Low sale of antibiotics without prescription: a cross-sectional study in Zimbabwean private pharmacies

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Objectives: To assess the quality of private pharmacy practice with a focus on the extent of antibiotic sales without prescription in private pharmacies in four Zimbabwean cities in relation to two tracer infectious conditions—sexually transmitted infections (STIs) among females and males, and diarrhoea in a child.

Methods: A cross-sectional study including pharmacies in Harare and three other towns. Information about each pharmacy was collected through structured interviews. Staff were interviewed using a different structured interview guide and simulated clients were used to assess staff performance. Data were analysed statistically, and step models to evaluate pharmacist performance were developed.

Results: A majority (69%) stated that they would never sell an antibiotic without a prescription and very few actually did in spite of a high patient demand. Few respondents however performed acceptably regarding provision of information and advice in relation to guidelines: 8% for the STI male, 33% for the STI female and 22% for the diarrhoea scenario.

Conclusions: The study revealed low sales of antibiotics without prescription, showing good adherence to the letter of the law. However, few respondents performed acceptably in relation to guidelines when considering information and advice for the tracer conditions.

Keywords: sexually transmitted infections, diarrhoea, antibiotic regulation, pharmacy practice, health systems research

Introduction

Infectious diseases such as sexually transmitted infections (STIs), respiratory infections, malaria, tuberculosis and diarrhoea, exacerbated by the high prevalence of HIV/AIDS, account for the majority of morbidity and mortality in Sub Saharan Africa.¹ Effective drug treatment exists for the management of these major infectious diseases, and pharmaceuticals account for 25–70% of overall health expenditure of low-income countries.² Equitable access to medicines has been described as a human rights issue.³ However, weak and fragmented public health systems fail to deliver, and as much as half of the population in poor parts of Africa is estimated to lack access to essential drugs.⁴,⁵

Concomitant with health system reforms, drug distribution has extensively been privatized and, in many low-income countries, drugs are commonly purchased in private drug outlets.⁶–¹⁰ According to the Good Pharmacy Practice (GPP) guidelines developed by the Fédération Internationale Pharmaceutique and endorsed by the WHO, every pharmacist is obliged to ensure appropriate quality of service to every patient, including proper information and advice.¹¹,¹² Private practice

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has however repeatedly been reported to be of low quality, partly because of the lack of regulatory enforcement.\textsuperscript{13,14}

The sale of prescription-only medicines without prescription is an important regulatory issue. Antibiotics, which are often prescription-only medicines, can typically be purchased from a variety of drug outlets without prescription.\textsuperscript{10,15 – 17} The widespread availability of antibiotics has given rise to concerns about increased use and antibiotic resistance; however, it also makes antibiotics more available to poor people, who may not be able to easily access physicians.\textsuperscript{18}

Zimbabwe gained independence in 1980 and had in 2004 a GDP per capita of international $1588. The country has been struck hard by HIV/AIDS, and the life expectancy in 2004 was 37/34 (M/F) years.\textsuperscript{19} In its first decade of independence, the government emphasized universal state provision of healthcare services. Since the early 1990s, there has been a steady growth of private healthcare facilities including pharmacies. From 1994 to 1999, the number of private registered pharmacies, almost exclusively restricted to urban areas, increased from less than 100 to 300. This expansion was partly fuelled by poor drug availability in the public sector.\textsuperscript{6} Prescription medicines, pharmacist-initiated medicines (PIM) and over-the-counter (OTC) medicines are sold in pharmacies. Some OTC medicines, so-called household remedies, can also be bought from supermarkets. Drugstores, licensed to sell OTC medicines, common in other low-income countries, are not present in Zimbabwe. The number of pharmacists in 2004 was 883.\textsuperscript{19} Historically, Zimbabwe has had a relatively strong regulatory framework in the healthcare sector, although there are indications that these regulations are not always effectively enforced.\textsuperscript{14,20}

A number of studies on adherence to GPP and regulations on the sale of antibiotics in private pharmacies have been performed in Asia,\textsuperscript{15,21 – 26} but few in Africa,\textsuperscript{27 – 30} and previously none in Zimbabwe. The aim of the study was to assess the quality of private pharmacy practice with a focus on the extent of antibiotic sales without prescription in private pharmacies in four Zimbabwean cities. This was done in relation to two tracer infectious conditions—STIs among females and males, and diarrhoea in a child.

