Quality of Care: Marketing of Trypanocides for the Control of Trypanosomiasis in the Coastal Savanna of Ghana

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Abstract

The rapid change in the privatization of veterinary services and social marketing of drugs have serious implications on the quality of care by the private sector in Ghana's agricultural system, especially drug use, in recent decades. The study explores the perception of 250 farmers over drug marketing to assess the level of drug quality, with particular reference to the treatment of cattle trypanosomiasis in the country and to investigate ways in which they could make better use of trypanosomiasis to control the disease. Specifically, the study seeks to identify constraints associated with trypanocides (e.g. Berenil® and Samorin®) services to assist in policy recommendation. It anticipated a better understanding of how cattle farmers ranked the quality of veterinary drug services from drug-sellers using Likert Scale. The views on drug services were ranked as follows: excellent (5), good (4), fair (3), undecided (2) and poor (1). The findings showed that farmers judged drug "effectiveness of treatment" most leniently and on "regularity of follow up" most harshly among the 10 response categories. The average rating on "effectiveness" of rating was 4.21 ± 0.29 s.d. and 10 districts recorded an average score above 4. On the other hand, the average treatmeant on "regularity of follow-up" was 1.05 ± 0.05 s.d., with five districts recording 1. It was concluded that the perception of 250 farmers in the 11 districts over the drug use is similar. For the fact that farmers take the responsibility of treating livestock diseases themselves, there is the need to include them in training programmes and also in decision making and policy development on drug use. Training curriculum for drug sellers is a key factor and should include the implications involved in buying drugs from veterinary stores without prescriptions from the veterinary doctor. Further, drug sellers should also be trained on the implications of drug abuse (overdose and under dose).

Introduction

The introduction of structural adjustment programmes (SAP) by OAU in the 1980s, influenced by donor countries as a condition for further funding, has led to the most dramatic change in the quality of care in Africa's agricultural systems in recent decades (Msolla, 1995). "A free market policy" as a component of SAP has triggered the privatisation and commercialisation of drugs, especially trypanocides, by the private sector (Msolla, 1995). In an environment of privatization of veterinary services, drugs are becoming increasingly available for farmers, hence, inappropriate trypanocidal drug use should be reduced to lessen the risk of drug resistance. The importance of trypanosomiasis to farmers requires that they purchase the drugs and treat the disease by themselves. Meeting the cattle farmers' requirements through a high quality of care is top priority in the development of the agricultural systems, especially the livestock sector, to ensure food security in Africa.

It has been estimated that losses of livestock and agricultural production as a result of animal trypanosomiasis (nagana)

are around US$ 5 billion annually (ILRI, 1995). If losses in milk and manure could be prevented, the benefit from livestock and mixed agricultural development in tsetse-infested Africa could amount to US $ 50 billion annually (Murray & Steer, 1991).

The presence of tsetse and trypanosomiasis is well established in Ghana (Gyening, 1969; Kuzoe 1971; Kuzoe, 1993). Although farmers have used trypanocides for nearly four decades, the disease still remains a problem (Gyening, 1969; Mahama *et al.,* 2003). Consequently, the farmers' perception and understanding of drug use, in relation to control of the disease, need to be explored in order to advise farmers on the use of trypanocides. The study seeks to explore a better understanding of how trypanocides are marketed and how farmers in tsetse-infested areas deal with the endemic disease (Trypanosomiasis), and to find ways in which farmers could make better use of trypanocides to control the disease.

The specific objectives were to (i) assess the level of quality of care of drug sellers to small holder cattle farmers with focus on trypanocides; (ii) find out if there is any relationship between the quality of care of drug sellers and trypanocide use by cattle farmers; (iii) provide tinformation to cattle farmers, extension workers and drug sellers on appropriate use of trypanocidal drugs.

Materials and methods

The study area

The study area comprised 11 districts in southeast coastal savanna zone, as shown in Fig. 1. The vegetation was short grass with clumps of bush or a few trees. The population concentrated around lagoons, along the Volta river, and close to the border with Togo. The interior of the coastal zone had low population density, and, except for the Greater Accra Region, majority of the people lived in rural areas.

The primary occupations are farming, livestock rearing, fishing and salt mining.

