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QUALITY IMPROVEMENT REPORT

General practitioners and pharmaceutical sales representatives: quality improvement research

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Background and objective: Interaction between pharmaceutical sales representatives (PSRs) and general practitioners (GPs) may have an adverse impact on GP prescribing and therefore may be ethically questionable. This study aimed to evaluate the interactions between PSRs and GPs in an Australian general practice, and develop and evaluate a policy to guide the interaction.

Methods: Doctors' prescribing, diaries, practice promotional material and samples were audited and a staff survey undertaken. After receiving feedback, the staff voted on practice policy options. The resulting policy was evaluated 3 and 9 months.

Results: Prior to the intervention, GPs spent on average 40 min/doctor/month with PSRs. There were 239 items of promotional material in the practice and 4660 tablets in the sample cupboard. These were reduced by 32% and 59%, respectively, at 3 months after policy adoption and the reduction was sustained at 9 months. Vioxx was the most common drug name in promotional material. Staff adopted a policy of reduced access to PSRs including: reception staff not to make appointments for PSRs or accept promotional material; PSRs cannot access sample cupboards; GPs wishing to see PSRs may do so outside consulting hours. At 3 and 9 months, most staff were satisfied with the changes. Promotional items/room were not significantly reduced at 3 months (−4.0 items/room; 95% CI −6.61 to −1.39; $p=0.066$) or 9 months (−2.63 items/room; 95% CI −5.86 to 0.60; $p=0.24$). Generic prescribing significantly increased at 3 months (OR 2.28, 95% CI 1.31 to 3.86; $p=0.0027$) and 9 months (OR 2.07, 95% CI 1.13 to 3.82; $p=0.016$).

Conclusion: There was a marked reduction in interactions with PSRs with majority staff satisfaction and improved prescribing practices. The new policy will form part of the practice's orientation package. Reception staff give PSRs a letter explaining the policy. It is hoped that the extra 40 min/doctor of consulting time translates into more time with patients and time to evaluate more independent sources of drug information.

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Pharmaceutical sales representatives (PSRs) have an important role in general practice. Studies from several countries indicate that 80–95% of doctors see PSRs regularly.¹ In Australia, pharmaceutical companies spend on average approximately \$A16 548 (£6913) on promotion per general practitioner (GP) per year. This includes \$A10 921 (£4562) for detailing.^{2–3} GPs in Birmingham, UK, have often used drug company information as their sole source of information for new drugs.⁴ Concerns have been described in the literature about the role of PSRs in general practice. PSRs are usually more informative about the benefits than the harms and costs of drugs, and they often make statements not in accord with approved product information.^{5–6} A US study found that 11% of statements that PSRs made were inaccurate, and all of these were favourable to their drug. None of the 14% of statements made about competitors' drugs were favourable, but they were all accurate. A survey of the 27 physicians who participated in this study found that 74% did not recall any false statement made by PSRs.⁷

Caamano *et al* found that the cost of prescribing increased remarkably for GPs who gave more credence to information from PSRs.⁸ Mizik *et al* quantified the effect of PSRs on doctors' prescribing using data from pharmaceutical companies in the USA. They found that for three unnamed drugs, the mean number of PSR visits to induce one prescription was 0.64 visits for drug A, 3.1 visits for drug B and 6.5 visits for drug C.⁹ Although many GPs deny that PSRs adversely influence their prescribing, interactions with PSRs are associated with unnecessary prescribing, prescribing inappropriately,^{10–11} decreased prescribing of generic drugs¹² and increases in the cost of prescribing.^{13–14} Gifts, such as pens, posters and tear-off pads,

which also serve as promotional material in general practice, have been seen as desirable by GPs in New Zealand.¹⁵ Most GPs deny that gifts influence their prescribing yet would not see PSRs as often if they did not offer promotional materials.¹³ GPs who accept samples from PSRs are more likely to be early prescribers of new drugs.¹⁶ Acceptance of samples may also lead to GPs' choosing from the limited range of samples available rather than prescribing their first choice.¹⁷ Storage of samples may also lead to expiry and waste problems.¹⁸

Until 2004, PSRs had unrestricted access to the staff at the Inala Health Centre General Practice in Brisbane, Australia, and often provided lunch at weekly journal club meetings. GPs saw PSRs individually and accepted sample medications passively. There were no policies about PSRs, their gifts or drug samples. This paper reports a quality improvement, action research approach to develop and implement a new policy regarding relationships with PSRs and to evaluate its impact.