**Methods**

**Study design**

The study had a cross-sectional design and included pharmacies in Harare and three other towns (the names of these towns will not be disclosed for reasons of confidentiality; hereafter called A, B and C). The study unit was the pharmacy. Three study instruments were used: (i) a structured facility interview guide for gathering background information on the pharmacy; (ii) a structured staff interview guide designed to capture information on stated practice, experiences and attitudes of the pharmacists and/or pharmacy technicians; and (iii) simulated client method (SCM) interviews to evaluate practice. Facility and staff data were collected from Harare and towns A and B, and SCM data were collected from Harare and towns A, B and C. In order to generate a sampling frame, a list of registered private pharmacies was first obtained from Medicines Control Authority of Zimbabwe (MCAZ). This list was updated by contacting each pharmacy in order to verify whether the pharmacies were still in business. The sampling frame for the four cities thereafter consisted of 144 pharmacies and sample selection for the survey was done in several stages (Figure 1).

**Sample selection**

For towns A, B and C, a census approach was used, and all pharmacies in these towns were included, that is A=29, B=8 and C=6 pharmacies. For Harare, the pharmacies were stratified according to the population density and type of the area in which they were situated. The three strata were named low density (LD), high density (HD) and central business district (CBD). A stratified proportionate random sample of pharmacies was drawn. For each stratum, a random selection was done using SPSS 10.0 to arrive at a total of 61 pharmacies representing ~60% of all pharmacies in Harare. A further two pharmacies were subsequently excluded from the list (one animal pharmacy and one duplicate), to leave a sample of 59 unique pharmacies in Harare. This sample was used for the facility and staff interviews in Harare. A systematic sample of 44 pharmacies was taken from the list of 59 for the SCM visits in Harare. Every second pharmacy was included, starting from the top of the list for each stratum.

**Figure 1.** Sample selection design for the study. The sample selection was done in several stages from the list of pharmacies obtained from the MCAZ. For Harare, the pharmacies were divided into LD, HD and CBD. A stratified proportionate random sample of pharmacies was then drawn. This sample of 59 pharmacies was used for the facility and staff interviews in Harare. Because of time and resource constraints, for the SCM in Harare, a systematic sample of in total 44 pharmacies was taken from the 59. Owing to the low number of pharmacies in towns A, B and C, a census was attempted in these towns. The total number of selected pharmacies to be included in the study in the 4 towns was 87 for each SCM scenario and 96 for facility and staff interviews.
Another selection round also starting from the top selected every fourth pharmacy etc., until the desired number was met. The total number of pharmacies aimed to be included in the study in the four towns was 87 for each SCM scenario and 96 for facility and staff interviews (Figure 1). The actual numbers, reported in the Results section, became lower due to drop out.

**Data collection**

**Facility and staff interviews.** One facility interview per pharmacy was performed with a senior member of staff. The same person was also asked to participate in the staff interview. If more than one eligible member of staff (pharmacist or pharmacy technician) was present, all were asked to participate in the staff interviews. This was the case in seven pharmacies. Two different structured interview guides were used, containing mainly fixed response alternatives and a few open-ended questions. The facility interviews collected background information on the pharmacies as well as availability of certain drugs. Staff interviews were designed to capture information on stated practice, experiences and attitudes. The interviews were performed by three researchers: a pharmacy technician, a nurse and the second author (pharmacist). All participants gave oral informed consent before participating.

**Simulated client interviews.** The simulated clients performed three different scenarios: (i) vaginal discharge and itching, hereafter called STI female; (ii) urethral discharge, hereafter called STI male; and (iii) a child with acute diarrhoea (Table 1). Research assistants, pharmacy and medical students, were trained through role play to perform the different scenarios in a reproducible way using pre-designed guides (Table 1). Two research team members, well acquainted with the Zimbabwean pharmacy situation, conducted the training during a 1 day workshop and supervised the simulated clients during the data collection. Each scenario (STI female, STI male and child with diarrhoea) was presented once per pharmacy with the aim to explore possibilities of buying antibiotics without a prescription. The simulated client asked specifically to see the pharmacist. If recommended to buy a drug, the simulated client said he or she did not have enough money, but would return later. The simulated clients filled in a standardized reporting form containing information on drugs recommended, questions asked, advice given etc., at the latest 15 min after the encounter and out of sight of the pharmacy.

**Analysis**

Data were coded and entered into a computer using Excel 2003. All data were double entered and checked for inconsistencies. SPSS 10.0 was used for the statistical analysis. The pharmacy was the unit of analysis using the facility and SCM data. Staff data were analysed at the level of individual respondents. Statistical analysis is presented as frequencies and mean values.

