



Central Sterilising Club The Original Decontamination Forum

**Newsletter,
January 2010**

From the Editor

Happy New Year to all members. We have delayed the newsletter to be able to include with this mailing the outline of and booking forms for the 2010 Annual Conference. This years conference is a particularly special as it will officially mark our 50 year anniversary. The agenda has been finalized and includes a mixture of topical talks, workshops and a debate. Talks will include the Kelsey lecturer Professor S. Sattar, international perspectives on sterile services, CSC history and future, an update on department of health guidance and the difficulties in implementing guidance. The debate is a new idea for the year and will focus on an old issue: the theory of spontaneous generation. We take for granted today that infections are caused by microorganisms, but this was not also the case. Prior to 19th century, the prevailing theory was that they naturally arose from non-living material. This was disproved and replaced by the germ theory. But is this always true and do we really understand in many cases what the true causes of infectious diseases are? Arguments on both sides will be given and the house will decide on the day. On the social side, I think you will find that the CSC will live up to its reputation as being socially active. Bookings will be taken on a first-come basis, so do let me know if you have not received the booking form. Bookings at this stage are for members only and then will be open to others through the web site (www.csc.org.uk).

Also included with this newsletter is a CD containing copies of the slides presented at the Autumn study day. The study day was held on the 27th October, 2009 at the Birmingham Botanical Gardens and from the feedback forms on the day was considered a success. This years study day focused on an important topic for many of our members: auditing of decontamination facilities. Presentations included perspectives from the Quality Care Commission (CQC), JAG, and Notified bodies (from an auditors point of view), as well as the experiences from those recently audited. The committee would like to thank the speakers for giving up their time to present and also for allowing us to reproduce their slides for the general use of the membership.



As the CSC in the UK is celebrating 50 years, the CSC in the Netherlands had a recent meeting to celebrate 40 years. The CSC in the UK was not only the original forum from which other groups have arisen (including the IDSc, HIS and IPS), but also the Dutch CSC. We wish the Dutch CSC the best in the coming years.

For those interested in revisions to the HTM 01 series on decontamination, we are expecting many of these to be published in 2010. HTM01-06 on endoscopy, for example, has recently been released for limited review and comment. Many members of the CSC are involved in this process and we look forward to seeing these documents released in their final forms.

I am grateful to Les Kingston for agreeing to write an article for this newsletter on his thoughts over the last 50 years. I was unable to reproduce the whole article in the newsletter, but this will be added to the web site and can be downloaded from there.

In closing, I must apologise for some small, yet annoying typos in the last edition of the newsletter; they were certainly not intentional and I will endeavour to pay a closer level of detail in the future.

Gerald McDonnell, Editor

CSC WebSite

I have had a number of complaints regarding access to the web site; I am afraid this is a Microsoft problem and has been seen with newer versions of their system software ('Vista'). Some members and others have had problems downloading the membership form, which has now been fixed. If you find further problems with the website pages let me know. I am designing and hoping to release a new version of the web site, so if you have any suggestions on the content, design or otherwise then please let me now.

Gerry McDonnell, Web-Master



From the Chair

It's always good to know that members are happy with meeting content but we are still receiving compliments on the Dublin meeting that was held earlier in the year. The only problem is that it puts extra pressure on the agenda for Cambridge 2010. Plans are well advanced to provide a mixture of the past, the present and the future. You might think that in a discipline as fast-moving as decontamination it would be relatively easy to predict the future but it seems that the aphorism "what goes around comes around" could have been written for the CSC.



As you may know the Club reserved King's College a number of years ago; at this time we had found it difficult to gain attendances at the annual meeting in three figures. The success of the annual conferences over the subsequent years means that now that we have numbers closer to double that figure and we are sadly restricted to numbers at Cambridge, not by accommodation but by the size of the lecture theatre. Early booking is thus essential if you want to be involved in the 50th anniversary and find out some of our history, our involvement in the current scene and how we think the next fifty years will look in decontamination. It should be really exciting and I look forward to seeing you there.

Compliments for the New Year to all

Peter Hooper, Chairman, Banbury, UK



King's College, University of Cambridge

Upcoming CSC Meetings....Diary Dates



The 2010 CSC Annual Scientific Conference will be held from 29-31 March, 2010 at King's College,

Cambridge, England. We will officially celebrate the 50th Anniversary of the CSC and a special agenda is in preparation. We look forward to welcoming you to Cambridge for this special occasion. If you have any particular ideas for the meeting, please contact the editor or any member of the CSC committee. In preparation for the meeting: do you have any old pictures, conference proceedings, articles, memories or otherwise that you would be willing to share we would like to add these (or at least copies of these to the archives). For contact details for and submitting information to the editor and other committee members please visit www.csc.org.uk.