METHODS

The Inala Health Centre General Practice is situated in a socially disadvantaged part of Brisbane, Australia. It is an academic general practice with seven part-time GPs, three practice nurses, three regular reception staff and a practice manager.

In 2004 we audited doctors' patient appointment lists, doctors' prescribing, practice promotional material and samples, and conducted a staff survey. Over the following year, we presented the results of the audits and surveys to practice staff, who were then asked to vote anonymously for a range of practice policy

Abbreviations: GP, general practitioner; PSR, pharmaceutical sales representative

options on interactions with PSRs and acceptance of samples. The impact of the new policy was evaluated with surveys at 3 months and 9 months after the policy was adopted.

Situation analysis

We retrospectively examined doctors' patient appointment diaries chosen at random for a 1-month period to measure the number and length of booked PSR visits. A random week was chosen to audit doctors' prescribing. Promotional items in the practice left by PSRs were counted and categorised by room, type of item and drug. All 14 staff participated anonymously in the survey in November 2004 and all except one returned the completed questionnaire. Staff were asked about perceived pros and cons of seeing PSRs and whether they would like to spend more, the same or less time with PSRs.

Policy adoption

Results of the audit of doctors' patient appointment lists, promotional material and samples were fed back to staff along with the survey responses from their colleagues. We compiled the data using Excel and staff were provided the data in aggregate form to maintain anonymity. Results were categorised by the area in which staff worked. We then asked staff to vote anonymously on three policy options: more, less or the same access to PSRs. Staff were also given the option to write their own policy.

The voting results were discussed at the practice meeting. The option with the most votes was adopted, and practical implementation of the new policy was discussed.

Outcome evaluation

At 3 months and 9 months after the policy came into practice, we conducted a staff survey on their level of satisfaction with changes resulting from the new policy. The survey also included questions about time spent with PSRs and the pros and cons of the policy. Objective measures included: doctors' prescribing (including generic prescribing), promotional material, samples in the drug cupboard and time booked for PSRs. Tests of statistical significance on the non-parametric outcome of number of promotional items per room at the three different time periods were undertaken using EpiInfo (version 3.3.2).

Confidence intervals and χ^2 statistics for comparisons of generic prescribing proportions at the three time points were calculated using OpenEpi (<http://www.openepi.com/Menu/OpenEpiMenu.htm>; accessed 14 March 2007).

RESULTS

Situation analysis

During 1 month in 2004, 16 appointments with PSRs at an average of 16 min each were set aside by three of the seven doctors in the practice. Doctors reported 12 corridor visits with PSRs at 2 min each (table 1). This amounts to approximately 5 hours of doctors' time spent with PSRs in 1 month (40 min/doctor/month). In our practice this equates to approximately \$A670 (£280) in earnings, and 18 patients cared for.

There were 239 items containing promotional material from PSRs in the practice at an average of 12.6 items per room. Over half of this promotional material was in doctors' rooms (148 items) at an average of 29.6 items per room, with the next most concentrated area being reception with 28 items (table 1). There were two items of promotional material in the waiting room. The only rooms free of promotional material in the practice were the isolation room and the toilet. Vioxx was the most common drug name found in promotional material followed by Fosamax, Zoloft, Avandia and Voltaren. The most common items were small tear-off writing pads, followed by body part models, pens, cups and posters. We estimated the total value of promotional items in the practice to be \$A3700 (£1545). The average cost of promotional items was \$A12 (£5) ranging from 50c (20p) for a tear-off writing pad to \$A55 (£23) for a model of a heart. The sample cupboard audit revealed 4660 items (table 1). Doctors were prescribing at 0.99 scripts per patient encounter with 4% of scripts being generic (table 1).

Regarding time available to see PSRs, the average staff response was neutral. Doctors and nurses tended to prefer spending less time with PSRs, whereas administrative staff had a preference for more time with PSRs (table 2).

Perceived benefits of seeing PSRs

Doctors perceived benefits of learning about new drugs and acquiring samples. Nursing staff cited borrowing equipment. Administrative staff cited free samples, pens and notepads.

