

## Mr J Ian Blenkarn MSc CBiol MIBiol CSci FIBMS

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Mr John Prendergast  
Project Editor, Publications  
Central Office of Information (COI)  
1st Floor East, City House  
New Station Street  
Leeds LS1 4JG

26 January 2006

Dear Mr Prendergast,

Re: **Response to – Safe Management of Healthcare Waste: A Public Consultation  
Gateway number 5471**

As a microbiologist who has a long-standing research interest in aspects of healthcare waste management, from bedside to end disposal, and to hospital hygiene, infection control and bio-safety I have reviewed the above document with interest. I am actively engaged in a comprehensive research program concerned with the formal examination of the biological hazards associated with healthcare wastes, and the impact to hospital hygiene, to patient safety and to the safety of others. With an established private practice that encompasses the public and private sectors at home and abroad, I am taking this opportunity to respond to the NHS consultation document concerning the safe management of healthcare waste.

My overriding impression is that the document is incomplete, and in part frankly misleading. It does not serve the NHS well, and gives an overwhelming impression that it has been constructed by those with only a limited, indeed perhaps no, working knowledge of NHS life, of the practical constraints and limitations that the NHS faces day-by-day, and thus upon what may be achieved in practice. To formulate a draft that overlooks matters of deliverability is of doubtful benefit.

My principal concerns are three-fold. Firstly, the proposal to **change the colour coding scheme for clinical wastes** and for related wastes are inappropriate and largely unnecessary, and will incur a huge, and avoidable, cost to the NHS. Superficially, the changes are modest though may have considerable impact on current practice. Change of the present colour coding scheme has few, if any advantages in the context of the safe and effective disposal of wastes from healthcare establishments. In particular, there can be foreseen a wide range of potential difficulties that must be addressed, none of which are insurmountable but which can be predicted to have an outcome that has little prospect of providing significant advantage:

- **Cost** – replacement of all primary containers, waste bag holders<sup>1</sup> and other peripheral equipment; replacement of all training materials, labels and instruction sheets
- **Training/retraining** – retraining and instruction, with necessary reinforcement of retraining to ensure compliance, for all NHS employees, service providers and contractors to ensure

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<sup>1</sup> As most lidded bag holders/waste bins are themselves colour coded, to reflect the colour code of the bag contained within, these holders must likewise be replaced



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familiarisation with revised segregation schemes; re-training and re-supply of patients receiving long-term domiciliary care.

It is of great concern that the existing key colour coding that relies upon yellow coding of all primary waste containers intended for clinical wastes, universally recognised throughout the UK in both the public and private sectors, will be largely disestablished. This retrograde step must be viewed with great concern.

- **Timetable for change** – the implementation of a new colour-coding scheme is likely to be a protracted exercise, and during this period, which may be in excess of 2 years, a significant increase in the frequency of errors in segregation and disposal is likely.
- **Error in segregation with a bewildering array of containers for different wastes** – there is a large body of evidence that in circumstances where choice exists, errors become more frequent. This may be the case with the proposals for change in colour coding proposed in the draft document. As such, the proposals do not represent best practice, and will create a complex and error-prone system that does not deliver value for money or a safe system of operation.
- **Space** – space is at a premium in most healthcare establishments, both in clinical areas, between bed spaces and in support and preparation areas of wards and other clinic areas. The proposals to increase the sub-division of waste streams will require siting of additional waste containers at every location where waste may arise. Space constraints are unlikely to permit this additional burden and on this basis alone, compromise and failure to segregate wastes according to the schemes presented in the draft will be inevitable.
- **Logistics** – increasing the number and variety of waste containers in use will pose a significant logistics challenge to many establishments. For every colour coded container presently in use there may in future be two or more. This demands change to the procurement and supply chain; to portering and ancillary support that must manage separately these additional waste streams using separate carts and other equipment; separate storage space to ensure that different waste streams are not mixed; additional administration, notification and disposal costs through the management of a greater number of waste streams

The second principal concern is that of **compliance**, or the lack of it as proposed in the draft document. It is with immense concern that I note the commentary included in the draft document that the proposals it contains are not mandatory throughout all parts of the NHS.

The current review of waste disposal practices with NHS establishments is perhaps the first opportunity in recent years to establish standardisation of policy and procedure. I applaud this. To create a single coherent system that operates across the NHS, in England and Wales, Scotland and Northern Ireland, will promote best practice through uniformity of approach, creates opportunities for cost saving through standardisation and the opportunities for bulk purchase of consumables etc, supports universal of training, and will ensure the highest possible standards of compliance.

Clinical and related healthcare wastes arise also in the private sector. Creation of a comprehensive and accurate guide concerning the management of the wastes applicable to all parts of the NHS will create a *de facto* Code of Practice that may be taken up by those operating in the private sector. This affords considerable further advantage, standardising practice between different parts of the NHS and elsewhere, providing uniformity of policy and procedure to ensure that employees moving between different public and private sector employers are not required to use differing, perhaps conflicting, waste management procedures. Through familiarisation and standardisation, performance and compliance will

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improve. These advantages may be lost unless a single unified approach has been comprehensively established, and is enforced.

The movement of healthcare staff between employers, perhaps between adjacent Trusts, who then face different colour coding schemes for wastes gives great concern. Though these matters should be addressed in staff induction, error is inevitable and the consequences may be costly.

Additional difficulties will arise in the disposal industry. Where contracts for disposal exist with waste producers operating different colour coding and marking schemes, perhaps each individually valid and comprehensive though potentially conflicting with the scheme used by their neighbours, errors may occur with the possibility for inadvertent mixing of waste streams that should more properly be managed separately. The inevitable consequence to waste producers will be an additional increase in cost because of the additional steps necessary to segregate dissimilar waste streams that are marked using different and possibly conflicting colour coding. These additional costs will inevitably be borne by waste producers.

This impacts yet further on aspects of safety management, and on the overall supervision of the waste management process, from producer to contractor. Presently, the appearance of a yellow bag or bin provides an immediate and clearly understood indication of the presence of clinical wastes. Where different colour coding systems exist in adjacent Trusts, perhaps between different hospitals within the same Trust, or between NHS and private sector producers operating in the same area, the immediate recognition of poor performance by observation of clinical wastes in inappropriate locations, or of mixed wastes inappropriately managed as, one will be lost.

The third principal concern is the failure to address **waste minimisation**. Quite remarkably, proposals contained within the draft do not address issues of waste minimisation. By contrast, the proposals do move toward the down-regulation of some considerable proportion of clinical waste arisings that may provide an attractive cost-driver that, as discussed below, may be disadvantageous or frankly dangerous. In light of the strong political will to promote waste minimisation, and several years of robust campaigning by DEFRA and the Environment Agency in particular, it is astounding that waste minimisation receives no mention in the draft.