**The step model.** Different information was collected for the different SCM scenarios. Therefore, to get a comparable picture of

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**Table 1.** Pre-designed guide for simulated client visits

Instructions to the simulated client: if the pharmacist asks you for a prescription, say that you don’t have one. If the pharmacist asks you to get a prescription first, reply that you do not have money to pay for the visit to a doctor and ask if the pharmacist knows the problem, can’t he (she) give you some drugs. When the pharmacist is ready to sell a drug, say that you can’t afford it and must go and get some more money.

<table>
<thead>
<tr>
<th>Vaginal discharge and itching (STI female)</th>
<th>Urethral discharge (STI male)</th>
<th>Acute diarrhoea</th>
</tr>
</thead>
<tbody>
<tr>
<td>The person is seeking care for problems with vaginal discharge and vaginal itching</td>
<td>The person is seeking care for urethral discharge</td>
<td>The person seeks care for a 3.5-year-old son (daughter) who has had diarrhoea for the past 3 days and asks what to buy for him</td>
</tr>
<tr>
<td>She requests to see the pharmacist</td>
<td>He requests to see the pharmacist</td>
<td>He/she requests to see the pharmacist</td>
</tr>
<tr>
<td>In response to questioning, the following information is given:</td>
<td>In response to questioning, the following information is given:</td>
<td>In response to questioning, the following information is given:</td>
</tr>
<tr>
<td>The patient has a minor discharge that has a foul smell. The colour of the discharge is white, cream or milky and the patient has had it for a week. The last time the patient has had sexual intercourse is within a month. She is not pregnant, does not take oral contraceptives and has not taken drugs for this condition before.</td>
<td>The patient has had a copious, yellow discharge from the penis for the last 3 days. He experiences painful urination and urinates more frequently than normally. Last time he had sex was 4–5 days ago. It was with his wife or with someone else. He does not have ulcers and has not taken any medication for the condition before.</td>
<td>The child is somewhat tired and weak. There is no high fever, no headache and no blood in the stool. The diarrhoea is not ‘ricey’. Suggest to the pharmacist that you think your child needs an antibiotic. She has had a similar problem before and was given metronidazole/co-trimoxazole/nalidixic acid. At the moment, you do not have enough money to go to the doctor.</td>
</tr>
</tbody>
</table>

Research assistants posing as clients:

1. female age 22
2. female age 22
3. female age 20
4. female age 19
5. male age 23
6. male age 23
7. female age 21
8. male age 21

The research assistants were given these instructions in relation to each SCM scenario. They were trained to perform the scenarios in a reproducible way.
Results

The study had a 61% response rate for facility interviews (Harare, 69%; A, 52%; B 38%), 68% response rate for staff interviews (Harare, 80%; A, 52%; B, 38%), and the average response rate of SCM interviews was 72% (Harare, 85%; A, 60%; B, 63%; C, 77%).

Facility and staff interviews

Facility interviews were performed in 59 pharmacies across the four towns. From these pharmacies, data were gathered from 73 persons in the staff interviews (69 pharmacists and 4 pharmacy technicians). In Harare, two staff members were interviewed in six pharmacies and three staff members in one pharmacy. Respondents were asked under which circumstances they would sell antibiotics without a prescription. A majority (69%) said they would never do it. Some (21%) stated they would sell to a friend/relative. Few would sell if the patient cannot afford to go to a doctor (10%) or if the patient is seriously ill (4%) (two respondents gave multiple responses and therefore percentages add up to >100%) (data not shown). It was reported by the respondents that it was common to be asked by customers to dispense antibiotics without prescription (Table 2). The availability of antibiotics was 100% in the studied pharmacies with regard to common formulations and dosages of amoxicillin, co-trimoxazole, erythromycin, doxycycline and ciprofloxacin.

Simulated client scenarios

(i) STI female. Fifty-seven visits were made. In few cases (7%), the respondent agreed to sell antibiotics without prescription. The majority (58%) of the respondents recommended topical/vaginal antifungals, which are PIM in Zimbabwe (Table 3). Some recommended them to relieve itching while informing the patient that she was probably suffering from an STI and that she should go to a clinic for examination. In all but one case, at least one of the questions predefined on the standardized SCM form was asked. In 28% of the encounters, none of the predefined advice was provided by the pharmacist. Sixty-three percent of the simulated clients were counselled in a private place and the median duration of encounter was 3 min.