Table 1 Impact of the new policy on the interactions between general practitioners and pharmaceutical sales representatives (PSRs)

	Preintervention	Postintervention (3 months)	Postintervention (9 months)
Doctor visits with PSRs in 1 month			
PSR visits booked in doctors' diaries	16	0	0
Reported corridor visits	12	2	0
No. of promotional items (mean/room) at the Inala Health Centre General Practice			
Doctors rooms (n=5)	148 (29.6)	112 (22.4)	120 (24)
Total administration area (n=2)	38 (19)	27 (13.5)	26 (13)
Total nursing area (n=7)	25 (8.3)	14 (2)	37 (5.3)
Total other areas (n=5)	28 (5.6)	10 (2)	6 (1.2)
Total	239 (12.6)	163 (8.6)*	189 (10.0)†
Sample cupboard items (tablets/capsules/tubes/bottles)	4660	1902	1389
Prescribing patterns (based on 1 week of practice prescribing data at each time period)			
Patient encounters	547	504	530
Number of prescriptions (total)	542	464	285
Prescriptions per patient encounter	0.99	0.92	0.54
Generic prescriptions (% of total prescriptions)	4	8.6‡	8.1§

*3-month postintervention audit compared with preintervention: -76 items (-4.0 items/room; 95% CI -6.61 to -1.39); Kruskal-Wallis H test=14.7, df=8, p=0.066.

†9-month postintervention audit compared with preintervention: -50 items (-2.63 items/room; 95% CI -5.86 to 0.60); Kruskal-Wallis H test=13.9, df=11, p=0.24.

‡3-month postintervention audit compared with preintervention: odds ratio 2.28 (95% CI 1.31 to 3.86); χ^2 test=8.99, df=1, p=0.0027.

§9-month postintervention audit compared with preintervention: odds ratio 2.07 (95% CI 1.13 to 3.82); χ^2 test=5.84, df=1, p=0.016.

Table 2 Preintervention preferences* for amount of time given to pharmaceutical sales representatives (PSRs)

Group	% of respondents			No response
	More	Same	Less	
Doctors (n=6)	0	2	3	1
Nurses (n=3)	0	1	1	1
Administration (n=4)	2	0	1	1
Total IHCGP staff (n=13)	2	3	5	3

IHCGP, Inala Health Centre General Practice.

*Regarding time available to see PSRs, should it be more, the same or less?

Perceived disadvantages of seeing PSRs

All staff were concerned that time spent with PSRs could be better spent. Doctors were also concerned about quality of information and feeling pressured to prescribe. Administrative staff were concerned about PSRs being pushy at reception.

Policy adoption

Most of the practice staff (9/11) voted for a policy of reduced access to PSRs. One staff member voted for more access to PSRs and one wrote a personal policy. No-one voted to maintain the status quo. Staff met, discussed the vote, and the resulting policy reduced access to PSRs. The policy states that reception staff are not to make appointments for PSRs nor accept promotional material. PSRs wishing to alert doctors to new products should place written material in a box which a doctor would go through each month. Doctors wishing to see PSRs are to initiate contact and make appointments outside patient consulting hours. PSRs are not to be invited to lunch time meetings without prior approval of all relevant staff, and they no longer have access to the sample cupboard. Doctors desiring particular samples need to approach the relevant PSR.

Outcomes

Staff turnover was low during the period of this study. The numbers of staff of all types remained stable over the course of the study.

At 3 months after policy introduction

All staffing areas were satisfied on average with the impact of the new policy. Most staff indicated they spent less time with PSRs (table 3). Overall promotional material and samples were reduced by 32% and 59%, respectively. Promotional material per room also fell but the difference was not statistically significant. Prescriptions per patient encounter fell by a small amount to 0.92 and generic prescriptions increased significantly from 4% to 8.6% (see table 1).