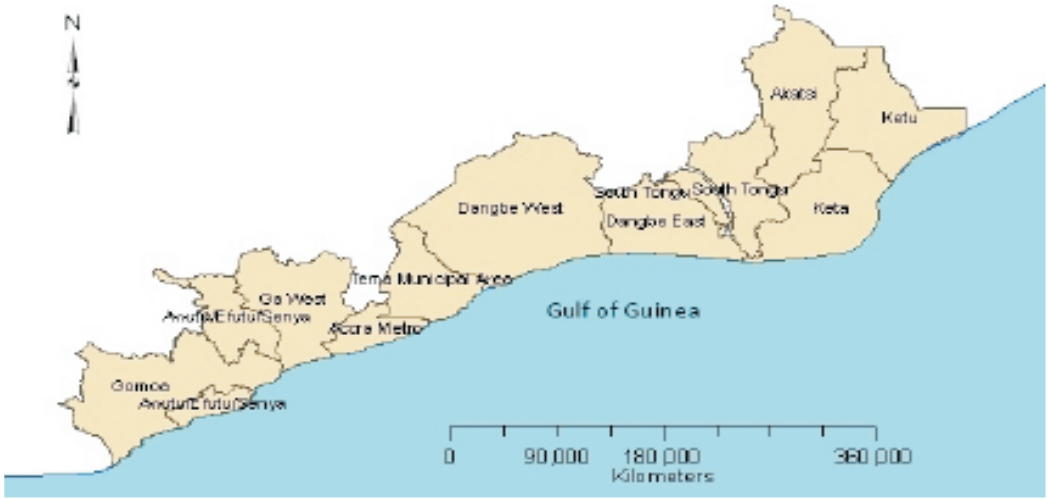

Fig. 1. The study area showing the eleven districts namely Gomoa, AES, Ga, AMA, Tema Municipal Area, Dangbe West, Dangbe East, South Tongu (Sogakope), Akatsi, Keta and Ketu (Denu) Districts

Livestock (mainly cattle) rearing is important occupation, particularly in the Accra plains. Some of the cattle are reared on farms or ranches where low-level earth dams have been built to provide water for animals, while the majority of the cattle are reared on unimproved natural pasture, such that during the dry seasons some of the animals trek long distances in search of water.

Two hundred and fifty (250) cattle farmers were made to rank the quality of drug services of veterinary drug sellers using a participatory rural appraisal (PRA) technique (IIED, 1991) focused in 11 districts in the coastal savanna, where livestock keeping is heavily concentrated. The Likert scale used to explore the farmers' views on drug services were ranked as follows: excellent (5), good (4), fair (3), undecided (2) and poor (1) (De Poy, 1998). The quality perception variables used were general satisfaction, coverage of needs, satisfaction of needs, presentation of treatment methods, effectiveness of treatment, information given, understanding of drugs, language gap, seller's follow up and regularity of follow up. The PRA for farmers in respective districts were as follows: Ga 25, Dangme East 28, Dangme West 63, AMA 3, Tema Municipal Area 31, Akatsi 30. Others were Tongu (Sagakope) 14, Ketu 3, Keta 5, AES 17 and Gomoa 21. The means and standard deviations of the various categories of quality perception were recorded for comparison in Table 1.

Specifically, the null hypothesis was tested: H_0: Farmers' perception about the drug over the 11 locations is the same against the alternate hypothesis. H_1: Farmers' perception about the drug over the 11 locations is different

H_0: Farmers' perception about the drug over the 10 response categories is the same against the alternate hypothesis. H_1: Farmers' perception about the drug over the 10 response categories is different.

Analysis of variance was used for the perceptions of quality of care of the farmer-drug seller interactions in the 11 districts in southern Ghana and also for drug use (Berenil® administration) by cattle farmers in the 11 locations.

Results and discussion

The study focused on the quality and appropriateness of services by drug sellers. Summaries of the rank of various response categories of the quality of care by 250 farmers are presented in Table 1.

It is clear that the respondents were fairly satisfied about the drug they were using. The average "overall" score for all farmers was 3.00, a figure above midpoint on the 1–5 scale.

Farmers judged the drug on "effectiveness of treatment" most leniently and on "regularity of follow up" most harshly among the 10 response categories. The average rating on "effectiveness of treatment" was 4.22 ± 0.29 s.d. and five districts recorded an average score about 4. On the other hand, the average rating on "regularity of follow up" was 1.03, and five districts recorded a value of 1.

