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Detection and management of zoonotic diseases at the Kumasi slaughterhouse in Ghana

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Abstract

Slaughterhouse surveys are important in the detection and management of zoonotic diseases. Routine reports from the Kumasi slaughterhouse, in the Ashanti region of Ghana, include cases of zoonotic diseases. Due to its location and size, Kumasi is the major cattle market and an important transit point for cattle trade from places within and outside Ghana. This present study was designed to examine slaughterhouse reports and to explore the nature of the knowledge, attitude and practices of butchers who operate at this slaughterhouse, in relation to zoonoses. The study was largely descriptive, employing qualitative methods and tools. Butchers were interviewed and their practices along the production line observed. The study indicates that zoonotic diseases are frequently detected at the Kumasi slaughterhouse. However the knowledge, attitudes, practices and beliefs of the butchers are largely inadequate for their profession in view of the important public health role that butchers play. The butchers have never received any form of training. It is recommended that the butchers receive training on a regular basis and that laws be formulated and implemented to protect the health of the butchers and the general public.

Keywords: Zoonosis; Butcher; Kumasi slaughterhouse; Public health; Trade cattle

1. Introduction

Kumasi is the second largest city in Ghana, located in the humid forest belt, about 300 km north of the coastal city of Accra, the capital. Kumasi is a major trading centre for cattle. Nearly all cattle, including those bound for slaughter in Accra, pass through Kumasi. The livestock slaughtered at the Kumasi slaughterhouse comes from northern Ghana as well as the neighbouring countries and their health status is unknown. The butchers have daily contact with the animals destined for slaughter. Routine veterinary public health reports indicate that zoonoses are frequently detected at the Kumasi slaughterhouse (Veterinary Public Health Unit, 1997).

Slaughterhouses in urban areas of developing countries constitute an important risk factor for zoonotic infection of personnel such as the butchers and associated workers (Schwabe, 1984; Gill

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and et al., 1995; Gallard, 1997), as well as to the general public. The success of control programmes for these zoonoses depends greatly on public awareness of the health risks associated with exposure to meat (WHO/MZCC, 1989; Mantovani, 1992). This study seeks to identify the major zoonotic diseases encountered at the Kumasi slaughterhouse and to assess the knowledge, attitude and practices of the personnel who work there.

2. Methods and materials

2.1. Study area and population

The study was undertaken in Kumasi (6°45′ N, 1°37′ W). The Kumasi metropolis is second only to Accra, the capital city, in the size of the population (Dickson and Benneh, 1988). The population was estimated at 743 302 in 1998, a figure which rises to around 1 500 000 during the day, due to the influx of traders and travellers. The Kumasi slaughterhouse was built in 1955 and was meant for the slaughter and processing of a maximum of 12 cattle at any given time. The slaughterhouse serves the metropolis and other big towns, some over 150 km away from the city. The butcher population is about 750 men and boys ranging in age from 11 to 78 years old. Cattle arrive at the slaughterhouse by trucks from various parts of the country and neighbouring countries for slaughter.

2.2. Study design and data collection

A descriptive study was designed, that used specific questions to determine the butchers' knowledge, attitudes, practices and beliefs in relation to meat-borne zoonoses. Three groups of butchers were identified — the leaders of the butcher community (most of them no longer active butchers); active butchers, also referred to as 'masters'; and apprentice butchers, also called 'butcher boys'. Primary data were collected using interviews. All 38 members of the committee of elders of the butcher community were interviewed individually as well as in groups consisting of 5–8 members each. All interviews were recorded on tape. Focus group discussions were held with different age groups of butchers and a discussion guide was used. Non-participant observation was undertaken of slaughterhouse procedure as effected by the butchers. A checklist was used and photographs were taken. Secondary data were gathered from veterinary public health records, kept at the slaughterhouse and at the veterinary offices in the city.

2.3. Data analysis

The data collected was summarised using narrative text under the variable headings, knowledge; attitudes; practices and beliefs. Data from veterinary public health records were analysed and displayed using text and frequency tables.

3. Results

The cattle population in the three northern regions of Ghana is not enough to support the numbers of cattle that arrive for slaughter in Kumasi. It is accepted that at least 60% of the cattle purported to have come from these regions must have been smuggled in from places outside Ghana. This means that about 75% of all the trade cattle that arrive in Kumasi come from areas of unknown animal health status. About 80% of the trade cattle that arrive in Kumasi are slaughtered at the Kumasi slaughterhouse, and the rest are either transported to other towns to be reared or slaughtered, or kept for breeding purposes in Kumasi. The total number of cattle brought to Kumasi slaughterhouse in 1997, and their origins are provided in Table 1.

The public health unit conducts follow-up exercises on the origin of cattle diagnosed with zoonoses at post-mortem but when trade cattle come from outside Ghana such action is impossible. Out of 43 629 cattle that were slaughtered at the Kumasi slaughterhouse in 1997, a total of 13 702 (31%) were reported to have at least one disease or condition of public health significance as shown in Tables 2 and 3. Among the diseases encountered were tuberculosis, cysticercosis (*Cys-*

ticercus bovis), brucellosis, fascioliasis and sarcoptic mange (Table 2). Other conditions with possible zoonotic importance include a variety of abscesses involving lymph nodes, liver and other organs and skin conditions (Table 3).

