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Veterinary waste disposal: Practice and policy in Durban, South Africa (2001–2003)

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Abstract

In South Africa, until recently, veterinary waste has not been included in definitions of health care waste, and so has been neglected as a contributor to the hazardous waste stream. Despite the application of, for example, the “Polluter Pays” principle in South African environmental legislation, to generators of waste, which would include veterinarians, there appears to be little awareness of and even less enforcement of the legislation in this regard. This paper reports on a 2001–2003 survey of management practices of the five waste contractors servicing just over half of the veterinarians in Durban, South Africa’s second largest city. Some of their activities, when evaluated in terms of the legislation, guidelines and policies relating to waste handling and disposal, were found to be non-compliant. Since any discussion on waste management should take cognisance of waste from generation to final disposal, the responsibility of veterinarians as waste generators is also discussed in the light of the recent developments in health care waste management in South Africa. This study presents a review of past and current policies, legislation and guidelines that have application to veterinary waste. This is the first study to address veterinary waste disposal in any South African city.

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1. Background

Globally, health care waste (HCW) is a highly visible, emotional and political issue (Brody, 1993). South Africa is no exception. Many disadvantaged communities live alongside landfills, where ‘picking’ may be their only form of livelihood (Khan, 1998). If, as has been claimed, that half of the South African biomedical waste stream is unaccounted for, largely as a result of improper separation and illegal dumping (Anonymous, 1993), this then has important consequences for ‘pickers’ at landfill sites. Considering that there are almost 27,000 potential sources of HCW (which appear not to include veterinary waste) in South Africa (Baldwin and Ball, 2000), cognisance must be taken of the hazards of illegal and inappropriate disposal of such waste.

In the United Kingdom (UK), veterinary waste is classified with other HCW as clinical waste and three important laws govern its management: the Control of Pollution Act, the Health and Safety at Work Act and the Environmental Protection Act (EPA) (British Veterinary Association (BVA), 1991, 1992). In April 1992, the ‘Duty of Care’ principle was added to the EPA, placing responsibility on all producers of clinical waste to not only handle and store waste safely on their own premises, but to ensure its safe and legal disposal. In the event of a contractor not dealing with the waste appropriately, the practice producing the waste would also then be liable. As a clinical waste generator, a veterinarian must show, in such a circumstance, that all of the correct procedures were followed, including verifying the waste contractor and providing transfer documents indicating types and volumes of waste collected (BVA, 1992). A similar principle operates in the United States of America (USA) in the form of a federal environmental law in which
generators retain liability for waste from “cradle to grave” (Brody, 1993). Guidelines in the Code of Federal Conduct govern waste storage, handling and transport (Pratt, 1994).

The situation in South Africa is somewhat different. Although, at the time of the study (2001–2003), legislation, regulations and guidelines with inferred application to veterinary practices existed, only recently has veterinary waste been included in the definition of HCW. Rigby’s (2002) claim of no statutory definition of veterinary waste in South Africa confirms this. While the Veterinary and Para-veterinary Professions Act (RSA, 2002) provides guidance for the profession, it requires only that practitioners follow the minimum requirements of a practice (not specified in the Act) and that the use of medicines is controlled by the Medicines and Substances Control Act (RSA, 1965). Additional but limited direction is provided in the South African Veterinary Council’s (SAVC) Code of Conduct for the Practice of Veterinarians (2004), such as the hygienic disposal of soiled dressings and animal tissue and the storage and disposal of carcasses to prevent decomposition on the premises (http://www.savc.co.za).

Although there were 871 registered veterinary practices in South Africa in 2001 (SAVC, 2002), little was (and still is) known about the types and volumes of veterinary waste generated, or about its storage and final disposal. Taking cognisance of Nowlan’s (1997) classification of veterinary waste (Table 1), clearly precautions need to be taken regarding its management. Nowlan’s (1997) classification is similar to that for HCW recognised by the Health Professions Council of South Africa (HPCSA, 2002), which advocated the South African Bureau of Standard’s (SABS, 0248:1993) Code of Practice for the Handling and Disposal of Waste within Health Care Facilities (which specifically did not include veterinary practices). Although contaminated waste from veterinary practices does not carry the risk of HIV infection, over 130 potential zoonoses are encountered in veterinary practices (Republic of South Africa (RSA, 1993a). Recent global outbreaks of Severe Acute Respiratory Syndrome, Avian Bird ‘Flu and Foot and Mouth Disease should alert authorities to the potential dangers of contaminated animal waste. Fortunately, the revised 1993 SABS guidelines (Standards South Africa, SANS 10248:2004) now include veterinary practices, clinics and hospitals as health care facilities. Managers of these facilities must now comply with the minimum requirements applicable to all generators of HCW (e.g., correct and labelled separation at source, waste documentation, staff training, developing a waste management plan and ensuring compliance regarding final disposal).