It is clearly true that a considerable component of those items currently consigned as clinical wastes comprise innocuous items such as packaging waste. This incurs additional and unnecessary costs for producers, and is environmentally unsound. The draft proposals move toward an expectation of additional segregation at source. Requiring additional waste containers in locations already cramped and overcrowded, it is unlikely that this will achieve the required standards of segregation. Opportunities for waste minimisation will be lost, and packaging wastes will still enter an inappropriate, and costly, waste stream.

Notwithstanding, I share the view of others who advocate, and have actively promoted, removing black bags from areas where clinical wastes may arise in order to eliminate errors in disposal and improve standards of safety.

Waste minimisation though the elimination of packaging wastes from clinical waste streams is particularly important and best managed at the supply and distribution stage. In that respect, I support initiatives to reduce the volume of packaging wastes received by the NHS. The NHS has an obligation, largely unrealised, to work with manufacturers and others to develop effective end-of-life solutions for the packaging wastes that it receives. Other key developments must include a move toward the unit distribution of supplies, from a central supply and forward distribution unit serving individual wards and clinical departments etc. In this way, packaging wastes are retained at a central location, for reuse, recycling, or for disposal at reduced cost. In contrast, the central tenet of the draft document is that,

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while yet further segregation of wastes is proposed to create additional waste streams, nothing shall be done to reduce, recycle, or reuse packaging materials from NHS establishments. These are omitted from the flow chart on page 49, other than by classification as domestic waste destined for landfill disposal.

Further to these points, two key omissions from the draft are apparent:

#### **Community nurses providing domicillary treatment**

There is no reference in the draft to the generation, collection, and transport to some central disposal point of clinical wastes generated through the domicillary care of patients by district nursing services.

It is widely recognised that the arrangements for transport of these wastes in NHS lease and privately owned cars operated by community nurses etc have been largely outside any legislative framework. Indeed, this has caused some controversy over recent years. It is appropriate that the NHS document should be revised to include practical guidance on this subject, to include the arrangements for safe containerisation of wastes and vehicle hygiene etc. The realities of clinical care in the home environment require due attention to safety, though resources are inevitably limited in scope. In particular, it is not reasonable to anticipate that community nursing staff might carry with them the plethora of additional waste containers now proposed. In such circumstances, compromise in the extent of segregation must be anticipated and indeed permitted, and guidance documents must be moderated to reflect this.

#### **Needle exchange schemes and the disposal of unwanted Prescription Only medicines**

There exists unequivocal evidence regarding the value of needle exchange schemes. While these schemes are often under-resourced, they provide a vital contribution to preventing the spread of bloodborne virus infection and must be applauded. Needle exchange schemes are generally managed by community (high street) pharmacies, outreach NHS services, aid agencies and other charitable organisations.

Similarly, the recovery for disposal of unwanted and out-of-date Prescription Only medicines by pharmacies provides a valuable service. Such schemes remove potentially harmful pharmaceuticals from the household, ensuring appropriate disposal in circumstances that might otherwise result in hoarding of unwanted prescription drugs, co-disposal with domestic refuse, or discharge to sewer. The clear advantages afforded by such schemes must not be permitted to flounder through the imposition of any additional administrative or financial burden to community pharmacies.

While it is appropriate that practical administrative and technical guidance is provided in the draft, it is additionally necessary to take positive steps to support and facilitate such initiatives. It would be tragic if the over-enthusiastic imposition of new legislative controls were to impact adversely on these activities. This may be through the intervention of a regulatory body intent on raising standards of performance to a level that is outwith the scope of those providing these services, or by the increase in cost that may follow from additional licensing and disposal costs. This may require a pragmatic approach to the interpretation and implementation of legal constraints, with additional funding to ensure that such services continue to support the public health.

I must comment also on more specific issues, supporting or explaining in more detail the key points outlined above. For ease of reference, these are listed in accord with the structure and numbering convention of the original consultation document. However, the order of the points raised does not imply any hierarchy of merit and I attach broadly equal concern to each of these matters.

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## 2.12 Duty of Care

Reference is made to the DEFRA document “**Waste Management, The Duty of Care: A Code of Practice**”.

With regard to that Duty, and the Duty of Care that exists under the Health and Safety at Work Act etc., I am concerned about the impact of errors and change of current practice that stem from the implementation of a dual system of waste categorisation, and thus of changes to waste segregation and processing, promoted through implementation of the European Waste Catalogue.

The CDC Universal Precautions may be confounded in circumstances where some wastes containing or contaminated with body fluids, whether visibly bloodstained or not, are managed as non-hazardous under EWC. The Duty of Care under H&S legislation may not be adequately discharged if these wastes are not managed as potentially hazardous to the health of employees, contractors and others who may be exposed to it. Failure in this Duty of Care may be magnified by the increased possibility of error in waste classification and waste segregation brought about by the creation of multiple waste streams and which discussed elsewhere in this response to consultation (**4.12 European waste catalogue; 4.14 Hazardous Waste Guidance WM2; 5.11 Identification of Infectious Waste**).

Compliance with the CDC Universal Precautions (*vide infra*) supports the management of all clinical wastes previously described as waste of Groups A-C as infectious (EWC 18 01 03).<sup>2 3</sup>

## 3.0 Healthcare waste policy

I applaud the proposal to enshrine a comprehensive policy for healthcare waste management into procedures for staff training and awareness.

It is of concern however that in practice there may be groups working in hospitals, and elsewhere in primary care, that may be excluded, at least in part, from this core training. The current evolution of NHS services now regularly includes large numbers of contracted staff who receive their training and supervision from third party employers:

- Pathology and other diagnostic/investigative services staff
- Catering contractors
- Portering, ancillary and cleaning contractors
- Private sector healthcare and clinical service providers
- Subcontracted services operating between adjacent Trusts
- Agency staff including locum medical, technical and nursing agencies
- Nursing students
- GPs and GP employees

I suggest that best practice will ensure that healthcare wastes policy documents, and indeed policies for the management of all other waste streams, are compiled in consultation with representatives from all

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<sup>2</sup> Blenkarn JI. Infection Control Special. Expanding waste lines: Good Management. *Health Service Journal* 2005; 115: 28-29

<sup>3</sup> Blenkarn JI. Lowering standards of clinical waste management - Do the Hazardous Waste Regulations conflict with CDC Universal Precautions? *Journal of Hospital Infection* 2006 (*in the press*)

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third party contractors/employers. Moreover, best practice requires that these policy documents form a core part of all contracts and/or memoranda of understanding that may exist between Trusts and their service providers. This will include a defined hierarchy of reporting, harmonisation of training, standard operating procedures, and of health & safety policy and procedures.