Further tests were conducted to check whether farmers' perception about the drug vary across locations and various response categories. Specifically, the null hypothesis was tested: H_0: farmers' perception about the drug over the 11 locations is the same against the alternate hypothesis. H_1: farmers' perception about the drug over the 11

TABLE 1

Ranks of scores of categories of quality of care of drug services among cattle farmers in eleven southern districts in coastal Ghana

District	*General satisfaction*	*Coverage of needs*	*Satisfac-tion of needs*	*Presenta-tion of treatment methods*	*Effective-ness of treatment*	*Informa-tion given*	*Under-standing of drug use*	*Language gap*	*Seller's follow-up*	*Regularity of follow-up*
Ga (N=25)	3.40	3.32	3.28	3.24	4.24	3.04	3.16	3.04	1.48	1.04
Dangme **(N=28)**	3.75	3.53	3.43	3.01	4.18	2.96	3.32	3.36	1.60	1.03
Dangme West (N=63)	3.60	3.51	3.40	3.15	4.48	2.97	3.18	3.14	1.51	1.01
AMA **(N=3)**	4.20	3.33	3.67	2.33	4.00	3.00	3.67	3.00	1.00	1.00
Tema **(N=31)**	4.22	3.84	3.77	3.26	4.97	3.09	3.29	3.26	1.26	1.13
Akatsi **(N=30)**	3.57	3.23	3.07	3.67	4.07	3.43	4.07	4.13	1.17	1.13
Soga (N=14)	3.22	3.22	3.27	3.05	4.11	3.11	3.44	3.55	1.55	1.05
Ketu **(N=3)**	3.57	3.86	3.28	3.00	4.14	3.00	3.71	3.71	1.00	1.00
Keta **(N=5)**	3.20	3.60	2.57	3.00	4.20	3.00	3.23	2.94	1.53	1.00
AES **(N=30)**	3.88	3.88	3.53	2.94	4.12	3.00	3.23	2.94	1.53	1.00
Gomoa **(N=21)**	3.90	3.90	3.52	3.05	3.90	3.00	3.14	2.86	1.52	1.00
X bar ± s.d.	3.68	3.56	3.34	3.04	4.21	3.05	3.40	3.23	1.38	1.04
	±0.35	±0.27	±0.32	±0.32	**±0.29**	**±0.13**	**±0.29**	**±0.39**	**±0.23**	**±0.05**

locations is different. H_0: farmers' perception about the drug over the 10 response categories is the same against the alternate hypothesis H_1: farmers' perception about the drug over the 10 response categories is different

From the F-calculate of the categories p-value = 0. This means that at 1% level of significant the null hypothesis was rejected. It was concluded that, evidence from the sample does not support the view that farmers' perception about the drug over the 10 response categories is the same. Instead, it supports the alternative hypothesis that farmers' perception about the drug over the 10 response categories is different. However, failure to reject the null hypothesis farmers' perception about the drug over the 11 locations is the same, as the p-value of the F-calculate was 0.3529, which was greater than 0.01. Therefore, it was concluded that the perception of farmers over 11 locations about the drug is the same.

The results (rank) shown in Table 1 further indicate that "effectiveness of treatment" with Berenil® was ranked (4.22 ± 0.29 s.d.) highest. This is followed by general "satisfaction of service" (3.68 ± 0.35 s.d.), "coverage of needs" (3.56 ± 0.27 s.d.), "understanding of drug use" (3.40 ± 0.29 s.d.) and "satisfaction of needs" (3.34 ± 0.32 s.d.). Others are "language gap" (3.23 ± 0.39 s.d.), "presentation of treatment methods" (3.06 ± 0.32 s.d.) and "Information given" by drug sellers to cattle farmers" (3.05 ± 0.13 s.d.). The rest are "sellers' follow-up" (1.38 ± 0.23 s.d.) and "regularity of follow-up" (1.04 ± 0.05 s.d.).

It is clear from this finding that although cattle farmers were generally satisfied with the "effectiveness of treatment" using Berenil® purchased, yet their perception on drug effectiveness is not very satisfactory. In some districts, the cattle farmers ranked drug services as "poor" or "undecided". Furthermore, the farmers "understanding of drug use" was fair in most of the districts, except Akatsi, which had good understanding of drug they purchased. "Language gap" and "information given" were either "fair" or "undecided" (as in Dangme East and Dangme West). Throughout the study area, "Sellers' follow-up" to cattle farmers and "Regularity of follow-up" were either poor or undecided.

The study showed that constraining factors associated with the quality of care of drug services are "inadequate information" is provided, "language gap", inability of drug sellers to "follow-up" on drug services and "inappropriate presentation of treatment methods" by drug sellers. The question that

TABLE 2
ANOVA of quality of care of farmer-drug seller interactions

SOURCE	*SS*	*df*	*MS*	*F*	*P > F*
Categories	93.524	9	10.3916	84.89	0
Locations	1.377	10	0.1377	1.12	0.3529
Error	11.01790		0.1224		
Total	105.918		109		

arises is whether farmers get the appropriate information from drug sellers. If not, what are the sources of misunderstanding about drugs? Appropriate guidelines on when and how to use drugs should lead to rational and safe trypanosomiasis treatment for the majority of farmers seeking veterinary attention.