Although three national laws (Environmental Conservation Act (ECA, RSA, 1989); Occupational Health and Safety Act (OHSA, RSA, 1993a); the National Environmental Management Act (NEMA, RSA, 1998)) similar to those in the UK exist, with the two environmental laws reflecting “Polluter Pays” and “Duty of Care” principles, they deal with broad environmental issues (Table 2a). Unless potential polluters of HCW, such as veterinarians, are aware of their responsibilities in terms of these Acts, the Acts can easily be overlooked or ignored. While there is more relevant and specific HCW documentation in South Africa (Table 2b), it is unfortunately only in the form of draft policies and guidelines, making implementation impossible. Some of these policies (e.g., the White Paper on Integrated Pollution and Waste Management (Departmental of Environmental Affairs and Tourism (DEAT, 2000), the KwaZulu-Natal Department of Health Medical Waste Management Draft Policy (undated) and the Department of Health’s (DoH) Proposed Regulations for the Control of Environmental Conditions Constituting a Danger to Health or a Nuisance (2000), if implemented, would have far-reaching consequences, as they advocate, amongst other things, minimisation and recycling, and in some cases, provide specific guidelines for all HCW.

The major difficulty in South Africa, however, is the enforcement of any legislation, unlike the situation abroad, where strict policing takes place (Anonymous, 1993; BVA, 1993a; Brody, 1993; Pratt, 1994; Nowlan, 1997; Gilles, 2001). This lack of enforcement has been identified as an area of major concern in recent deliberations on HCW discussions in South Africa (DEAT, 2004a). Irrespective of inadequate enforcement or policing, this should not preclude veterinarians from their social and environmental responsibilities as generators of hazardous clinical waste.

This paper reports on one aspect of Muswema’s (2003) in-depth documentation of veterinary waste generation and disposal in Durban, the largest and busiest port on the east coast of South Africa, in the province of KwaZulu-Natal.

| Veterinary waste category | Description |
|---------------------------|-------------|
| Anatomical                | Recognisable tissue, animal carcasses, swabs and dressings (soaked with blood) |
| Infectious                | Any health care waste likely to be hazardous to human health, including microbiological cultures and potentially infective waste from different activities |
| Chemical                  | Toxic substances including pharmaceuticals, sterilising agents and used drugs (including X-ray film) |
| Sharps                    | Hypodermic and suture needles, including broken glassware, blades and lancets |
| Radioactive               | This includes wastes that emit alpha, beta or gamma radiation |
| Domestic                  | Office refuse, in particular, paper or plastic wrapping, cardboard boxes (also known as general waste) |

Table 1 Categories of waste produced by veterinary practices (adapted from Nowlan, 1997), which are similar to those described by the Health Professions Council of South Africa (HPCSA, 2002)
Table 2a
South African legislation with possible application to veterinary waste management