The attitudes, practices and beliefs of the butchers obtained from interviews in relation to zoonoses are as summarised below.

Table 1
Trade cattle received at the Kumasi slaughterhouse (1997)[a]

Origin	Frequency	%
Burkina Faso	9460	21.7
Republic of Togo	6362	14.6
Ghana		
Upper east region	12 077	27.7
Upper west region	9708	22.2
Northern region	6022	13.8
Total	43 629	100

[a] Source: Veterinary Public Health Unit, 1997.

Table 2
Zoonotic diseases of public health significance diagnosed at the Kumasi slaughterhouse (1997)[a]

Disease	Frequency	%
Tuberculosis	53	3.6
Cysticercosis (*C. bovis*)	1137	77.3
Brucellosis	25	1.7
Fascioliasis	50	3.4
Mange (sarcoptic)	206	14
Total	1471	100

[a] Source: Veterinary Public Health Unit, 1997.

Table 3
Other conditions with possible zoonotic implications (1997)[a]

Condition	Frequency	%
Liver abscess	190	1.6
Lymph node abscess	9029	73.8
Abscess[b]	810	6.6
Mastitis	778	6.3
Skin disease	45	0.4
Septic wounds	1306	10.7
Cyst[c]	73	0.6
Total	12 231	100

[a] Source: Veterinary Public Health Unit, 1997.
[b] The abscesses recorded here do not include those found in the liver and in lymph nodes.
[c] The cysts exclude those recorded as cysticercosis.

3.1. Common attitudes

1. Self-medication was common — a common response was, "I take some para and am fine" (I take some antipyretic drugs and I get well). On the reason for self-medication, most butchers responded as follows, "If I go to hospital, I no go fit pay" (If I go to the hospital or a health facility, I will not be able to pay my bill). "Those who sell medicine for here too be doctors". (the drug peddlers who sell to the butchers are doctors too)
2. Butchers felt they were at risk only when cutting beef. They did not consider any other activity as posing a risk.

3.2. Common practices

1. Butchers were without adequate protection, such as overcoats and had prolonged and close contact with the floor and walls which were, very often, dirty.
2. Butchers ate, smoked, spat and drank (water and non-alcoholic beverages) in the lairage and on the killing floor.
3. Carcass to carcass contact was frequent, carcass to surface contact, very frequent. Faecal spillage onto carcasses was also common.
4. During peak slaughter hours, 50–60 carcasses (instead of the maximum 12) and up to 500 people, including women and children were present on the slaughterhouse killing floor.
5. Surfaces were not sanitised during the processing day.

3.3. Common belief

The butchers believed that their religious beliefs protected them from all risks, including the risk of contracting zoonotic disease.

3.4. Knowledge

The butchers had not received any formal training and had learnt their trade exclusively from

Table 4
Knowledge of butchers in relation to zoonoses[a]

Indicator	Yes	%	No	%
Awareness of zoonoses	32	84	6	16
Could name at least two examples of zoonotic diseases	18	47	20	53
Could name three or more examples of zoonotic diseases	8	21	31	79
Could describe signs of some zoonotic disease	23	61	15	39
Could describe all the zoonotic diseases mentioned by butchers	0	0	38	100
Knew one mode of transmission to man	11	29	27	71
Knew two or more modes of transmission to man	2	5	36	95

[a] Source: interviews of 38 elders.

older colleagues. A summary of their knowledge of zoonoses is shown in Tables 4 and 5.

4. Discussion

As revealed by the records, the Kumasi slaughterhouse receives nearly 44 000 cattle annually for slaughter which includes animals from two other countries in the West African region. A proportion of these cattle was diagnosed with at least one disease of possible public health significance including tuberculosis, brucellosis and cysticercosis. The butchers came into close contact with these animals during the slaughter process, putting themselves at risk of infection. There are a number of reasons for this including the poor and over-stretched facilities (instead of a maximum of 12, as many as 60 cattle may be processed at any one time). Although some of the butchers had some knowledge about zoonoses and could provide names for some of the important diseases, the majority of them lacked basic knowledge about how these diseases are transmitted to humans, making it difficult to apply basic preventive methods to minimise the risk of infection. Most butchers were unaware of common and frequent food-borne diseases such as salmonellosis or anthrax.

The beliefs of the local people serve as an additional contributor to the risk of exposure to zoonoses. Most of them believe that they are protected from disease because of their Islamic faith and, therefore, do not take any precautionary measures. Added to this is the very common habit of self-medication, which means chronic diseases such as brucellosis and tuberculosis often go undiagnosed. To some extent, there is a degree of authority vested in the butchers which makes it difficult to enforce any regulations at most slaughterhouses in the country. More widespread training and public education are urgently required to improve the situation.

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Table 5
Local names for major zoonotic diseases prevalent at the Kumasi slaughterhouse[a]

Disease	Local equivalent
Tuberculosis	TB
Anthrax	Yuou[b]
Cysticercosis (*C. bovis*)	Susa
Mange (sarcoptic)	Krosakrosa
Liver abscess	Maluru
Hydatidosis	Anta
Worms	Wems

[a] Source: interviews and focus group discussion.
[b] These are names from the local Hausa language spoken by most of the butchers.

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