At 9 months after policy introduction

Staff were satisfied on average with the impact of the new policy at 9 months though reception staff were neutral on average. At 9 months all staff indicated they spent less time with PSRs (table 3). There were no PSR visits booked into the patient appointment diaries and no reported corridor visits (table 1). Overall promotional material had increased 14% from the 3-month evaluation but was still 21% less than prior to the policy change. Reductions in the mean number of promotional items per room did not reach statistical significance (table 1). Sample numbers fell a further 27% from the 3-month evaluation and were now 70% less than before policy implementation. Prescriptions per patient encounter fell sharply to 0.54 and the increase in generic prescribing from

Table 3 Postintervention staff satisfaction and time spent with PSRs

Staff	Postintervention (at 3 months)		Postintervention (at 9 months)	
	Average score	Median SD	Average score	Median SD
Satisfaction following policy adoption*				
Medical	4	4	1.22	4.25
Nursing	4.67	5	0.58	5
Administration	4	4	0.82	3.3
All staff	4.17	4	0.94	4.11
Time spent with PSRs following policy adoption†				
Medical	-0.8	-1	0.45	-1
Nursing	-1	-1	0	-1
Administration	-0.75	-1	0.5	-1
All staff	-0.83	-1	0.5	-1

*Level of satisfaction following policy adoption: 5 = very satisfied, 4 = satisfied, 3 = neutral, 2 = dissatisfied, 1 = very dissatisfied.

†Time spent with PSRs following policy adoption: +1 = more, 0 = same, -1 = less.

preintervention was maintained at 8.1% ($p = 0.016$ compared with preintervention (see table 1)).

Qualitative responses to survey questions

Staff responses were qualitatively similar at 3 and 9 months after the policy was adopted. A summary of responses at these two timepoints have been combined below.

Benefits of the policy

Doctors reported less junk mail, no pressure to see PSRs and no intrusive calls from reception. Nurses reported spending less time administering the sample cupboard and finding doctors to sign for samples. Administrative staff reported not having to deal with the PSR appointment planner and not having to find doctors to sign for samples. All staff noted that PSRs no longer frequented the practice corridor.

Disadvantages of the policy

Doctors were concerned about the lack of appropriate samples. Nurses did not raise any concerns. Administrative staff were concerned they had less stationery, were not receiving as much "free stuff" and had trouble getting a doctor to go through the box with PSR information.

DISCUSSION

The action research process was followed by a marked reduction in interactions with PSRs. Most staff indicated they were satisfied with the changes at 3 and 9 months. Because our study was not a randomised controlled trial we cannot rule out the possibility that confounding factors contributed to this change. However, we are not aware of any factors that could have made such a large difference other than our intervention. Attitudes towards pharmaceutical promotion are changing slowly, but we are not aware of any such dramatic behavioural change elsewhere in Australian general practice. There were possibly several reasons why the practice chose to reduce interactions with PSRs instead of increasing them or maintaining the status quo. The main reason was probably that at baseline most of the practice's GPs wanted less interactions with PSRs (table 2). The intervention may have worked by making change easier and by putting the issue at the top of the agenda. The other GPs in the practice were content with the status quo at the beginning but decided to reduce interactions with PSRs as the quality improvement process continued. It seemed that for nurses in the practice, interactions with PSRs

meant a lot of work and little gain. They were consistently the most satisfied group with reduction in interactions with PSRs. Reception staff benefited from practice interactions with PSRs but were largely persuaded by arguments that practice/PSR interactions were not always in the best interests of patients. Elements crucial for the development and adoption of the new policy included involving all staff and maintaining anonymity at all stages of survey, data presentation and policy adoption. This interprofessional teamwork is an important factor in the success of quality improvement activities.¹⁹ Good teamwork and a sense of personal involvement in the quality improvement process has been associated with the success of other quality improvement activities in primary care.²⁰ Our new practice policy allows doctors who wish to maintain relationships with PSRs to do so. However, it is the doctor and not the PSR who actively initiates the contact. Key outcomes 3 months after the implementation of this new policy included approximately 5 h more consulting time for patients each month, a reduction in PSR corridor visits, a 32% reduction in promotional material and a 59% decrease in items in the sample cupboard. These reductions were sustained 9 months after policy introduction with no scheduled or corridor interactions between GPs and PSRs. We anticipate that this reduction will reduce the exposure of GPs to inaccurate drug information.⁷ The findings in this study of a reduction in prescriptions per patient encounter and a significant increase in generic prescriptions are consistent with reports indicating that contact between GPs and PSRs increases the cost of GP prescribing.^{13 14}

Promotional material had increased slightly at 9 months but was still 21% lower than prior to the policy introduction. Sample numbers continued to fall and by 9 months were 70% lower than before the policy introduction. We expect this to reduce inappropriate changes in GP medication choice owing to sample availability¹⁷ and reduce wastage of medications.¹⁸ The nurses were happy about having less work to do administering the sample cupboard.