| Act                                                       | Relevance                                                                 |
|-----------------------------------------------------------|---------------------------------------------------------------------------|
| Medicines and Related Substances Act (RSA, 1965)           | Stipulates that no medicines may be disposed of into municipal sewerage systems. Disposal of medicines in manner determined by the Medicines Control Council. |
| Hazardous Substance Act (RSA, 1973)                       | Provides for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, etc. nature. |
| Health Act (RSA, 1977)                                    | Requires incineration of human anatomical waste.                           |
| Veterinary and Para-Veterinary Professions Act (RSA, 1982, amended 1989, 1993, 2002) | Provides South African Veterinary Council with power to control the practicing of veterinary professionals. |
| Animal Diseases Act (RSA, 1984)                           | Items contaminated with a controlled disease must be disposed of either through burning or burial. |
| Environmental Conservation Act (ECA) (RSA, 1989)           | Relates to waste management by regulating the dumping of waste in registered landfill sites. Includes the registration of landfills with the Department of Water Affairs and Forestry. Not very comprehensive. |
| Occupational Health and Safety Act (OHSA) (RSA, 1993a)     | The employer must provide a safe and risk-free working environment for employees by ensuring they are adequately informed and trained before being exposed to hazardous biological agents (HBA) and are equipped with protective clothing. Requires development of a procedure for disposal of infectious wastes. Requires incineration of animal carcasses infected with HBA. Includes zoonoses and hazardous biological agents. |
| Constitution of the Republic of South Africa (RSA, 1996)   | Gives every citizen the right to an environment that is not harmful to health or well-being. |
| National Environmental Management Act (NEMA) (RSA, 1998)   | Supersedes many of the sections of the ECA. Includes a “Polluter Pays” principle and remediation of environmental damage. Gives workers rights to be informed of dangers and protects those who refuse to undertake environmentally hazardous work. Includes the ‘Duty of Care’ principle. |
| National Environment Management: Air Quality Act (RSA, 2004) | Provides for national norms and standards regulating air quality monitoring, management and control by all spheres of government in order to secure ecologically sustainable development. Replaced the 1993 Atmospheric Pollution Prevention Act (RSA, 1993b). |

2. Methodology

2.1. Legislation, regulations, guidelines and policies relating to health care and veterinary waste

A comprehensive search of the literature was undertaken to identify all documents with possible application to veterinary waste. Tables 2a (legislation) and 2b (regulations, policies and guidelines) summarise the current status of these documents. A brief description of the relevant aspects of the acts, policies and regulations is provided.

2.2. Data collection: survey of veterinary practices and identification of waste contractors

In 2002, 61 veterinary practices operated in Durban (SAVC, 2002). Muswema (2003) surveyed 32 of these practices (52.5%) regarding their waste management practices. Selection of practices related to three criteria: type of practice (clinic or hospital); patients treated (large, small and mixed animal practice) and location of the practice (low, medium or high income area). The geographic location of each practice was entered into Microsoft Excel, and then imported into ArcView GIS and overlayed onto a thematic map using a Standardisation Index. Practices could then be randomly selected by layer. Most practices surveyed in the Durban Metropolitan Area were clinics dealing with small...
companies was undertaken. Included in the questionnaire and final disposal of veterinary waste by these waste contractors appeared to be the only such companies operating in the southern KwaZulu-Natal area (Durban and a neighbouring city, Pietermaritzburg). A senior manager from each of the four waste contractors and a diagnostics laboratory was approached and the questionnaire to be administered was explained. By means of this survey, a comprehensive audit of all activities relating to the collection and final disposal of veterinary waste by these waste companies was undertaken. Included in the questionnaire were issues relating to staff training and protective clothing.

Animals situated in areas designated as high and medium income. During the study period, no veterinary practices were located in low income areas.

Data collected from veterinarians surveyed indicated that they utilised the services of only one or more of four waste contractors and a diagnostics laboratory. These waste contractors appeared to be the only such companies operating in the southern KwaZulu-Natal area (Durban and a neighbouring city, Pietermaritzburg). A senior manager from each of the four waste contractors and the diagnostics laboratory was approached and the questionnaire to be administered was explained. By means of this survey, a comprehensive audit of all activities relating to the collection and final disposal of veterinary waste by these waste companies was undertaken. Included in the questionnaire were issues relating to staff training and protective clothing issued. A component of the questionnaire sought to explore their awareness of the company’s responsibilities in terms of legislation, policies and regulations governing waste collection, transport, storage and disposal (Tables 3a and 3b).