Such an approach, which must be included in the current NHS documentation, supports and will be supported by a robust approach to standardisation of, for example, colour coding for waste containers and of waste segregation policy that I address elsewhere in this response to consultation. In contrast to the approach presented in the current draft document, such standardisation must be mandatory throughout the NHS in England and Wales, in Scotland, and in Northern Ireland.

The mobility of staff must be acknowledged. As individuals move between employers, every attempt should be made to support standards of waste management through uniformity of process. The needs for training and retraining will not be removed, though may be reduced. Importantly, errors caused by healthcare professionals moving between employers having different, perhaps conflicting policies and practices for the management of healthcare wastes will be minimised and hopefully eliminated.

With a truly unified approach<sup>4</sup> operating across all NHS establishments, similar advantage will additionally accrue to waste disposal contractors and to representatives of the Environment Agency and Health & Safety Executive. Since it will be easier to identify wastes by the appearance of the primary container, marked according to a universal and unvarying coding scheme, this will ensure greater compliance and enhanced safety.

#### **4.12 European waste catalogue**

The European Waste Catalogue provides a system of categorisation for all wastes, based on composition and hazard potential. There are a great many very clear advantages to the incorporation of the catalogue to the practical management of and legislative framework for all wastes. However, this catalogue is still in its infancy, and will require periodic revision and review.

In chapter 18 of the European Waste Catalogue, *Wastes from natal care, diagnosis, treatment or prevention of diseases in humans*, I have some concerns. Considering those mainstream clinical wastes previously categorised as Group A wastes it is now appropriate to assess, on the basis of risk assessment and clinical judgement, the potential for such wastes causing harm through the transmission of infection. The assessment is inevitably subjective and may be prone to error.<sup>5 6</sup>

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<sup>4</sup> It is noteworthy that the draft NHS document refers in its key recommendations to a “*unified approach*”, that is “*not mandatory but is considered best practice*”. In reality, this represents a lost opportunity to the development of a truly unified approach operating to a single defined standard across all parts of the NHS. Where such uniformity exists, this is likely to be adopted as a formal Code of Practice by producers of similar wastes operating outside the NHS, and by the increasing number of private sector providers operating in close association with the NHS.

<sup>5</sup> Blenkarn JI. Expanding waste lines: Infection Control Special. Health Service Journal 2005; 115: 28-29

<sup>6</sup> Blenkarn JI. Pathology waste - issues, implications and regulations. Biomedical Scientist 2005; 49: 678-682

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### *A practical and logistics issue*

Categorisation of wastes as hazardous (EWC 18 01 03) or non-hazardous (EWC 18 01 01, EWC 18 01 02, EWC 18 01 04) will require that these different waste streams are not mixed. It would be necessary to provide two or more containers for clinical wastes where presently there is only one and as space is critical in much of the NHS Estate, this is impractical and largely unattainable.

If dual containers can be provided, there exist addition costs to the NHS of dual administration, twice the service costs, two portering events to remove wastes for disposal, two waste carts and separate storage areas. This is counterproductive.

### *Inviting error*

The scientific literature contains the results of numerous studies that show an increase in the frequency of error where additional choices exist. Good risk management practice eliminates choice as far as is practicable.

It is my professional opinion that the provision of additional waste containers to accommodate these dual waste streams of hazardous and non-hazardous clinical wastes will be prone to error. The information necessary to make a sound judgement may not be available to the staff involved in the practicalities of disposal. Such decisions may be outside their training and ability. The consequences are therefore that sweeping generalisations will have to be made concerning the infection risk associated with wastes. What is the denominator for such a decision process? If it is to be per patient then issues of confidentiality arise with the need for identification of high risk patients. Per ward is impractical, as was exemplified by the misleading example given in an early iteration of the Environment Agency guidance note WM2<sup>7</sup>, while site-wide generalisations are surely without merit.

### *CDC Universal Precautions*

The CDC Universal Precautions<sup>8</sup> and more extensive Standard Precautions,<sup>9</sup> adopted by healthcare workers worldwide, are fully supported by the UK Department of Health.<sup>10</sup> They provide a robust and overarching framework to the prevention of infection among healthcare workers and to the prevention of

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<sup>7</sup> An earlier (2005) version of WM2 suggested that, since patients on an orthopaedic ward rarely develop infections, then wastes from such patients might be classified as non-hazardous. This naive, misleading and possibly dangerous advice ignores completely the possibility of undiagnosed or unrecognised Hepatitis B or HIV infection in patients on orthopaedic wards.

<sup>8</sup> Centers for Disease Control. Recommendations for prevention of HIV transmission in health-care settings. *Morbidity and Mortality Weekly Report* 1987; 36 (suppl 2S)

<sup>9</sup> Garner JS, The Hospital Infection Control Practices Advisory Committee (HICPAC). Guidelines for isolation precautions in hospitals. *Infection Control and Hospital Epidemiology* 1996; 17: 53-80

<sup>10</sup> UK Health Departments. *Guidance for clinical health care workers: Protection against blood-borne viruses: recommendations of the expert advisory group on AIDS and the advisory group on hepatitis*. London. UK Government, Department of Health. 1998

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healthcare-associated infection, and underpin almost all initiatives aimed at the improvement of standards of hospital hygiene and the prevention of cross-infection.<sup>11</sup>

The “Universal Precautions” are intended to prevent parenteral, mucous membrane, and non-intact skin exposures to bloodborne pathogens while the more extensive “Standard Precautions” afford protection against transmission of the full range of pathogens implicated in healthcare-associated infections. Standard Precautions apply to blood, all body fluids, secretions, and excretions except sweat, *regardless of whether or not they contain visible blood*,<sup>12</sup> non-intact skin, and mucous membranes. They are designed to reduce the risk of transmission of micro-organisms from both recognized and unrecognized sources of infection. Logically therefore, these Standard Precautions would apply to, *inter alia*, the wound dressings, swabs and other items that comprise clinical wastes and must apply to the typical bag of clinical wastes that had previously been categorised as Group A or Group B or Group C wastes. It is my belief that to classify clinical wastes as non-hazardous is to ignore completely and undermine the provisions of the CDC Universal Precautions/Standard Precautions.

#### *The fate of clinical wastes*

The fate of clinical wastes that may be categorised as hazardous (EWC 18 01 03) or non-hazardous (EWC 18 01 01, EWC 18 01 02, EWC 18 01 04) has an additional bearing on the use of this dichotomous classification. Virtually all of these clinical wastes, when transferred to the care of licensed waste contractors, will be treated identically irrespective of the detail of classification. Separate arrangements for the carriage, notification of consignment and processing of dual waste streams will incur additional costs for the NHS and might be avoided by a single unified approach to classification of wastes.