Some have argued that doctors should decline any contact with PSRs because they have concluded that such contact is not in the best interests of patients.^{21 22} Through this quality improvement process, it was clear that although the Inala Health Centre General Practice staff were willing to reduce interactions between the practice and PSRs, many did not want to stop all interactions with PSRs. However, it may be possible to achieve a policy of no contact with PSRs by using an iteration of this quality improvement process if it incorporates convincing evidence that contact with PSRs does more harm than good for patients.

Promotional material from PSRs was not evenly distributed through the practice. It was most heavily concentrated in doctors' consulting rooms presumably because that is where PSR visits and prescribing occur. Reception also had a high concentration of promotional material and the reasons for this are explained in a guidebook for PSRs: reception staff are "incredibly critical in obtaining access, information, assistance and even a smile when things are not going well. Spend a few moments to develop this critical resource. Remember they have a job to do, but working together can enhance both. A warm hello, a helpful tip, or even a small box of candy can go a very long way."²³ It is of concern that the medication most frequently advertised via promotional material was Vioxx (rofecoxib). Rofecoxib was withdrawn by its manufacturer 11 months after the initial assessment period.

The Inala Health Centre General Practice is publicly funded and staffed by academic GPs. Our findings may not apply to non-academic general practices. Staff turnover, albeit low, may have been a confounding factor for outcomes in this study. Staff were also aware that they were being researched as part of

a quality improvement process. Consequently, a Hawthorne effect may have contributed to the results. One author (GS) is a doctor at this practice and did not participate in the staff surveys. This author did not see any PSRs during the study periods but worked in one of the rooms where promotional material was audited and contributed to prescribing data at the three time periods. Further research in this area may involve a randomised controlled trial of a number of practices using this type of quality improvement process as the intervention. This would allow examination of confounding factors such as staff turnover, academic interest, type of practice, patient mix, seasonality and the Hawthorne effect.

The new policy will form part of our GP trainee/new staff orientation package. Reception staff give a letter explaining the policy changes to the PSRs. The authors are not aware of other published quality improvement research in the area of interactions between PSRs and doctors. This is the only published intervention the authors are aware of where the impact of the interaction between PSRs and GPs has been reduced. We expect that the reduced time spent with PSRs will translate into more time spent with patients and/or used to evaluate more independent sources of drug information. This should continue to translate into improved prescribing practices for the benefit of patients.

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ECHO

What awaits early departers from EDs?



Please visit the *Quality and Safety in Health Care* website [www.qshc.com] for a link to the full text of this article.

Findings from an Australian study suggest that measures are needed to stop patients leaving hospital emergency departments (EDs) without seeing a doctor, after estimating that about half of them warranted an examination, some of whom may not have other options for obtaining health care. This is the first large scale study in Australia to ascertain how such patients fare, assessing over 450 patients.

Most likely to walk out were patients with a “potentially serious” problem or a “less urgent” problem. Nevertheless, almost two thirds of those who left contacted other health agencies during the following week: 57% visited general practitioners, who triaged a quarter as having potentially life threatening disease. In all, 13% of all patients who walked out revisited EDs within seven days afterwards, and 5% were admitted; 8% accessed no services during this time.

Determining such patients' exact needs might permit service improvements to reduce walkouts, the researchers think. Their data already show that those who leave after triage are typically young (<30 years), parents with young children, and are dissatisfied with waiting time. Overcrowding in the department and night time attendance were also linked to walking out, as elsewhere.

The study attempted to follow up by telephone 1272 patients identified from 14 741 patient registrations as walking out of one ED in a teaching hospital in Sydney during four months in 2003.

Only a few studies have tried to ascertain what happens to patients who walk out of EDs—an important basis for assessing healthcare delivery and future planning.

▲ Mohsin M, *et al.* *Emergency Medicine Journal* 2007;**24**:175–179.