3. Results

3.1. Legislation, regulations, policies and guidelines

Despite veterinary waste generally not being classified as HCW until recently (e.g., in the DEAT (2000) and DoH (2000) draft policies, Table 2b), several South African laws have application to veterinarians as hazardous waste gen-

| Policy/regulations | Green Paper – An Environmental Policy for South Africa (DEAT, 1996) |
|---------------------|------------------------------------------------------------------|
|                     | Minimum Requirements for the Handling and Disposal of Hazardous Waste (DWAF, 1998) |
|                     | Draft Policy for the Management and Disposal of Medical Waste (DWAF, 2000) |
|                     | White Paper on Integrated Pollution and Waste Management for South Africa (DEAT, 2000) |
|                     | Proposed Regulations for the Control of Environmental Conditions Constituting a Danger to Health or a Nuisance (DoH, 2000) |
| Guidelines         | KwaZulu-Natal Medical Waste Management Draft Policy (KwaZulu-Natal DoH, Undated) |
|                     | Health Care Waste Management Regulations (Gauteng Province Department of Agriculture, Conservation and Environment, 2004) |
|                     | SABS 0248: Code of Practice for the Handling and Disposal of Waste Materials within Health Care Facilities (SABS, 1993) |
|                     | SANS 10248: Management of Healthcare Waste (SANS, 2004) |
|                     | Guidelines for the Management of Health Care Waste by Medical Practitioners, Dentists and Medical Scientists (HPCSA, 2002) |
|                     | Guidelines for Veterinary Biologicals (MCCSA, 2004) |

Table 2b
South African (national and regional) policies and guidelines with application (inferred and direct) to veterinary waste
ators and potential polluters (Table 2a). These laws range from environmental (e.g., ECA, NEMA) to those governing the handling and final disposal of hazardous or infectious material (e.g., OHSA, 1993b), the Atmospheric Pollution Prevention Act (RSA, 1993b), recently replaced by the Air Quality Act (RSA, 2004). At the time of the study (2001–2003), several national and regional policies were in the process of being formulated, with direct application to veterinary waste. Recent developments since the study (e.g., Safety of Veterinary Biologicals (Medicines Control Council of South Africa (MCCSA, 2004); the National Waste Management Strategy Implementation Project (DEAT, 2004a,b); the Gauteng Province Health Care Waste Management Regulations (Gauteng Department of Agriculture, Conservation and Environment, 2004); SANS 10248:2004) now have a direct bearing (vs. previously inferred) on veterinary waste and its management from “cradle to grave”.

3.2. Summary of veterinarians’ awareness of policies, legislation and guidelines

From the practices surveyed, many veterinarians were not aware of their responsibilities in terms of legislation and proposed policies. Only 9.3% of the practitioners surveyed were aware of the proposed DoH’s (2000) regulations and only 31.3% claimed to know their responsibilities (e.g., “Polluter Pays”) as generators of waste in terms of ECA and NEMA (Muswema, 2003). While it is possible that these two general environmental laws may have been overlooked by veterinarians, the OHSA is, however, applicable to any work situation, including all aspects of waste management from generation to final disposal. Provision is made in this Act for the identification of ‘standard precautions’ relating to contaminated animal products as hazardous biological agents with potential risk to humans (RSA, 1989, 1998).

3.3. Summary of contractors involved in veterinary waste removal

Almost 88% of veterinary practices surveyed used the services of only five contractors to remove waste from their premises (Muswema, 2003). Tables 3a and 3b summarise the operations and activities of these contractors. Contractors A and C collected carcasses only, whilst Contractor B, in addition to veterinary practices, also serviced other clinical waste generators. Contractor D serviced the municipal domestic waste sector. Contractor E was a diagnostics laboratory, which was included as it removed used sharps from clients’ premises gratis and disposed of contaminated anatomical parts (via Contractor B).
Immediately apparent from Tables 3a and 3b is that, apart from providing different services, the contractors implemented variable procedures with regard to the transport, storage and final disposal of waste collected from veterinary practices. Some of these practices appeared not to meet legislated requirements (e.g., safe transportation of waste and sufficient protective equipment for staff). In fact, two contractors claimed not to be aware of their responsibilities in terms of the current legislation (i.e., ECA and NEMA) regulating pollution and environmental degradation. Since there appeared to be little or no inspection of their records (which some indicated they did not keep), it can be assumed that any poor (and, in some instances, possibly illegal) waste management practices recorded during this study would continue until compliance is enforced. Even in terms of protecting staff, some did not provide sufficient training or protective clothing.