In view of the above, I must caution against the use of a dual classification of clinical wastes as hazardous or non-hazardous based on the potential risk of infection. Error is likely through an inability to categorise waste correctly and the need to make broad and potentially erroneous assumptions. Categorisation may contradict the requirements of CDC Universal Precautions, which presents obligations that do not cease at the point of discard of potentially contaminated wastes. The possibility for additional civil (personal injury) and criminal liability under H&S legislation must not be overlooked.

#### **4.14 Hazardous Waste Guidance WM2**

Although the Environment Agency guidance document WM2 provides some useful advice, I am concerned at some of the information it contains. Previous iterations of WM2 have included guidance that is deeply flawed. This suggests a marked lack of knowledge of microbiology, infection, and the day-to-day realities of work in the healthcare sector. This is discussed in greater detail in the section **4.12 European Waste Catalogue**.

I am particularly concerned at the undue reliance of the current NHS document on the Environment Agency WM2 guidance document, and to the existing categorisation of wastes in EWC in circumstances

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<sup>11</sup> Blenkarn JI. Lowering standards of clinical waste management – Do the Hazardous Waste Regulations conflict with CDC Universal/Standard Precautions? *Journal of Hospital Infection* 2006 (*in the press*)

<sup>12</sup> The table in section 5.11 on page 34 of the draft NHS document refers only to fluids containing visible blood. This is incorrect.

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where the required risk assessment may be critically flawed by the uncertainty of information on the part of those managing wastes in hospitals.

The resulting promotion of error in classification, and the lack of a failsafe approach to the management of potentially hazardous wastes, will be counterproductive.

#### **4.41 Medical devices and mixed wastes**

Reference is made in this section to the problems associated with mixed wastes, for example to small medical devices and dressings that may comprise additionally one or more NiCad button cells. The NHS document correctly records the different hazards that may be associated with such wastes. However, the example cited identify a broader issue that requires a pragmatic approach to the disposal of these mixed wastes, and to the associated administrative undertakings.

Though formally correct, the individual recording of the occasional NiCad button cell that may be present within clinical wastes, is largely without merit. Separation of those items for segregation at the point of disposal, or at some later stage, is impractical and possibly unsafe if there exists an associated risk of infection. Leaving aside bulk collections of specified wastes, the necessity for separate recording and notification of an occasional item co-disposed with clinical wastes has no clear advantage, and is principally a paperwork exercise that is without merit.

In view of the probability that there will exist a likelihood that within any consignment of clinical wastes of some extraneous items, from incidental packaging waste to drinks cans and similar items, it seems appropriate to consider *in extremis* the accuracy of classification of waste composition. Inevitably, categorisation for the purpose of recording and notification is likely to be on a site-wide basis. Audit may identify only infrequent disposal of small quantities of these additional wastes along with clinical wastes. I propose that the appropriate and pragmatic approach is to omit these supplementary descriptions, subject to Environment Agency approval, from classification.

Exceptions might include wastes from specialist units discarding large quantities of a particular mixed waste. Similarly, where the nature of these additional items, even in small quantity, will have an adverse environmental effect, they should clearly be recorded and disposal managed appropriately. In all other cases, I am confident that the omission of such items from waste classification documents, when these are or may be present in particularly small quantities, is of no consequence. The opposing position, that is the inclusion in waste classifications of items found infrequently, perhaps at the time of an annual audit and included only on a best guess basis for all other consignments throughout the year, would be counterproductive, misleading and may have significant impact on the costs of disposal.

#### **4.43 Diagnostic specimens**

I must contradict the misleading comment in this section, which advises the reader that "*Diagnostic specimens are not waste items and are not subject to waste management controls.*"

After processing, diagnostic specimens become waste items and are subject to the same controls as clinical wastes from other clinical and diagnostic departments.

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### **5.11 Identification of Infectious Waste – are wastes infectious or not?**

The opening statements in this section are in some part at odds with other sections of the document, and with proposals for the categorisation of wastes.

It is stated that “*the classification of infectious wastes does not rely on the use of pathogen classification groups and waste should be considered infectious even if the resulting infection would be considered ‘minor’.*”

This is entirely correct and I fully support this view, which categorises all clinical wastes as potentially infectious in their raw state and requires therefore that these are managed accordingly. That is, for wastes previously categorised as Group A, B or C wastes, to be categorised as EWC 18 01 03. The consequences of any acquired infection may indeed be minor, but every attempt must be taken to prevent these through robust waste management procedures. Where there exists a reasonable probability that infection might be acquired from contact with wastes, care must be taken and those wastes managed accordingly.

It is my professional opinion that standards are likely to decline though adoption of the EWC categorisation of non-hazardous clinical wastes (EWC18 01 01, EWC 18 01 02 and EWC 18 01 04). With these lesser categorisations, the accuracy of waste segregation is likely to decline. Where choice exists and multiple waste containers are available, the frequency of error in segregation will increase. By circumventing the unifying principals of the CDC Universal Precautions and the lessons of risk management, hazardous wastes are likely to be consigned as “non-hazardous” permitting the handling, storage and ultimate disposal of these wastes to a lesser standard in circumstances where the risk may indeed be high. The additional cost-driver, created by permitting lower standards of care in disposal, promotes failure in compliance. This may result in breach of current Health & Safety legislation and leave the NHS open to claim.

Cost savings thought the categorisation of some wastes as non-infections, leaving aside those sanitary wastes previously categorised as Group E waste, are likely to be minimal. An environmental advantage cannot be foreseen. Set against possible space constraints, logistics, risk management and the additional administrative costs associated with the management and notification of these dual waste streams, putative cost savings become less attractive and may be more apparent than real.

### **5.11 Identification of Infectious Waste – Assessment and Classification of Infectious Waste**

I have several comments pertaining to the flow chart “Assessment and Classification of Infectious Waste” that appears on page 36 of the NHS consultation document:

**i Is the waste listed in Chapter 18 of EWC? If “No” refer to WM2**

WM2 is not an all-embracing source of accurate information, though serves as a useful first stop. This chart could be improved by inviting the user to refer to the Environment Agency, or to an approved waste management contractor for more extensive guidance.