Thirty-three percent completed all four steps in the step model for STI female: Step 1, advised to see a doctor/visit a clinic; Step 2, requested prescription; Step 3, advised on prevention; and Step 4, advised on partner notification (Figure 2). Of the 20 respondents who did not reach even Step 1 in the model, 14 recommended antifungals, one antibiotics and 5 no drugs at all. At the highest step, Step 4, 4 recommended antifungals, none recommended antibiotics and 15 recommended no drug at all. The respondents in Harare performed better than those in the other towns, with 19 of 34 reaching the highest step ($P < 0.001$). In towns A and B, no respondent reached higher than the first step and in town C, none reached even the first step. There was no significant difference between male and female pharmacists for any of the steps.

(ii) STI male. Sixty-three visits were made. Few (8%) agreed to dispense an antibiotic without prescription (Table 3). In almost half of the encounters (48%), none of the questions predefined on the standardized SCM form were asked by the pharmacist. Almost all were advised to see a doctor/visit a clinic, but not many were advised on how to prevent STIs and about notifying their long-term partner. About half (54%) of the clients were counselled in a private place away from other patients. Median duration of encounter was 2 min.

Some of the questions had internal drop outs. The actual figures as well as frequencies have been reported for each question.
Table 3. Drugs recommended for sale and questions asked by the pharmacists for the three SCM scenarios

<table>
<thead>
<tr>
<th>SCM scenario</th>
<th>n/N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STI female</strong></td>
<td></td>
</tr>
<tr>
<td>No. of visits (N): 57</td>
<td></td>
</tr>
<tr>
<td>Median duration of encounters: 3 min</td>
<td></td>
</tr>
<tr>
<td>Sex of pharmacist: male 51%, female 49%</td>
<td></td>
</tr>
<tr>
<td>Pharmacist agreed to sell antibiotics without prescription</td>
<td>4/57 (7)</td>
</tr>
<tr>
<td>Pharmacist recommended antifungals</td>
<td>33/57 (58)</td>
</tr>
<tr>
<td>Questions asked by the pharmacist</td>
<td></td>
</tr>
<tr>
<td>whether the patient has a discharge</td>
<td>52/57 (91)</td>
</tr>
<tr>
<td>duration of the discharge</td>
<td>40/57 (70)</td>
</tr>
<tr>
<td>colour of the discharge</td>
<td>49/57 (86)</td>
</tr>
<tr>
<td>whether discharge is smelly</td>
<td>42/57 (74)</td>
</tr>
<tr>
<td>time since last sexual intercourse</td>
<td>28/57 (49)</td>
</tr>
<tr>
<td>whether the patient is pregnant</td>
<td>11/57 (19)</td>
</tr>
<tr>
<td>about use of oral contraceptive</td>
<td>10/57 (18)</td>
</tr>
<tr>
<td><strong>STI male</strong></td>
<td></td>
</tr>
<tr>
<td>No. of visits (N): 63</td>
<td></td>
</tr>
<tr>
<td>Median duration of encounters: 2 min</td>
<td></td>
</tr>
<tr>
<td>Sex of pharmacist: male 67%, female 33%</td>
<td></td>
</tr>
<tr>
<td>Pharmacist agreed to sell antibiotics without prescription</td>
<td>5/61 (8)</td>
</tr>
<tr>
<td>Questions asked by the pharmacist</td>
<td></td>
</tr>
<tr>
<td>colour of the discharge</td>
<td>23/63 (37)</td>
</tr>
<tr>
<td>discharge copious or scanty</td>
<td>15/63 (24)</td>
</tr>
<tr>
<td>duration of the discharge</td>
<td>12/63 (19)</td>
</tr>
<tr>
<td>painful urination</td>
<td>21/63 (33)</td>
</tr>
<tr>
<td>frequent urination</td>
<td>6/63 (10)</td>
</tr>
<tr>
<td>genital ulcers</td>
<td>11/63 (18)</td>
</tr>
<tr>
<td>drugs taken for condition</td>
<td>2/63 (3)</td>
</tr>
<tr>
<td>sexual partners</td>
<td>16/63 (25)</td>
</tr>
<tr>
<td>time since last sexual intercourse</td>
<td>16/63 (25)</td>
</tr>
<tr>
<td><strong>Acute diarrhoea</strong></td>
<td></td>
</tr>
<tr>
<td>No. of visits (N): 68</td>
<td></td>
</tr>
<tr>
<td>Median duration of encounters: 3 min</td>
<td></td>
</tr>
<tr>
<td>Sex of pharmacist: male 52%, female 48%</td>
<td></td>
</tr>
<tr>
<td>Pharmacist agreed to sell antibiotics without prescription</td>
<td>6/66 (9)</td>
</tr>
<tr>
<td>Pharmacist recommended antidiarrhoeal solution</td>
<td>58/67 (87)</td>
</tr>
<tr>
<td>Pharmacist recommended sugar and salt solutions</td>
<td>25/67 (37)</td>
</tr>
<tr>
<td>Pharmacist recommended other salt replacement products</td>
<td>5/67 (8)</td>
</tr>
<tr>
<td>Informed on side effects of the recommended drugs</td>
<td>1/66 (2)</td>
</tr>
</tbody>
</table>