4. Discussion

4.1. Non-compliance of legal requirements

If the final stage of an integrated waste management plan for potentially hazardous or infectious veterinary waste involves the collection (with documentation) of appropriately labelled separated waste, safe transport to the site of final disposal, and the safe handling prior to final disposal, the 2001–2003 audit of the four waste contractors and the diagnostics laboratory identified by veterinarians in the greater Durban area suggests that all five companies do not comply with acceptable waste management practices on one or more counts. In the instance of three contractors, this was despite senior management being aware of the legal requirements of the ECA and NEMA. Several possible contraventions of OHSA were also identified, e.g., inadequate protective clothing, which should comprise at least gloves and protective eye wear (Brody, 1993). There also appeared to be insufficient staff training, as well as poor safety and emergency procedures relating to the transport of potentially infectious material. A similar situation was evident amongst some of the veterinary practices surveyed. Staff at several Durban veterinary practices were either not trained or were poorly trained to handle potentially infectious or hazardous waste. Many were also not provided with sufficient protective clothing (Muswema, 2003). Apart from being in contravention of OHSA, there was also non-compliance in terms of the minimum
requirements prescribed in the 2004 SANS 10248 guidelines for the waste management in health care facilities.

4.2. ‘Polluter Pays’ principle

Legally, as generators of waste and as potential polluters of the environment, veterinary practitioners are ultimately responsible (“Polluter Pays”, “Duty of Care” and “Cradle to Grave” principles) for the safe handling and disposal of waste by a registered contractor once it leaves the practice. In terms of these NEMA principles, although not spelt out as explicitly as the US and UK laws and regulations (BVA, 1993b; Brody, 1993; Pratt, 1994; Hannah, 1995), the veterinarian must ensure that the waste contractor collecting from his premises is registered and practices safe and environmentally appropriate waste transport and disposal.

From Tables 3a and 3b, it is evident that waste contractors were generally in contravention of some of the legislation,

Table 3b
Additional details pertaining to the transport, handling and final disposal of waste collected from veterinary practices in the Durban Metropolitan Area (South Africa) by four waste contractors and one diagnostics laboratory

| Contractor A | Contractor B | Contractor C | Contractor D | Contractor E |
|--------------|--------------|--------------|--------------|--------------|
| Transport of waste | Thermally insulated and secure vehicle. No safety or emergency kit provided | Anatomical waste transported to incinerator at Ixopo, many miles from collection point. Spill kits, cellular phone, tracking device, emergency plans. Not thermally insulated but leak-proof compartments | Vehicles are not thermally insulated | Vehicles are not thermally insulated as they are used to collect domestic waste. Usually waste bins are collected from surgeries and tipped into a rear end compactor. | Vehicles used to collect diagnostic samples are not thermally insulated (samples for diagnosis may be packaged in insulating material where required). Waste (e.g., sharps containers from clients) may be transported in the same vehicles |
| Security on premises | Access to the institution where the facility is housed is manned by security guards | Walls and fencing. Guards restrict access. Alarm | Restricted access – walled and guarded | Controlled access. Community members allowed to ‘pick’ | Burglar alarm on the premises and controlled access. Wastes are strictly controlled on the premises |
| Identification of waste on arrival | Only cadavers are collected either individually or together in bags | Relies on separation by client. Handlers open bags as the plastic is not incinerated. | Relies on separation by client | Bins are emptied into truck at client from bins or bags collected and deposited in truck | Sharps (own waste and clients’) are left in the sharps containers pending collection by Contractor B |
| Fate of waste on arrival at premises | Relies on separation by veterinary practice. | Relies on client to separate. Provides receptacles (at a cost). No cold storage so waste is usually processed immediately | Incinerated on arrival. Shares the cost of refrigerators at the practices to eliminate daily collection. Provides disposal bags for carcasses | Provides receptacles for domestic waste at a cost. These vary from small bins, to larger industrial type skips | Full sharps containers are stored in the cold room pending collection by Contractor B |
| Final fate of waste | Carcases incinerated. Ash disposed of as domestic waste | Domestic waste landfilled. Anatomical waste incinerated. Sharps, and other waste autoclaved | Domestic waste collected by municipality and landfilled | Anatomical waste, sharps, pharmaceuticals, waste with blood, infectious waste and chemicals collected by Contractor B. Cadavers sent to Regional Veterinary Laboratory or the SPCA incinerator in Pietermaritzburg Domestic waste collected by municipality and landfilled | Not sure |
| Incinerator registered | No | Yes | No | Should be in terms of legal requirements | Not sure |
| Waste manifest system | No | Transfer documents. Include mass and content of collected receptacles | Only records of incinerated carcasses are kept | No | No |
| Contractor registered with city health authority | Not sure | Yes | Not sure | Yes | Not sure |
| Records inspected by city health authority | No | Yes | No | No | No |
and so by implication, the veterinarians could be prosecuted. Unlike in the US and the UK, where policing ensures compliance in this regard, there is little or no enforcement in South Africa. Two reasons can immediately be offered. In the first instance, during transformation which began in ±1994, more pressing social, political and economic issues generally take priority over environmental issues. In the second instance, at the time of the study, some of the enforceable legislation may have been interpreted as not sufficiently specific to include veterinary waste (e.g., NEMA) and was therefore possibly ignored, while more definitive regulations and guidelines for safe HCW disposal (which, until 2000, did not include veterinary waste) were in draft form and therefore not enforceable. Even if, at the time of this study (2001–2003), it was assumed that HCW included veterinary waste, South African legislation pertaining to such waste was vague and was usually applicable only at the local authority level. Even if by-laws existed, considering that state or provincial medical facilities do not fall within the jurisdiction of the local authority, it is probable that contaminated clinical waste enters the municipal waste stream from these sources (Anonymous, 1993). In view of this, the poor waste management practices described for veterinarians and waste removal contractors for the period of the study should therefore not be surprising. The considerable momentum over the past year or two in terms of developing policies and regulations governing HCW (which now includes veterinary waste), in which issues relating to enforcement are highlighted, should now paved the way for stricter control over all aspects of HCW management. Current revisions to the SAVC guidelines will undoubtedly take cognisance of these latest developments, as well of more recent documents relating specifically to the profession (e.g., Safety of Veterinary Biologicals, MCCCSA, 2004).