**ii Is the waste a laboratory culture? If “Yes”, has it been treated to render it non-infectious?  
If “Yes, NOT infectious waste**

There are several problems with this section:

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- a) Firstly, it is common practice to process by in-house autoclaving most diagnostic microbiology laboratory wastes, but rarely wastes from other pathology departments. In order to ensure a fail-safe system, autoclaved wastes are commonly processed into yellow bags for disposal as clinical wastes. Assuming autoclave treatment has been successful (*vide infra*) I accept that these wastes will not normally present a risk of infection. However, unless fail-safe mechanisms exist to segregate this waste fraction from other untreated wastes generated in Pathology and associated research laboratories errors may occur.
- b) Secondly, it is common that autoclaved microbiology wastes become secondarily contaminated with micro-organisms of environmental origin. The resultant wastes may create a statutory nuisance due to smell, will be polluting, and may present some additional biological hazard to those being exposed to them. These issues can most practically be managed by fast-tracking the autoclaved fraction of laboratory wastes together with other untreated and potentially infectious wastes. Risk will be reduced, and savings accrue though volume and weight reduction by autoclave processing before final disposal within a single clinical waste stream.
- c) Lastly, I challenge the suitability of many laboratory autoclaves for the processing of waste. Commercial contractors must ensure that autoclave processing meets the STAATT performance guidelines, with regular and frequent biological and independent thermal mapping of the autoclave chamber. Each cycle must be monitored and performance records available for scrutiny. This is not so for NHS laboratory autoclaves and clearly this anomaly needs to be properly addressed.

Pathology laboratory autoclaves, generally small scale units most likely used also for processing of sterile goods, will rarely if ever be controlled and monitored to the extent required of commercial contractors. In the case of waste processing, the variable load composition, load density, load containers and load geometry each have critical impact of the success of processing. An annual 12-point thermocouple test to map the chamber for a "typical" and often poorly simulated load is insufficient. Supplementing this with a simple in-process indicator, whether autoclave tape, a Browne tube or a spore preparation is likewise inadequate.

These issues are exemplified in the comments on page 81 of the NHS consultation document, that refer to **Small Scale Waste Treatment Plant (on-site)**. In particular, it is stated, quite correctly that "there is no exemption for the small scale treatment of clinical waste. Recent evidence of inadequate treatment requires that stringent controls are applied to any alternative treatment device regardless of scale". It should be noted that this applies also to small scale laboratory autoclaves, not designed for the bulk sterilisation of wastes and generally operated without comprehensive monitoring or detailed record keeping.

A conflict between the expectation that certain fractions of clinical wastes will be treated only by incineration, while accepting without question that autoclaved laboratory wastes pose no further risk of infection provides evidence of muddled thinking. This is of particular concern in light of the concerns noted about the performance standard, monitoring, and record keeping for most laboratory autoclaves, and that this waste fraction may include wastes including those originating from work involving ACDP Category III pathogens and above. These deficiencies cannot be set aside on the expectation that there will be an additional safeguard through risk assessment in circumstances where the draft guide is incomplete and inaccurate.

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**iii Is a body fluid likely to pose a risk of infection?**

Please note the comments elsewhere in this response to consultation (**4.12 European waste catalogue**) of the over-arching importance of the CDC Universal Precautions which mandate care in exposure to body fluids, whether visibly bloodstained or not.

**iv Undertake a risk assessment. Is risk of infection posed?**

Again, I draw attention to comments elsewhere in this response to consultation (**4.12 European waste catalogue**) of the over-arching importance of the CDC Universal Precautions which mandate care in exposure to body fluids, whether visibly bloodstained or not. This moderates the outcome of risk assessment, and the inaccurate information presented in the draft document.

I draw attention also to the difficulties faced by individuals at the time of disposal of wastes, or of a manager considering wastes *in toto*, who may have to base decisions upon broad assumptions. This conflicts with the bold and sweeping statement that “*the classification of infectious wastes does not rely on the use of pathogen classification groups and waste should be considered infectious even if the resulting infection would be considered ‘minor’*” (**5.11 Identification of Infectious Waste**). Linking this with the provisions of the CDC Universal Precautions, and accepting that the risk does not cease at the point of disposal, would support the universal classification of all clinical wastes as potentially infectious and thus as hazardous under EWC.

**v Is the waste contaminated with a disease causing pathogen or culture on the Category A list for carriage?**

A pragmatic approach is required. With the exception of specified high risk pathogens that may be present in wastes from designated isolation units, and from Category IV containment laboratories, for which separate legislation and Codes of Practice exist, it must be recognised that the arrangements for Category A wastes and for Category B wastes will be largely identical. Containers for wastes are the same, as are the practical arrangements for transport and processing of these wastes. The key difference is that the NHS will incur substantial additional cost in administration and notification. The need for separation of Category A and Category B waste is thus more apparent than real.

**5.11 Identification of Infectious waste – sources of clinical waste**

Paragraph 2 of page 35 includes a statement that “*only wastes generated from healthcare practice undertaken by a suitably qualified healthcare practitioner will be considered as infectious waste*”. This is inaccurate, misleading, and should be omitted.

Many groups may generate wastes having the characteristics of healthcare wastes, and which may be infectious in nature. These include:

- Alternative care practitioners
- Veterinary practitioners
- Undertakers including embalmers
- Emergency services including fire and police as well as ambulance services
- Piercers/tattooists
- Domiciliary self-treatment including haemodialysis and peritoneal dialysis, and the administration of clotting agents by haemophiliacs etc

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- Pharmacy wastes; needle exchange services
- Wastes from research and diagnostic laboratories
- Nursing homes (not including sanitary wastes)
- The detritus of drug abuse and the sex industry

There exists great potential to develop the draft NHS document to create a robust and comprehensive guide to the management of clinical wastes. Hopefully, this will contain comprehensive guidance that would constitute a *de facto* Code of Practice mandatory across all parts of the NHS, and which will be adopted by those working outside the NHS who may generate or be required to manage these difficult wastes.

## **5.2 Unified definition of medicinal wastes**

I share the views expressed in the consultation document, that “medicinally contaminated syringes, needles and broken glass medicinal ampules are considered to be sharps”.

The fate of these items, properly disposed to approved sharps bins, is a matter of concern. The proper disposal of pharmaceutical wastes is well described and currently operates effectively. It is my opinion that no change is necessary.

However, I am aware of and disagree with the concerns of Environment Agency that the *de minimis* drug concentrations present on medicinally contaminated syringes, needles and broken glass medicinal ampules, with the notable exception of cytotoxic and cytostatic agents that are dealt with in detail elsewhere, are largely insignificant. These wastes should not follow the disposal route for pharmaceutical wastes, and can safely be processed using incineration or any approved non-burn technology including, but not solely, processing by autoclave treatment.

