out of 354 (96.0%) participants reported that they had access to journals or regularly read journals; only 14 (4.0%) of the participants reported having no access to any journal. Three hundred and forty-nine (98.6%) participants reported completing more than the required continuing professional education (CPE) entries as set by the General Pharmaceutical Council (UK) (annual requirement nine CPE entries). Only five (1.4%) participants reported that they did not meet the required standard for CPE (Table 1).

The perception and attitude of pharmacists to oral health promotion

Three hundred and fifty-two (99.4%) of the participants agreed with the statement 'that

Table 2 The perceived level of confidence by participants when asked the question 'I have sufficient knowledge about oral health to advice patients correctly' (n = 354)

Dental Problems	Strongly agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly disagree N (%)
Teething	139 (39.3)	151 (42.7)	59 (16.7)	5 (1.4)	0
Lost dental fillings	64 (18.1)	201 (56.8)	62 (17.5)	27 (7.6)	0
Loose crowns	28 (7.9)	180 (50.8)	85 (24.0)	61 (17.2)	0
Bleeding gums	96 (27.1)	207 (58.5)	33 (9.3)	18 (5.1)	0
Trauma to teeth	12 (3.4)	80 (22.6)	131 (37.0)	100 (28.2)	31 (8.6)
Bad breath	72 (20.3)	202 (57.1)	51 (16.7)	18 (5.1)	3 (0.8)
Denture problems	50 (14.1)	182 (51.4)	81 (22.9)	38 (10.7)	3 (0.8)
Cold sores	100 (28.2)	165 (46.6)	53 (15.0)	28 (7.9)	8 (2.3)
Dry mouth	101 (28.5)	222 (62.7)	22 (6.2)	9 (2.5)	0
Sensitive teeth	121 (34.2)	197 (55.6)	30 (8.5)	6 (1.7)	0
Discoloured teeth	57 (16.1)	149 (42.1)	100 (28.2)	45 (12.7)	3 (0.8)
Gum diseases	63 (17.8)	174 (49.2)	86 (24.3)	31 (8.8)	0
Tobacco-related dental problems	65 (18.4)	159 (44.9)	99 (28.0)	31 (8.8)	0
Oral ulcer	156 (44.1)	173 (48.9)	22 (6.2)	3 (0.8)	0
Oral cancer	9 (2.5)	40 (11.3)	105 (29.7)	124 (35.0)	76 (21.5)

Table 3 The reported perceived benefit by the participants (%) on the opportunity for future training (including advice) in different oral conditions (positive responses) (n = 354)

Dental conditions	Yes N (%)	Dental conditions	Yes N (%)
Teething	210 (59.3%)	Sensitive teeth	244 (68.9%)
Lost dental fillings	292 (82.5%)	Discoloured teeth	287 (81.1%)
Loose crowns	283 (79.9%)	Gum diseases	286 (80.8%)
Bleeding gums	264 (74.6%)	Tobacco related dental problems	301 (85.0%)
Trauma to teeth	310 (87.6%)	Oral ulcer	244 (68.9%)
Bad breath	243 (68.6%)	Oral cancer	345 (97.5%)
Denture problems	278 (78.5%)	Dry mouth	254 (71.8%)
Cold sores	221 (62.4%)		

they had a role in oral health promotion'; only two (0.6%) pharmacies disagreed with this statement.

The confidence level of the pharmacists when delivering advice on oral health problems

The participants reported that they were highly confident when giving advice on most oral health problems apart from the more complex oral conditions (for example, oral cancer). The participants reported they were very confident or confident when giving advice in relation to teething, bleeding gums, bad breath, cold sores, dry mouth, sensitive teeth and oral ulcers. They were fairly confident when giving advice in relation to

lost dental fillings, loose crowns, discoloured teeth, gum diseases, tobacco-related dental problems. The respondents reported that they would be less confident when giving advice on trauma to teeth and oral cancers (Table 2).