The 2011 Annual Scientific meeting will be held in April 2011 and on the south coast of England.

Memorable moments from Club meetings

We are looking to collect you memories and pictures. Here are some from other members:



A medical officer from Manchester addressing the club was reminded by Dr. Cameron Weymes (Glasgow) that sterility was, like pregnancy, an 'absolute condition'.

Prof. R. Lacey (Leeds) when giving a lecture on 'Listeria' in Bishop Otter College, Chichester was joined on the stage by the campus cat, seemingly on its routine patrol.

An annual meeting in Exeter when delegates queued on a hill outside the venue and observed the preparation of their food in the kitchens.

Dr. Isobel Maurer illustrated her presentation by hand pictures in the air because her car had been burgled and her slides had been taken.



Early meetings when delegates divided into buzz groups and learned from each other during problem sessions.

Recent conference dinner in Cardiff when the Male Voice Choir were joined by Ken Bowden in matching red jumpers.

A Journey Through Time, Past and Present: 50 Years

During the past 50 years considerable changes have occurred in sterilizing procedures and disinfection of heat labile equipment. New methods have been designed and introduced, revolutionising practices in health care sterilization. The introduction of Sterile Services Departments and Decontamination Units and also with the increasing availability of disposable, industrially packed sterile medical devices have contributed to changes in design and types of equipment used for decontamination.

The world became a changing place in the early 1960's when President Kennedy established as a US national goal: to transplant a man on the moon and his safe return. This highlighted a concern: the risks of introducing microorganisms from the moon to earth and vice versa. Stringent containment and design requirements were set up for sterilization and terrestrial spores forming microorganisms were utilised as models. This brought about many changes in the establishment of decontamination requirements for human safety.

In 1958, Knox and Penikitt drew attention to the value of an initial vacuum before steam sterilization of hospital dressings. An initial vacuum of 20 millimetres Hg absolute allowed for instantaneous steam penetration in a load and resulted in shorter, more reliable sterilization cycle. They also suggested that the temperature taken in the discharge line of the chamber in these designs would give a reliable indication of the temperature achieved in the load and allowing control of the cycle. By 1961 Bowie and Fallon soon showed that steam may not penetrate a single package placed in such a design, while if the same autoclave was loaded to capacity and the process repeated, steam penetrated to the centre of the load. This was also confirmed by Fallon, Darmady, Drewett and Hughes in 1963. Bowie suggested that this was "the small package effect" which could be overcome by holding the pre vacuum for 8 to 10 minutes before steam injection. Further research established that some times even this failed. Further work by Williamson and Henfrey in the 1960's showed pulsing of vacuum and steam would ensure instant penetration of the steam to the centre of a single challenge pack. The temperature in the discharge line could be relied upon to reflect accurately the conditions in the centre of the pack, provided no leaks were observed within the chamber.

During steam sterilization, steam condenses to water and collects within the bottom of the chamber lowering its temperature. To prevent this during this period the near to steam trap or a continuous steam bleed was used allowing the water to be discharged. This ensured that the correct steam temperature was maintained in the chamber.

Research was undertaken by the MRC working party on high pressure steam sterilizers and decisions were adopted on definition of a sterilization cycle. A correctly timed sterilization cycle is one that will ensure that all parts of its load are held at sufficient temperature long enough to kill 'bacteria and their spores'. Cycle could begin when the chamber drain showed the correct temperature, providing that the factors mentioned had been taken into consideration. The exposure time included penetration time, holding time and the safety period. The penetration time allowed steam penetration and temperature equilibration. In a high vacuum sterilizer, this could be almost instantaneous, but in a downward displacement types considerable delays were observed. Therefore all sterilizers varied in this heat up period and timing had to be established to suit each design for use. The holding time was set to destroy spores at 121°C is 10 minutes, where a safety period of 50% (in this case 5 mins) was set. For downward displacement sterilizer, therefore, the exposure time was 30 minutes plus 10 plus 5 minutes, a total of 45 minutes. With a high vacuum sterilizer, penetration time could be largely ignored and the exposure time cut to 15 to 20 minutes at 121°C. In those days, it was considered that penetration time could only be asserted by trial and error and the hospital pathologist should be consulted. If this could not be done, the recommendations were the time should be as for a downward displacement sterilizer. The MRC working party recommended cycle as 121°C (20 minutes, 15 lb psi), 126°C (20 minutes, 20 lb psi) and 134°C (3 minutes, 30 lb psi).