The treatment residues from autoclave processing, rendered safe with regard to any potential for the transmission of infection, may be incinerated but more probably are consigned to licensed landfill. These landfill sites may additionally be licensed to receive directly untreated pharmaceutical wastes categorised as non-hazardous (18 01 09) under the European Waste Catalogue. The further subdivision of sharps with and without these *de minimis* pharmaceutical residues, currently promoted by the Environment Agency but unsupported by the evidence of independent research or opinion seems unwarranted since this would require either two sharps containers where presently there is only one, or the processing of all sharps containers by incineration only. This would incur substantial additional costs to the NHS in respect of administrative and disposal charges.

While pharmaceutical wastes should be segregated at source, the trace residues in used and empty syringes and needles, vials and ampules can be safely disregarded.

## **5.3 Offensive Waste**

I am concerned at the introduction of the term “offensive waste”. This is unnecessary, will cause further confusion, and is likely to promote error. Wastes included in this category and my response to each are listed below:

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Category	Comment
<b>Incontinence and other waste produced from human hygiene</b>	Use the recognised and established description "sanitary waste"
<b>Sanitary wastes</b>	Use the recognised and established description "sanitary waste"
<b>Medical/veterinary items and equipment which do not pose a risk of infection including gowns, plaster casts etc.</b>	These items require risk assessment as they may arise during activities that additionally generate infectious or potentially infectious wastes. As segregation of hazardous (infectious) from non-hazardous wastes may be largely impractical and prone to error I propose disposal as for the bulk of hazardous clinical waste arisings (see <b>4.12 European waste catalogue</b> )
<b>Plaster casts only</b>	Use the recognised and established description "sanitary waste" except in the event that these arise singly and in isolation, in which circumstance they may reasonably be included with the bulk of clinical wastes
<b>Animal faeces and soiled animal bedding</b>	This is outside the scope of the NHS guidance, and of current NHS activities, and should be excluded from the draft documentation

I urge retention of the more widely recognised term "sanitary waste" and restriction of this term to refer only to wastes previously categorised as Group E waste (EWC 18 01 04 and EWC 18 02 03).

## 6.0 Waste Audit

I fully support the proposal for annual waste audit.

I am acutely aware of the difficulties faced in the management of all wastes in many of the older and city centre NHS establishments. Despite that, I have recorded my concerns about the poor standards of wastes management at many locations, though in recent peer-reviewed independent research and audit publications.<sup>13 14</sup>

In order to promote best practice, to identify potential cost savings, to minimise risk, and to re-establish public confidence in matters of hospital hygiene and related health & safety matters I support strongly the proposal for an annual waste audit of NHS premises. This audit requirement should be extended to include also PCT premises, smaller community hospitals, GP surgeries, and health centres etc.

<sup>13</sup> Blenkarn JI. Standards of clinical waste management in hospitals. *Journal of Hospital Infection* 2006 (*in the press*)

<sup>14</sup> Audit Scotland. *Waste Management in Scottish Hospitals: A Follow-up Report*. 2005. Edinburgh. ISBN 1 904651 77 1

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As with many other matters recorded here, this audit activity should be an absolute requirement and perhaps properly incorporated with the annual health check of the Healthcare Commission.

## 7.1 Colour coding

I do not support the introduction of the new orange bag category for clinical wastes. This is in part, due to a belief that the segregation of wastes on the, possibly ill-founded, criteria proposed may introduce error. These errors may be costly.

It is likely, where yellow bags and bins are used, that these will be used for the disposal of wastes for which incineration is unnecessary and perhaps inappropriate on environmental and economic grounds. The additional pressures that this brings to the limited UK incineration capacity may be critical. The inevitable consequence is the continued use of alternate treatment technologies for compatible wastes contained within in "inappropriate" coded container bringing the new schemata rapidly into disrepair.

Orange bags logically demand additional orange bulk carts (Eurocarts). Established controls require that different waste streams must not be mixed and thus there will be yet further space, capital, and logistics costs to the NHS from the introduction of this additional waste category.

If a method is required for the separation and identification of wastes to be treated by incineration only, of which we anticipate very few, then we propose a Yellow/Red tiger strip bag. The addition of a bold red stripe will facilitate recognition, will hopefully be associated with the incineration process, and is a colour combination as yet unused in NHS activities. Red bags may be suitable but are widely used for foul linen and may cause confusion. By contrast, we anticipate that an orange colour, though unused elsewhere or for any other purpose, may fail to convey the necessary warnings and largely undo the many years of work that has achieved widespread understanding of the yellow bag code. This new tiger stripe combination will retain that yellow coding and the information that it provides, and yet clearly identify this particular waste sub-fraction.

Elsewhere in this response to consultation, I record concerns regarding the creation of a new "offensive" category for wastes that in part would better be classified as clinical wastes more appropriately treated by an approved alternate treatment technology or by incineration (**5.3 Offensive waste**). In this case, I support retention of the widely understood and unambiguously descriptive term "sanitary waste", retaining this only for wastes previously classified as Group E waste.

I am additionally concerned that the draft offers no guidance or external reference to the materials grade, colour definition or standard for the construction of bins and their closures, or for the composition and wall thickness of bag to be used. It is additionally apparent that whilst a revision of colour coding is proposed there is no mention of overprinting of waste containers with a relevant biohazard or radiation symbol, together with supplementary wording to indicate their origin and likely content.

The chart on page 49 is incomplete and does not include a plain yellow bag.

Lastly, I cannot but fail to draw attention to the irony of the question posed on page 49 "**Q: Do you agree with the benefits of a nationally based system of colour-coded packaging? If not.....**". Elsewhere in the draft document it is recorded that the revised systems proposed are not mandatory, and may be varied in circumstances where a suitable alternative can be devised and implemented.

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### **7.3 Successful waste segregation – source labelling**

There is a clear requirement to label individual primary waste containers (bags or bins) with details of their origin. I believe however that this requirement can be taken further and in so doing may offer advantage to waste producers and contractors alike.

Proposals to label bags or bins with detail of their origin using felt-tip pens or adhesive labels is inadequate and may be associated with a small but significant risk of personal injury. The smooth flexible surfaces of waste bags do not take felt tip or other marker pens well, and self-adhesive labels can and frequently do become disengaged within a short time. Moreover, the additional manipulation of bags required to hold them taut in order to write on them, or to press home an adhesive label, risks injury from rigid items contained within that may penetrate the bag wall and cause injury. This must be avoided, and inclusion of such proposals in a document of this kind does not reflect well upon its authors.