It is known that most chemical sellers are not trained to prescribe drugs and neither do they have the appropriate guideline storage nor facilities (Dijk, 2008). For example, it was observed in the premises of chemical shops that facilities were poor, not sufficiently equipped with storage facilities to operate and maintain the quality of veterinary drugs. Therefore, it is important that in the process of drug distribution, particular attention should be paid to personnel qualification and storage facilities. The marketing of drugs using assertions unsupported by appropriate guideline for efficacy is widespread. The fact that a drug is widely marketed by drug sellers does not mean that it provides good treatment.

Country-specific data on prescribing patterns and drug use, though scarce, suggest that in developed and developing countries alike, prescribers and the public are not rational in their use of drugs (WHO, 1988). Furthermore, there is little information on initiative to improve veterinary drug use in developing countries ((Dalia, 2003). Various reasons could be attributed to the fact that veterinarians have failed to capture a larger share of the market (Van Dijk, 2008). This includes inadequate training (especially business training) in serving rural farmers on cost-benefit principle, poor partnership/ relationships with the pharmaceutical industry, inability to charge for their expert knowledge, expense of reaching remote areas, competition from pharmacists and paraprofessionals (SAHA Website: http:www.saaha.co.za).

Achieving rational use of drugs in future will depend to a larger extent on the ability of governments, the academic world, health practitioners, the pharmaceutical industries and consumers to develop information strategies and generate ideas on the most effective role of drugs in society within the health/veterinary sector (WHO, 1997). In both fields, the issue is one of the care with which veterinary drugs and vaccines are used in an animal or group of animals, respectively.

Some prescriptions may indeed be unnecessary, inappropriate or irrational (Stolley & Lasagna, 1969; Westerholm, 1986) especially in veterinary drug marketing shops. It is not surprising that some writers have questioned the disparity between drug prescriptions and the use of drugs (Poller & Kumar, 1989). The proliferation of drugs in the absence of the necessary infrastructure and trained personnel for the safe and efficient drugs usage, has led to indiscriminate system of drugs distribution and use. Kanji & Hardon, (1992) explained this situation as the lack of accurate and objective drug information and inadequate or non-existent regulatory controls in most developing countries. Although farmers are prepared to pay market prices for reliable drugs, treatment, as well as transfer of information to support the health of their animals/herds (Catley *et al.,* 1998), yet in rural Africa, the availability, quality and distribution of communal farmers and pastolralists is far from ideal and needs attention (Van Dijk, 2008).

Public health implications of trypanocide drug usage

The broad goals of monitoring trypanocide used on animals are to preserve the health of animals, improve animal production and protect public health. This could be achieved by improving information support to cattle farmers, drug sellers, service providers, veterinary professionals and policy makers on rational trypanocide use. This is an informational/educational intervention that involves providing information or training to service providers or users. It is the most widely intervention method used and may include mass media, continued professional development or training groups or individuals (Delia, 2003). It is known that by eating animals and animal products (meat, milk, etc.) humans are liable to consume whatever chemicals the animal has consumed or exposed to – veterinary drugs (Fingleton, 2004). Some of these substances are toxic and others are undesirable. Therefore, using trypanocides appropriately is key to community health.

Conclusion and recommendations

It is concluded that the perception of 250 farmers in the 11 districts in the coastal savanna of Ghana over Berenil® marketing is similar. For the fact that farmers take the direct responsibility of controlling animal trypanosomiasis by themselves, it is imperative to take into account their interests in policy development and decision-making on marketing of veterinary drugs. It is important that the training curriculum for drug sellers includes the implications involved in buying drugs from veterinary stores without precriptions from the veterinary doctor. Further, drug sellers should also be trained on the implications of drug abuse (overdose and under dose).

A possible training strategy to overcome poor prescribing would be for veterinary drug sellers to specialize and tailor their services to the needs in respective communities. This training could also start at pre-graduate training where the focus should be mainly on livestock. Incorporated in this endeavour will be the training of animal health technician (Field Technical Officers) and community animal health workers to establish a distribution network that not only distributes veterinary pharmaceuticals, but also ensures the dissemination of knowledge to the end users. The Veterinary Department and the Ghana Food and Drugs Board have roles to play in the monitoring of the marketing of trypanocides in accordance with good standards of pharmaco-vigilance.

Acknowledgement

The authors wish to thank Prof. Bob Cheke and Dr J. J. Bennison of NRI, the University of Greenwich, Chatham, UK, for their technical advice and also Dr David Haran and Julia Kemp of Liverpool School of Tropical Medicine, UK, for comments on the qualitative aspects of this research, as well as Prof. David Molyneux (Former Director of Liverpool School of Tropical Medicine) for useful comments.

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