This led to the National Health Service publishing H.M.(59)33, being the first time that the attention of the UK Hospital Authorities was drawn to this issue. The Minister at the time drew special attention to certain sections in this report that should be borne in mind when reviewing sterilization services. For example, all hospital boilers operating at atmospheric pressure used for sterilization should be replaced by pressure steam sterilizers. It was far reaching advice, which could only be implemented over a period of time. This led to the consideration of setting up central sterile supplies departments. The thinking behind this was to overcome the need for having expensive items of equipment dispersed throughout the hospital service. Studies during this period were led by the Nuffield Provincial Hospitals Trust. Working parties developed engineering recommendations then made available through the Engineering Division (M&E) Ministry of Health published 1st April 1959.

H.M. (67)13 then outlined the UK's guidance and recommendations for central sterile supplies departments. Within its aims this rationalisation in sterile supplies should assist the hospitals and lead to significant reductions in cost. The reported methods at this time as method of sterilization were autoclaving, dry heat, steam at sub atmospheric pressure, irradiation and chemical methods.

It was soon found that high vacuum steam sterilizers used in hospitals were not operating as expected. Attention was then drawn to the Hospital Authorities that there should be at least one Engineer specially trained in the performance requirements of the sterilizers and to ensure that regular planned maintenance was undertaken. This was the first period in time that records of all tests, breakdowns and repairs should be kept. Managers or Superintendents of CSSD's required adequate training and instructions in the principals and methods of sterilization. The Regional Hospital Boards of the time were advised that they should designate an officer having the primary responsibility to ensure that all the sterilizer equipment was maintained and tested properly. The first Regional Sterilizer Engineers were appointed in 1973. Interestingly, they saw little advantage in double ended sterilizers and did not recommend their installation.

A further report at that time advised a review of the use of disposables on clinical grounds. Hospitals were also advised to use of high vacuum sterilizers or dry heat methods of sterilization and other processes, i.e. ethylene oxide, should only be used under the routine control of a Consultant Microbiologist.

The British Standards in 1960 published BS 3213:1960 Hospital Pressure Sterilizers for Water, this being followed on by the series of British Standards 3970:Part 1:1966, Part 2, Part 5. Following their publication, the first revised Hospital Technical Memorandum was released in October 1968. This document specified requirements for steam quality and the planned preventive maintenance for sterilizers. During the late 60's and 70's the control of sterilizers undertook a major change within the publication of the British Standards outlining the requirement for an air detection device. This test being specified after the publication of the amendments to the British Standards BS 3970, Part 1:1966. These consisted of the Drayton simulator, the Denton Hellyer parrot perch system, partial pressure air detectors of the SAL manufacture, IPC by MMM for detecting air and gas in process control and the British Sterilizer air detector system. This was superseded by HTM 10 Sterilizers in 1980. This document indicated the testing procedures and descriptions of the daily testing of the Bowie and Dick autoclave tape test and the various sterilization processes which are used within healthcare.

Extensive research was then undertaken in the design of a steam manifold and boiler treatment systems to eliminate non condensable gases that were found to be present in most hospital steam supplies. Regular steam quality testing was introduced into the UK and being preceded by the application of the need for clean steam in sterilization of medical devices. Following this period a new series of Department of Health guidance, the Health Technical Memorandum 2010 series was introduced in 1994 covering the series Part 1 Management Policy, Part 2 Design Considerations, Part 3 Validation and Verification, Part 4 Operational Management, Part 5 Good Practice Guide.

In 1997 a new edition of Part 4 with Part 6 Testing and Validation Protocols were published. Most of these documents are still current today within the UK and referenced throughout most of the world for guidance on good practice in the operation of sterilizers for healthcare.

New guidance is shortly to be published and under review in the HTM 01-01 series issued by the Department of Health.

Les Kingston

CSC Small Research Grants

Are you interested in doing or already doing a research project in decontamination? The CSC continues to welcome applications from members to support small research grants. More information and application forms are available on the web site (www.csc.org.uk and click on 'What's Happening').

Can you recognize these committee members?