Commercially available self-locking ties, similar to cable ties, can be used successfully for bag closure and identification. These will facilitate safe and effective closure of bags, and effective source identification of bags and bins. Ties are available in a variety of colours and with ridged or soft-toothed inner surfaces that ensure no slippage from the necks of bags. Over-printing of ties with a hospital, Trust or PCT name, and a unique code number will allow tracking of wastes back to the producer. If required, tracking can be to an individual ward, department or GP surgery if individual sequences of numbered ties are issued to specified locations/users. Additional bar coding of the ties will facilitate contract management of wastes, assists in accurate charging and the resolution of contract discrepancies. By facilitating improved management of wastes by contractors this system will enable efficiency savings and improved reporting to clients, will facilitate internal or cross-charging as required, and ensure compliance with the highest standards of performance in waste management by identifying poor performance in order to permit appropriate training and retraining of poor performers.

This system additionally ensures correct closure of individual waste bags, in preference to loose tying or *ad hoc* attempts to wrap the neck with adhesive tape. Bins can be similarly tagged as these invariably have some handle or loop through which these robust, tamper-proof and indelible identification tags can safely be threaded.

### **9.0 Storage**

There are many difficulties which face NHS establishments in dedicating sufficient and satisfactory space to the interim storage of clinical and other wastes. These matters have been discussed in detail in several professional publications<sup>15 16</sup> and indeed have been at the heart of at least two HSE prosecutions. In consequence, I am keen to promote a mandatory requirement for detailed risk assessment in the choice of location for Eurocarts on hospital premises, and for the formulation of clear performance standards applicable to their use. This should address:

- general and fire safety
- biological safety, hygiene and infection control

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<sup>15</sup> Blenkharn JI. Standards of clinical waste management in hospitals. *Journal of Hospital Infection* 2006 (*in the press*)

<sup>16</sup> Audit Scotland. *Waste Management in Scottish Hospitals: A Follow-up Report*. 2005. Edinburgh. ISBN 1 904651 77 1

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- practicality and the promotion of good housekeeping to facilitate prompt removal of wastes from clinical areas
  - marking and security
  - prevention of unauthorised access
  - contractor access

There is need for more care in siting storage locations selected<sup>17</sup>, to provide easy access for those dealing with the disposal of primary waste containers. Eurocarts or similar container must be adequate for most clinical wastes, including those that may present a risk of infection (EWC 18 01 03). Carts must be compliant with UN3291, and this requires the presence and use of an integral lid lock.

My own published audits together with the experience of commercial contractors, demonstrate that carts without lid locks are in widespread use. Where locks are fitted, they are rarely engaged. Indeed, lid locks may regularly and deliberately be broken by end-users. This must be addressed in any competent guidance document.

## **9.2 Refrigerated storage**

With the proviso that there must be procedures adequate to deal with or prevent any statutory nuisance due to odour, I find it hard to accept that refrigeration of bulk stored wastes is necessary. It is preferable to ensure regular and frequent collections for off-site processing of wastes by an authorised and approved contractor. This will promote standards of site hygiene, minimise the accumulation of waste, and thereby of any nuisance due to odour.

Where refrigeration is used, the additional nuisance due to noise from refrigeration plant must be considered. Inclusion of a note to review the location of storage facilities, with particular regard to the impact of night time noise from refrigeration plant on the patient population.

### **Wash-down facilities and site or cart hygiene**

My own research evidence, supported by the findings of others, records some light contamination of Eurocarts with micro-organisms originating from deposited wastes.<sup>18</sup> This is unlikely to pose any risk of harm with staff engaged in the management of wastes. However, in the critical clinical environment this may be a problem and it is recommended that bulk carts are not stored within clinical areas. This matter should properly be addressed in the risk assessment that underpins the decision process regarding location of waste carts.

It is a logical extension to this matter that cart hygiene is an important procedure. This ensures cleansing of carts, and the removal of spilled items or fluids seeping from improperly contained wastes.

Commercial cart hygiene facilities are to be preferred. I have personal experience of some hospitals choosing not to fund commercial cart hygiene services but using a do-it-yourself approach that involves the use of fire hoses or, in one case, a pressure hose, operated in the hospital car park. Clearly, the risk

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<sup>17</sup> Additional care must be taken with the siting of satellite storage locations, that may be close to critical clinical areas, or in public areas thus presenting additional safety and security issues

<sup>18</sup> Blenkarn JI. Potential compromise of hospital hygiene by clinical waste carts. *Journal of Hospital Infection* 2006 (in the press)

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of uncontrolled spread of spilled solids, of contaminated wash water and heavily contaminated aerosols, presents a risk to the operator, to passers-by and critically to hospital patients. This is unacceptable.

This matter must be included in the final document, in order to promote safe practice and prevent the continuation of these potentially dangerous practices.

### 10.1 Internal transport

The draft recommends that trolleys and carts used for the internal movement of individual waste containers from their point of use to some central bulk store should be purpose designed according to the criteria listed, and dedicated solely for this purpose. I agree with this.

Notwithstanding, I refer to concerns raised in my response to sections Section 9 (*vide supra*) regarding the inadequacy of the location of many existing carts in hospitals, and the risks associated with in-house cleansing of those carts. Formal risk assessment must precede, and guide, the choice of location for cart storage, including the locations for satellite stores close to clinical areas, and should precede any decision to undertake cart hygiene procedures.

I propose that, unless completely unavoidable due to the complexities of layout on a particular hospital estate, bulk carts should be stored securely, with locked lids, only outside hospital buildings. Individual waste containers can be carried to these carts by staff wearing suitable workwear and disposable apron and disposable gloves. Gloves must be removed at completion of the task, disposed of accordingly, and hands washed before any subsequent task is commenced. Evidence of deficiencies in these basic hygiene precautions<sup>19</sup> suggests that guidance should be incorporated in the present document to create a comprehensive, practical and authoritative Code of Practice.

### 11.0 Treatment and disposal

I note reference to the use at STAATT criteria for the assessment of non-burn treatment options and support fully the principals involved.

It is appropriate that I introduce here an additional concept, not previously recorded:

1. The definition of infectious waste is based on risk assessment
2. The Hazardous Waste Regulations and WM2 guidance are clear, that if sufficient and satisfactory risk assessment does not indicate a significant risk of infection then wastes should be categorised as non-hazardous
3. The risk of developing an infection requires:
  - o the presence of a pathogenic micro-organism
  - o that the pathogen is present in numbers sufficient to cause disease
  - o a route for acquisition of the pathogen
  - o a susceptible host

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<sup>19</sup> Blenkarn JI. Glove use by ancillary and support staff – a paradox of prevention? *Journal of Hospital Infection* 2006 (*in the press*)

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4. Merchant alternate treatment technologies (ATTs) are designed to operate at STAATT Level III or better. Indeed, I have been made aware of some current, though unpublished, studies that seek to identify extremes in which items or objects into which heat transfer may be less than anticipated may be present, albeit infrequently, in clinical wastes.
5. If such extremes occur, then it is possible that with a bulk load of clinical wastes processed successfully using an approved and licensed alternative treatment technology some small component, for example a sealed bottle or flask, may have not fully achieved or exceeded the full holding time at temperature (HTAT).
6. In such circumstances, we rely upon risk assessment, considering the type, number, and heat sensitivity of micro-organisms that were initially present. Micro-organisms will have been eliminated by processing. *In extremis*, some proportion of the possibly very small numbers of micro-organisms that may have been present within a sealed suction canister may survive, this item, and this item only having not fully achieved the target HTAT because of its untypical size, density and composition. It is my opinion that this need not require moderation of the results of thoughtful risk assessment since this should conclude no risk to individuals or to the environment as the criteria for the development of infection (above) are unlikely to be met.