Pharmacists' involvement in the provision of services (advice/recommendation) on oral problems

Treatment of 'toothache' 331 (93.5%), 'oral ulcers' 312 (88.1%) and 'teething' 270 (76.3%) were the most frequently reported oral conditions on which the participants (pharmacists) provided advice. The frequency of advice on other oral conditions was as follows: 'mouth-wash' 205 (57.9%), 'toothbrush' 158 (55.4%), toothpaste advice 186 (52.5%), 'bleeding

gums' 181 (51.1%), 'sore mouth' 154 (43.5%), 'tooth whitening' 117 (33.1%), 'denture-related problems' 95 (26.8%), and 'other' 29 (8.2%).

The pharmacists' interest in additional training on oral conditions and its perceived benefit

The majority of the participants reported that they were interested in receiving future training on oral health conditions. Three hundred and thirty-six (94.9%) of the participants reported a positive response when asked about whether they would be interested in participating in a future CPD programme. However, the response by the participants varied depending on the particular oral condition. For example, 210 (59.3%) of the participants reported the benefit of future training on teething whereas 345 (97.5%) of the participants perceived a benefit for future training on oral cancer problems (Table 3).

Referral of customers by the community pharmacists to a GDP

Two hundred and sixty-four (74.6%) of the participants reported that they provided referrals services to a GDP on the various oral conditions, whereas 90 (25.4%) of participants reported that they did not provide any referral service. Out of 264 (74.6%) participants who provided referral services, 245 (92.8%) participants reported that they were aware of the location of the local GDP, 147 (45.7%) of participants also reported that they were aware of the local GDP's hours of opening.

The provision of oral health promotion in the pharmacists' NHS pharmacy contract

Three hundred and twenty-seven (92.4%) of the participants reported that they did not have oral health promotion as part of their pharmacy contract. Only 27 (7.6%) of the participants reported that oral health promotion was part of their pharmacy contract.

Out of the 327 pharmacies who did not have oral health promotion as part of their pharmacy contract, 238 (72.5%) of the pharmacies expressed a willingness to include oral health in the NHS contract.

DISCUSSION

Six hundred and forty-five participants from the pharmacies (43%) responded to the initial invitation and 583 (39%) positively acknowledged that pharmacists have a role in oral health promotion. Three hundred and forty-four pharmacists (23.6%) subsequently agreed to complete the questionnaire. Although the response rate from the pharmacies to the question 'whether pharmacists

recognised that they have a role in the promotion of oral health' was acceptable; it may be conceded that the numbers who actually completed the full questionnaire were significantly smaller. The lower response rate may have impacted on the results; and therefore, further research (with larger numbers) is needed in order to confirm the results from the present study.

The role(s) of the pharmacy (and pharmacist) are currently undergoing major changes, particularly with regard to their position as clinical expert providers. The services of the pharmacist are also being channelled to provide (and deliver) both quality and cost effective healthcare to their clients. A previous study, conducted in Montreal, Canada, reported that the community pharmacists perceived a potential role in the various health promotion activities; for example, smoking cessation, hypertension, dyslipidaemia, diabetes screening and counselling on sexual health.⁹ A recent systematic review also examined the pharmacists' viewpoint on public health matters and concluded that most of the pharmacists viewed public health promotion as an important part of their service role.¹⁰ A similar web-based survey conducted on pharmacists in Canada also concluded that over 60% of the pharmacists were keen to be actively involved in undertaking new roles in public health and 70% of pharmacists wanted to expand their roles in public health.¹¹ A positive outlook regarding the potential contribution to the provision of oral health has also been reported.¹² From these studies it would appear that pharmacists would be willing to pursue a more proactive role in oral health promotion.