The total number of respondents (N) varies per scenario. Some of the variables had internal drop outs. The actual figures (n/N) as well as frequencies have been reported for each variable.

Eight percent completed all four steps in the step model for STI male (Figure 2). Some pharmacists spontaneously recommended antibiotics (n = 17). These were fairly evenly distributed over the different steps. Significantly fewer of the respondents in Harare than in the other towns reached the second and the third step (17/32 versus 17/23, \( P = 0.034 \), and 2/39 versus 6/23, \( P = 0.043 \)). For the highest step, this difference was borderline significant (1/39 versus 4/23, \( P = 0.059 \)). There was no significant difference between male and female pharmacists for any of the steps.

(iii) Acute diarrhoea. Sixty-eight visits were made. Some of the respondents (9%) agreed to dispense an antibiotic without prescription. Antidiarrhoeal solutions, containing adsorbents or antimotility drugs, were recommended by almost all (87%). Sugar and salt solutions or other salt replacement products were recommended by markedly fewer and often combined with antidiarrhoeal solution. Only some emphasized the importance of fluid replacement. The median duration of encounter was 3 min (Table 3).

Twenty-two percent completed all three steps in the diarrhoea scenario step model: Step 1, requested prescription; Step 2, highlighted the importance of fluid replacement; and Step 3, recommended sugar and salt replacement (Figure 3). No significant difference between male and female pharmacists was seen for any of the steps.

**Discussion**

To our knowledge, this is the first study on private pharmacy practice examining antibiotic sales in Zimbabwe. The respondents’ adherence to regulation is remarkable. A majority stated they would never sell an antibiotic without prescription, and the actual practice of selling antibiotics to patients without prescription was also low. This is in sharp contrast to other studies from low-income countries.\(^{24,25,34,35}\) Studies from Uganda and Nigeria show that antibiotics were readily dispensed in retail pharmacies and drug stores without prescription for both acute respiratory infection (ARI) and diarrhoea.\(^{28,36}\) In Vietnam, 83% of the pharmacies visited by simulated clients presenting a child with mild ARI dispensed antibiotics.\(^{15}\) Antibiotics can also be bought from pharmacies without prescription in many European countries.\(^{37}\) Our results indicate that for this particular issue, the regulatory framework of Zimbabwe is effectively enforced in contrast to previous reports from the healthcare setting.\(^{14,20}\) Fear of losing the licence is indeed an explanatory factor mentioned by some of the respondents. The participants of our study were mainly pharmacists, and their level of education could be expected to influence their knowledge regarding the need of, and regulation around, antibiotics. It is not evident, however, that a higher educational level of the drug seller automatically leads to a lower sale of prescription-only medicines without prescription. The pharmacist might feel a responsibility to help the patient, being the most competent healthcare provider available to the patient for various reasons.\(^{38}\) In a study from Brazil, pharmacists reported to a higher degree than clerks that they would sell antibiotics without prescription.\(^{39}\)

Patient demand is an important factor in the prescription and sale of drugs.\(^{10}\) In a low-income setting such as Zimbabwe, a high demand for antibiotics without prescription might be expected from customers who cannot afford to consult a doctor. This was also confirmed in our study and further accentuates the determination of the respondents to adhere to regulation. Whether peer influence and professionalism within the pharmacist community are strong in Zimbabwe needs further assessment, as it might have an impact on practice.\(^{34}\) Although the...
results of this study imply a controlled sale of antibiotics in private pharmacies, there is still a need for an explicit policy statement on antibiotics in Zimbabwe in line with worldwide alarm of increasing bacterial resistance.