4.3. Lack of separation at source

From data gathered from waste contractors, it would appear that collection of specific waste categories (e.g., hazardous, domestic, etc.) from veterinary practices requires appropriately labelled separation within the clinic or hospital at source (Tables 3a and 3b), as is now advocated in the 2004 SANS 10248 document. Thus, veterinarians, as producers of hazardous waste requiring incineration prior to landfilling, should have an appropriate separation and storage system on the premises of their practices. Most practitioners, however, had no waste management plans and were generally not aware of their legal responsibilities in this regard. Furthermore, at least 12% of potentially hazardous or infectious veterinary waste was disposed of with domestic waste, thereby potentially compromising the health of municipal workers removing the waste and members of the community allowed to ‘pick’ on some landfill sites (Muswema, 2003). Such inappropriate hazardous waste disposal is, however, not unique to South Africa. An Australian waste contractor has appealed in The Australian Veterinary Journal to veterinarians to dispose of their hazardous waste appropriately as some of his staff had sustained needle stick injuries following the incorrect disposal of syringes (Anonymous, 2000).

4.4. Incineration and liability

The “Polluter Pays” principle, as it relates to the veterinarian as a potential generator of hazardous waste, has further application in the present study. Three of the five contractors operated incinerators and for only one could appropriate registration be confirmed. In South Africa, like in the UK and USA, incineration is currently legislated for clinical waste disposal, particularly anatomical waste, despite more environmentally friendly technologies (e.g., microwaving, autoclaving and steam sterilisation) (Poggiolini, 2000). South Africa’s policy on Handling and Disposal of Hazardous Waste (DWAF, 1998, 2000) does, however, take cognisance of these alternative methods, and so future legislation might then enforce some of these cleaner technologies. Globally, incineration is a fiercely debated issue, largely because of its negative impact on the environment, with incineration of medical waste being identified specifically as contributing to atmospheric pollution. When comparing medical and domestic waste incineration, the former accounted for 30% of dioxins and furans generated while the latter was responsible for 1% only (Tickel and Watson, 1992). In the US, medical waste incinerators ranked amongst the top four sources of dioxins and anthropogenic mercury emissions. Switching to autoclaving for some hospitals resulted in an 80% reduction in operational costs, and also improved relationships with the community (Kaiser et al., 2001), presumably through reduced emissions and less air pollution. Although minimum requirements regarding incineration in South Africa were governed by the Atmospheric Pollution Prevention Act (RSA, 1993b, but replaced in 2004 by the Air Quality Act), it has been estimated that only half of the bio-hazardous waste generated daily was incinerated without polluting the atmosphere (Anonymous, 1993). It is interesting to note that many unregistered incinerators are associated with provincial (under local government jurisdiction) hospitals (Rigby, 2002). In the context of the present study, with apparently inappropriate final handling and disposal of some of their waste by contractors, the veterinarians, as the generators would be liable, should enforcement be instituted.