The community pharmacies who participated in the present study considered themselves to be fairly confident when giving advice on certain oral health conditions; for example, teething, mouth ulcers, dental pain and sensitive teeth. However, they also reported that they were less confident when giving advice on more complex oral conditions, for example, trauma to teeth and oral cancers. The results of the present study are also in agreement with the conclusions of other studies where the pharmacists reported that they were fairly confident when giving advice on toothache and mouth ulcers.¹³ According to an American study, only 30% of community pharmacists were confident in dealing with oral cancers,¹⁴ and those results appear to be consistent with the results from this present study. One positive outcome of the involvement of pharmacists in oral health promotion was that by giving advice on simple ailments they may in turn decrease the workload of the GDP.¹⁵

The pharmacist occupies a frontline position when advising on the prevention,

identification, assessment and management of oral diseases; for example, the promotion of topical fluorides in the form of toothpaste; use of soft filament toothbrushes; promoting healthy eating; encouraging the use of dental services and preventive therapeutic measures; and providing information, motivation and skills relating to the prevention of oral diseases.¹⁶ Pharmacists also play an important role in the prevention of both dental caries and periodontal diseases by advising their clients on the use of fluorides, and by providing dietary recommendations and advice on the benefits of good oral hygiene, sugar-free medications and regular visits to the dentist.¹⁷ According to the results of the various published studies, the most frequently provided advice by the community pharmacists was on mouth ulcers, toothache and teething.^{5,13} Furthermore, according to these studies an individual would be more likely to consult a pharmacist (than a dentist) on a toothache problem as this is an acute, painful condition which may severely disrupt the daily activities of the individual as well as having an impact of their quality of life. As a result the individual would require some advice or treatment recommendation (for example, over-the-counter [OTC] medication) in order to relieve their pain. Therefore, it may be more convenient for the individual to consult a pharmacist as the waiting time is generally faster than arranging to see a dentist for emergency treatment.⁴ A further observation from the published studies was that individuals from the lower socio-economic strata may lack access to private dental practices and subsequently may take an alternative route to consult pharmacists on oral conditions.¹⁸ The pharmacists may also be approached by individuals seeking advice on general health and it would be more practical for pharmacists to be employed in providing advice on oral health conditions.¹⁹ Thus, a trained pharmacist may be able to provide the appropriate advice on oral health conditions to the members of public.

In the present study, approximately 94.9% of the pharmacies who completed the questionnaire were interested in receiving further training (for example, CPD). However, this response varied depending on the complexity of the condition, for example 97.5% of the pharmacies perceived a benefit of further training on oral cancer (awareness), whereas 59.3% were interested in future training for advice and treatment on teething problems. Previously, pharmacists have been reported to receive limited training in the management of dental problems.²⁰ This would appear to be in contrast to the American model where pharmacists appear to be well informed with

regard to common oral conditions and their subsequent management.²¹ The requirement for further training on oral care conditions has also been expressed by pharmacists in other studies; for example, 65% of the pharmacists expressed an interest in developing their oral healthcare knowledge by attending more courses that focused on oral health.⁵ The incorporation of modules on oral health in both undergraduate training and postgraduate CPD programmes focusing on oral health should therefore be developed to improve the pharmacists' knowledge on oral conditions. Each year pharmacists are required to participate on public health subjects through campaigns initiated by the various Primary Care Trusts (PCT's). The incorporation of oral health into these programmes may be beneficial and dental professionals should also be involved in order to maximise the impact on the community.⁷ The benefits of providing the pharmacists with the relevant training and support has also been reported to facilitate the improvement of the pharmacy environment which may in turn may encourage their customers to seek advice on oral conditions from the pharmacist.¹⁹ The need for additional training for the pharmacists on different public health services has been previously documented in a number of systematic reviews. Pharmacists have also reported that additional training was required to provide health promotion as well as significantly increasing their knowledge base in order for them to be more confident in providing the necessary advice to their customers.¹⁰ National campaigns and events may also provide an opportunity for increasing the awareness of pharmacists on the various health conditions, for example, the '2004 Oral Cancer Awareness week' with the aim to improve awareness on potential oral malignancies.²² The pharmacists are well established in the provision of primary healthcare service and their role as a primary healthcare team is emerging through the various healthcare reforms in many countries.²³ These results have demonstrated that investment should be implemented into the training curriculum for the pharmacists and more initiatives should be undertaken in order to use the pharmacists' potential in oral health promotion.