Such matters highlight the complexity of waste processing, and the gap that often exists between regulatory control that may be in some part largely subjective, and the scientific basis that underscores risk assessment.

Current regulatory challenge and parallel though informal and indirect pressures directed toward some, perhaps all, alternate treatment technologies may be supported by over-reliance on upcoming and largely theoretical review of the heat penetration to bulky wastes processed using these alternate technologies. To do so will create particular difficulties for the waste industry and producers alike, and dramatically increase costs for those generating clinical wastes. I am concerned about these matters and put on record my wish for open and informed scientific debate before imposed regulatory constraint.

## **11.2 Alternate treatment – maceration**

This section makes the comment that “*pre- or integral maceration is a requirement of ‘rendered safe’*”. This statement is unsupported by any scientific evidence, and indeed is largely without any logical foundation.

It should be recognised the pre-process maceration of clinical wastes is a hazardous procedure due to the risk of spillage of infectious solids and the creation of infectious aerosols. Though technically possible, extensive containment facilities are necessary, increasing costs considerably.

Providing that all necessary controls are in place, it is my strong opinion that post-process maceration is adequate to render all treated wastes unrecognisable and is the preferred option.

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### 11.1 Rendered safe – laboratory autoclaves

I record here my concern, discussed elsewhere in this response to consultation (**5.11 Identification of Infectious Waste, section ii,c**), of the status of most laboratory autoclaves that are presently used for the initial treatment of some, but not all, laboratory wastes.

## 14 Accidents and Incidents

As in previous sections of this response, I draw attention to the need for the coherent management of health and safety matters, embracing staff working at any location and including those not in NHS employment. This is particularly important for ancillary staff (portering, maintenance, catering and hygiene etc) in circumstances where these may be employed by a third party service provider.

As with a common waste management policy, that I propose should be enshrined in contract terms, H&S policy together with accident procedures and reporting should be harmonised between the core employer and service providers. This will ensure the effective exchange of information, maintenance of best practice, identification of any deficiencies in performance, and provide the opportunity to learn from any accidents or incidents that do occur.

## 15 Personal protection & hygiene

I applaud the inclusion of some guidance to the requirements for personal protective equipment for those handling clinical wastes.

The frequent lack of accessible hand washing facilities for many NHS ancillary workers and associated contractors, at the location of bulk waste stores and while wastes are being moved from clinical areas to secondary storage area must be recognised. Didier Pittet and Liam Donaldson, on behalf of the World Health Organisation, launched the WHO World Alliance for Patient Safety first biennial Global Patient Safety Challenge, "Clean Care is Safer Care", targeting infection associated with health care.<sup>20</sup> Though central to the CDC Standard Precautions for the Prevention of Infection in Healthcare Workers (see section 4.12 of this response to consultation), and a major action point of the WHO Global Patient Safety Challenge, incorrect glove use and corresponding failures in hand hygiene may be widespread.<sup>21</sup> As this relates closely to the more general issues of hospital hygiene and effective infection control, I would urge inclusion of greater and more authoritative guidance aimed at support staff, to ensure the highest standards of performance, and to regain public confidence in this important area.

I would additionally draw attention to concerns regarding the informal arrangements for cart washing in some hospitals, discussed in section 9.2 of this response to consultation

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<sup>20</sup> Pittet D, Donaldson L. Clean Care is Safer Care: a worldwide priority. *Lancet* 2005; **366**: 1246-1247

<sup>21</sup> Blenkarn JI. Glove use by ancillary and support staff – a paradox of prevention? *Journal of Hospital Infection* 2006 (in the press)

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## 16 Training

As discussed in detail in section **3.0 Healthcare waste policy** of this response to consultation, I am aware of the increasing administrative complexities of healthcare provision in the UK, and of the increasing use of third party contractors:

- Pathology and other diagnostic/investigative services staff
- Catering contractors
- Portering, ancillary and cleaning contractors
- Private sector healthcare and clinical service providers
- Subcontracted services operating between adjacent Trusts
- Agency staff including locum medical, technical and nursing agencies
- Nursing students
- GPs and GP employees

The success of training procedures, and of subsequent competence assessment, will be aided greatly by the universal implementation of the finalised NHS document as a *de facto* Code of Practice applicable to all parts of the NHS in England and Wales, Scotland and Northern Ireland.

Arrangements must be made to incorporate training of all contract staff in waste management policy and practice, to facilitate effective assimilation of those staff into any establishment. This will reduce error, provide savings through standardisation, and by reducing the induction requirements for staff joining from another NHS establishment and for contract staff alike.

Training of these core knowledge/skills might be enhanced by incorporation into the draft NHS document of more comprehensive training check lists in order to promote and maintain a satisfactory minimum training standard.

The proposed independent annual waste audit (section **6.0 Waste Audit**) should assess also standards and uptake or coverage of training, any deficiencies in training evidenced by performance failure, and future training needs.

### 16.21 Training records

A written training record of all staff, including contract staff where applicable, should be standardised across the NHS. This simple manoeuvre may include a core knowledge/skills passport that is signed and dated by the trainer, and which is retained by staff as they move between different employers etc.

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In conclusion, it is my professional opinion that the draft documentation, though undoubtedly a substantial piece of work, is woefully incomplete, inaccurate and requires substantial further revision.

The document, and the detailed information/guidance that it will ultimately present, has the potential to become a *de facto* Code of Practice for use throughout the NHS, in its entirety, and by clinical waste producers operating outside the NHS. This will secure the credibility of the final document, and instil or rebuild public credibility in standards of hospital hygiene, and of healthcare waste management in particular. Notwithstanding, it is my view that additional professional opinion must be obtained in order to ensure a thorough, detailed, and transparently independent review of the draft proposals presented.

Ian Blenkarn

*Copies of publications cited in this response to consultation, which have completed blinded peer-review and await publication in the scientific literature, can be made available upon request.*