The strong adherence of regulation on the sale of antibiotics was however not matched by proper provision of information and advice by the pharmacists. The step models, which were developed to give a comprehensive picture of the pharmacists' performance, showed that few practiced acceptably in relation to guidelines.

The most discouraging results from the step model were found for the STI male scenario where only 8% completed all steps. This is in concordance with results from a study of STI management in Hanoi where only 1% advised on condom use and none on partner notification.24 The first step of the STI male model 'advised to see a doctor/visit a clinic' was completed by 94% of the respondents for the STI male scenario. This is of course positive, but, solely by referring, the pharmacists cannot regard themselves as cleared from accomplishing the rest of the steps and fulfilling their duty of giving information and advice. There is no guarantee that the patient actually visits the doctor or that the doctor gives the appropriate information and advice.

For the STI female scenario, more of the respondents practiced in a satisfactory way. Respondents completing all steps were also more correct in their treatment recommendations, i.e. recommended no drug at all instead of antifungals, than those who did not reach the first step. The difference in practice towards male and female STI patients is notable. Women were given information on prevention and partner notification to a higher extent, whereas fewer were advised to see a doctor/visit clinic. Topical/vaginal antifungals are pharmacist-initiated therapy in Zimbabwe, whereas the first-line treatment for urethral discharge in a male is prescription-only antibiotics, of which one is an injection.31 The treatment choice of an STI in a male is easier to make on the basis of his case history, and the WHO syndromic treatment guidelines recommend that all men presenting with urethral discharge should be treated for gonorrhoea and chlamydia, whereas, for women, diagnosis is more difficult.32

The untreated STI is a serious condition that can lead to childlessness and even death.40 There is also evidence that conventional STIs can increase the spread of HIV in high-prevalence settings.41 Prompt treatment for STIs is thus of utmost importance, and different approaches have been suggested. Realizing that people foremost seek care for these conditions in pharmacies without consulting a physician, the Ghanaian government, for example, acknowledges pharmacists as being the preferred option for treating STIs.42

Also for the diarrhoea scenario, the number of pharmacists performing acceptably was low and treatment recommendations were not according to guidelines. Almost all recommended anti-diarrhoeal solution (adsorbents or antimotility drugs) to a child with acute diarrhoea. This is contradictory to treatment
Methodological considerations

There are approximately 300 pharmacies in Zimbabwe and we covered 19–24% of them depending on the data collection method and SCM scenario. Repeated visits by simulated clients would have been preferable; however, this was not possible within the budgetary limitations of the study because of the high inflation and petrol cost. Drop out mainly occurred because the pharmacy had closed for the day, the pharmacist was not there after repeated visits or did not agree to participate in the study. It is not possible to say how much the drop out biased the results, as background information on the drop-out pharmacies is not available.

A strength of the study is the use of different methods of data collection showing similar results. Many studies have shown that the reported behaviour tends to be better than actual practice, something that was not found in our study.

The SCM has been used in different settings and studies as a tool for assessing professional practice provided by various types of healthcare providers.22,44,45 The ethics of simulating a condition to a healthcare provider who has not earlier been given the chance to consent could be raised.46 The SCM however attempts to provide data on the actual behaviour, which would be difficult or impossible to obtain through other methods.24 The individual pharmacists visited by simulated clients in this study were not asked for informed consent; however, the Pharmaceutical Society of Zimbabwe (PSZ) and the Retail Pharmacists Association (RPA) were consulted, and they gave consent at all stages. All results are presented so as to not point out single respondents or pharmacies, and there were no punishments for respondents who acted against regulations. The results will benefit patients if used in training and continuing education of pharmacists to avoid low-quality practice.

It is difficult to know whether an SCM visit is representative of a typical case. In a normal situation, the pharmacist might be familiar with the patient and therefore behave differently.44 This is difficult to address, however, the research assistants were carefully selected and trained so that they, as far as possible, would fit into the local context and be taken for ordinary customers.

The step models include what the research team regarded as minimum requirement for an acceptable performance at this level of the healthcare system. Certainly, even if all steps are completed, the public health value is also influenced by the patients’ understanding of, and compliance to, the information and advice given.

In conclusion, the study shows a low reported and actual sale of antibiotics without prescription in spite of a high patient demand. Few respondents however performed acceptably in relation to guidelines when considering information and advice for the tracer conditions. The study implies the need for continuing professional development of pharmacists and other pharmacy staff in order to improve the situation regarding provision of information and advice to patients presenting with common infectious disease complaints in pharmacies.

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Transparency declarations

None to declare.

References

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Nyazema et al.