A number of customers also visit the pharmacy in order to seek some form of advice on mouth ulcers.²² The pharmacist can assess the customer's condition and recommend a suitable OTC product to relieve pain.²⁴ If the pharmacist suspects any potential malignancy, they can provide advice and an early referral to a dentist.⁵ Therefore, it is also important to recognise that pharmacists should develop a relationship with the local GDP. This relationship may in turn help benefit the GDP in the context of oral

health promotion as the pharmacists may have a more frequent contact with the members of public.⁸ For example, in the present study 74.6% of the pharmacies reported that were providing a referral service to a GDP. However, only 45.7% of participants from those pharmacies providing a referral service were aware of the office hours of the GDP. A similar study also reported that the pharmacists were not aware of the procedures for arranging an appointment with the GDP.¹² There is no doubt from these observations that there was scope for a better liaison between both pharmacists and GDPs in order to develop a mutual understanding at a local level for a more efficient referral pathway.⁷ Multidisciplinary meetings, as well as co-involvement during national campaigns and events, may also be implemented in order to bring the pharmacist and GDP together. This may in turn work towards the integration of the professions and deliver a more efficient healthcare service.

Recently, the pharmacy profession has undergone an enormous change in direction. Pharmacists have themselves appreciated their potential in both health promotion and disease prevention as a way to position their profession with other healthcare professionals, thereby serving the needs of the community more effectively.²⁵ Pharmacists also have a key role in providing quality healthcare to patients and they are currently being promoted as the first point of contact in the UK.³ The UK pharmacy contract has identified three levels of services.⁶ Presently, oral health promotion has not been incorporated in the pharmacy contract but the results from the present study reported that most of the respondents (72.5%) would be support this. Previous published studies have also identified that the lack of finance from the health authorities was a barrier to the pharmacist being involved in health promotion.⁵ Therefore, careful consideration should be made in order to provide both financial support and remuneration to enable pharmacists to provide a preventive service to their customers.

Most of the respondents of the present study were based at independent pharmacies. Pharmacists based at various UK pharmacy chains may have declined to participate in the study as the company policies did not include any commitment to a role in oral health promotion due to the lack of both support and resources. Furthermore, these pharmacy chains may focus predominantly on a business model rather than

furthering their scope of practice to include oral health promotion.

CONCLUSION

The results from the present study suggest that pharmacists recognise that they have a role in the promotion of oral health. Furthermore, pharmacists may also be effectively utilised in oral health promotion by virtue of their frequent contact with members of public. As a result of their established role in promoting and improving the health within the community it may possible to incorporate oral health within the existing NHS contract. The results from the present study clearly indicate that pharmacists from the participating pharmacies were interested in attending CPD programmes in order to expand their knowledge and gain confidence in providing the appropriate advice related to oral health conditions.

Recommendations

- The incorporation of modules specifically related to oral health advice and training in the undergraduate pharmacy curriculum
- The organisation of more continuing development programmes in oral health training for pharmacists
- The setting up of multidisciplinary meetings with other healthcare professionals to facilitate the smooth running of local services within the community
- Pharmacists should be provided with a register of GDPs within their local community, including location and surgery hours
- Pharmacies are funded to enable them to provide information leaflets on oral health matters
- Raising public awareness to seek advice on oral health from pharmacists through national campaigns.

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1. Marcenes W, Kassebaum N J, Bernabe E *et al*. Global burden of oral conditions in 1990–2010: a systematic analysis. *J Dent Res* 2013; **92**: 592–597.
2. Anderson S. Community pharmacy and public health in Great Britain, 1936 to 2006: how a phoenix rose from the ashes. *J Epidemiol Community Health* 2007; **61**: 844–848.
3. General Pharmaceutical Council, UK. *What does a pharmacist do? Raising concerns about a pharmacy professional*. London: General Pharmaceutical Council, 2013.
4. Cohen LA, Bonito AJ, Akin D R *et al*. Role of pharmacists in consulting with the underserved

regarding toothache pain. *J Am Pharm Assoc* 2009; **49**: 38–42.