4.5. Inadequate documentation relating to waste management

Perhaps the most neglected aspect relating to veterinary waste disposal emerging from Muswema’s (2003) study was the poor or absent documentation regarding to the types and volumes of waste generated by practitioners. In the event of an accident, e.g., during transportation or final disposal, or inappropriate disposal (e.g., sharps in domestic waste) by a contractor, the absence of a documented waste
audit system would make it difficult to identify the waste generator to apply the “Polluter Pays” principle. Since only 87.5% of veterinarians surveyed made use of waste contractors, this begs the question: What is the fate of the waste (some of which is potentially hazardous) generated by the remaining 12.5% of practices? In addition, ±12% of hazardous veterinary waste generated by the practices was reported to be disposed of via the domestic waste stream (Muswema, 2003). In terms of the 2002 HPCSA Guidelines, this contamination renders municipal waste ‘infectious’, requiring incineration. Since none of the waste contractors handled chemicals or pharmaceuticals, a query regarding the fate of potentially hazardous substances from these practices must also be raised. One must assume that some of these chemicals were disposed of via the domestic waste stream or the sewage system, despite the Veterinary and Para-veterinary Professions Act (RSA, 2002) subscribing to the Medicines and Related Substances Act (RSA, 1965).

5. Conclusions

Muswema’s (2003) comprehensive study on several aspects of veterinary waste generation and disposal (which includes the aspect currently presented) in a major South African city, apart from being the first such study in South Africa, has highlighted the historic neglected status of veterinary waste and has identified areas of veterinary waste management that require attention. His study indicated that not only are many veterinarians unaware of their legal responsibilities in this regard, but some of the waste contractors are equally ignorant. Poor waste management in the veterinary practices, followed by incorrect transport and disposal measures, as well as failure to inform and equip staff sufficiently, are just some aspects of non-compliance by both veterinarians and waste contractors. At the time of the study, veterinary waste was just emerging from its “neglected” status, with little or no legislation and guidelines specifically governing its handling and disposal. More recently, however, with veterinary practices, clinics and hospitals now included as health care facilities (e.g., SANS 10248:2004) with minimum requirements and with hazardous veterinary waste assigned the same status as human HCW in South Africa, there can be no excuse for non-compliance. Following the example of the enforceable Gauteng Province HCW Management Regulations (2004), which now include veterinary waste in the definition, in which provision is made for the “Polluter Pays” principle, waste tracking and auditing and most importantly, reinforcement and penalties for non-compliance, national regulations are also currently being developed in conjunction with individual provincial needs. Considerable success in terms of HCW was thus achieved in 2004. The onus now rests with the SAVC as the professional governing body to ensure continuing education of veterinarians about their social and environmental responsibilities, much like that undertaken by the BVA (1993b) and the American Veterinary Medical Association (Brody, 1993). It is encouraging that the SAVC is currently revising its guidelines for veterinary practices, which will presumably take cognisance of recent developments in holistic HCW management. The Medicines Control Council of South Africa document (MCCSA, 2004) regarding the safety of veterinary biologicals will also contribute to the safer disposal of potentially harmful HCW generated by veterinary practices (MCCSA, 2004). The shortcomings and concerns regarding veterinary waste identified in Muswema’s (2003) study, some of which have been discussed in this submission (e.g., safe transportation, storage, handling and final disposal), are therefore likely to be addressed (locally, nationally and professionally) in the not too distant future. It remains to be seen, however, whether reinforcement of this legislation will become a national priority.

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