5. Maunder P E V, Landes D P. An evaluation of the role played by community pharmacies in oral healthcare situated in a primary care trust in the north of England. *Br Dent J* 2005; **199**: 219–223.
6. Pharmaceutical Services Negotiating Committee. *NHS Community Pharmacy Services – a summary (July 2013)*. London: Pharmaceutical Services Negotiating Committee, 2013.
7. Steel B J, Wharton C. Pharmacy counter assistants and oral health promotion: an exploratory study. *Br Dent J* 2011; **211**: E19.
8. McVeigh N, Kinirons M J. Pharmacists' knowledge, attitudes and practices concerning sugar-free medicines. *Int J Paediatr Dent* 1999; **9**: 31–35.
9. Laliberte M C, Perreault S, Damestoy N, Lalonde L. Ideal and actual involvement of community pharmacists in health promotion and. *BMC Public Health* 2012; **12**: 192.
10. Eades C E, Ferguson J S, O'Carroll R E. Public health in community pharmacy: a systematic review of pharmacist and consumer views. *BMC Public Health* 2011; **11**: 582.
11. Jorgenson D, Lamb D, MacKinnon N J. Practice change challenges and priorities: A national survey of practising pharmacists. *Can Pharm J* 2011; **144**: 125–131.
12. Priya S, Madan Kumar P D, Ramachandran S. Knowledge and attitudes of pharmacists regarding oral health care and oral hygiene products in Chennai city. *Indian J Dent Res* 2008; **19**: 104–108.
13. Dickinson C, Howlett J A, Bulman J S. The role of the community pharmacist as a dental health adviser. *Community Dent Health* 1995; **12**: 235–237.
14. Leonard M S, Isetts B J, Leonard C X. Response of community pharmacists to potential oral carcinoma. *J Am Pharm Assoc (Wash)* 1996; **36**: 203–205.
15. Hassell K, Noyce P R, Rogers A, Harris J, Wilkinson J. A pathway to the GP: the pharmaceutical 'consultation' as a first port of call in primary health care. *Fam Pract* 1997; **14**: 498–502.
16. Graham L, Stensland S. Pharmacists' expanding role in oral health and dental care. *Pharm Times* 2006; **2**: 65–72.
17. Davies G M, Davies R M. Delivering better oral health – an evidence-based toolkit for prevention: a review. *Dent Update* 2008; **35**: 460–462, 464.
18. Cohen LA, Manski R J, Magder LS, Mullins C D. Dental visits to hospital emergency departments by adults receiving Medicaid: assessing their use. *J Am Dent Assoc* 2002; **133**: 715–724.
19. Ghalamkari H H, Rees J E, Saltrese-Taylor A, Ramsden M. Evaluation of a pilot health promotion project in pharmacies: (2) Clients' initial view on pharmacists' advice. *Pharm J* 1997; **258**: 314–317.
20. Gilbert L. The role of the community pharmacist as an oral health adviser—an exploratory study of community pharmacists in Johannesburg, South Africa. *SADJ* 1998; **53**: 439–443.
21. Pray W S. Oral problems treatment guidelines for common oral conditions. In *Non-prescription product therapeutics*. pp 56–80. 2nd ed. Philadelphia USA: Lippincott Williams & Wilkins, 2006.
22. Evans M J, Gibbons A J. Advice given in community pharmacies to patients with possible oral carcinoma. *Br J Oral Maxillofac Surg* 2005; **43**: 253–255.
23. Kennie-Kaulbach N, Farrell B, Ward N, Johnston S, Gubbels A, *et al*. Pharmacist provision of primary health care: modified Delphi validation of pharmacists' competencies. *BMC Fam Pract* 2012; **13**: 27.
24. Weinberg M A, Maloney W J. Oral health and elder care. *US Pharma* 2007; **32**: 29–33.
25. Mayer J A, Eckhardt L, Stepanski B M *et al*. Promoting skin cancer prevention counseling by pharmacists. *Am J Public Health* 1998; **88**: 1096–1099.