Healthcare Infection Society

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Healthcare Infection Society: Forty Years and Counting

Robert C Spencer

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Robert C Spencer
Thornbury
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Preface

US Secretary of Defence, Donald Rumsfeld, famously applied epistemology to explain US Government entanglements and their unintended consequences:

> There are known knowns. There are things we know we know. We also know there are known unknowns. That is to say, we know there are some things we do not know. But there are also unknown unknowns, the ones we don't know we don't know.

Rumsfeld was universally lampooned – but on closer inspection the quote does make sense, and indeed the concept of 'unknown unknowns' existed long before he gave the concept new life.

The last 50 years of healthcare infection prevention and control (IPC) exemplify the truth of Rumsfeld's three premises. The pre-eminent 'unknown unknown' of IPC is surely the emergence of variant Creutzfeldt-Jakob disease (vCJD), following on from bovine spongiform encephalopathy (BSE) in cattle, when it was discovered that cows had become omnivorous after consuming scrapie-infected sheep protein feed. Later, between 1980 and 1981, US doctors noticed clusters of Kaposi's sarcoma and *Pneumocystis carinii* pneumonia in previously fit and healthy young homosexual men in Los Angeles, New York and San Francisco. The cause of this 'unknown unknown' was revealed when, in 1983, Françoise Barré-Sinoussi at the Institut Pasteur, Paris, isolated a retrovirus from the lymph tissue of such a patient. The virus became known as the human immunodeficiency virus (HIV) and the clinical condition as acquired immune deficiency syndrome (AIDS). It is estimated that over 35 million men and women have died from this disease since the 1980s. Historically, the earliest positive blood sample is thought to be from 1959, from a male patient in Kinshasa, in what was then known as the Belgian Congo.

The ‘known unknowns’ which have become ‘known knowns’ over the years include the identification of the causative agents of Legionnaires’ disease as *Legionella pneumophila*; *Campylobacter* spp. as a common cause of food poisoning; the role of *Clostridioides difficile* in post-antibiotic diarrhoea; and the 1982 discovery of *Helicobacter pylori* as a cause of gastritis and peptic ulcer. A ‘known known’ at the heart of ever-increasing IPC problems is the inexorable rise of antimicrobial resistance. Antimicrobial resistance was first described in the 1940s and is now prevalent worldwide in Gram-positive and Gram-negative bacteria, mycobacteria and fungi in the shape of *Candida auris.*

HIS celebrates 40 years in 2020: what can IPC professionals and those associated with the Society expect of the next 40? Certainly, there are other ‘unknown unknowns’ lurking which will pose serious challenges when made known. The world became more aware of this in the Society’s anniversary year than at perhaps at any time in living memory: in December 2019 a novel coronavirus, SARS-CoV-2, emerged in Wuhan, China, and spread worldwide through 2020. At the time of publication, the virus had caused over 2.1 million deaths and turned a spotlight to the importance of IPC measures globally. Undoubtedly, other as-yet-unknown zoonotic diseases will emerge in coming decades. The ‘known knowns’ of antimicrobial resistance continue apace, and so IPC will become ever more essential. The ‘known unknown’ of global warming and its impact on tropical-disease spread and the movement of populations will pose yet more challenges for the IPC community, along with societal changes such as the impact of ‘fake news’ in infection prevention, which is already a major disruptive force in society. Questions the Society and its members must address include those of how to challenge medical untruths pedalled on social media denigrating the seriousness of ‘out of sight, out of mind’ vaccine-preventable diseases, and the fallout of potential declines in vaccine uptake.

Future members of the Society will not be short of challenges, and will continue to consider novel ways to combat them. However, HIS must not become a society for amnesiacs: with the threat of new diseases and new challenges, lessons from IPC practitioners past will necessarily have relevance in the future.

Chapter 1

Founding the Society

1.1: The beginning

In the late 1970s, a group of eminent medical microbiologists agreed that medical microbiology, especially in the field of hospital IPC, was under-represented in existing scholarly and professional organisations. The group shared an objective: to promote the study and facilitate the dissemination of information for medical microbiologists concerning all aspects of hospital infection with special emphasis on hospital-acquired infection (HAI).

1971 had seen the formation of the British Society for Antimicrobial Chemotherapy (BSAC), whose aim was to facilitate the acquisition and dissemination of knowledge in the field of antimicrobial chemotherapy. Prior to 1971, other non-medical experts had formed societies for those whose interests lay in the decontamination and reprocessing of surgical instruments. The Central Sterilising Club (CSC) was formed in 1960, following the 1958 publication of the so-called 'yellow peril', a name given to a booklet issued by the Nuffield Provincial Hospital Trust (now the Nuffield Trust) entitled *Present Sterilizing Practice in Six Hospitals*. In 1967 the Association of Sterile Supply Administrators was formed, with membership initially limited to the administrative heads of Central Sterile Supply departments. Infection Control Nurses (ICNs) had not been idle either: the first ICN was appointed in Torbay Hospital in 1959, during a decade when staphylococcal infections were widespread in hospitals. In 1970 the Infection Control Nurses Association (ICNA; In 2007 this became the Infection Prevention Society, IPS) was formed at the Infection

Control Conference held in Bristol. The medical fraternity specifically interested in hospital infection was in danger of being left behind.

The remainder of this chapter outlines the development of the Society from 1979. Of particular note is the speed at which the Society was formed, and also the development – in parallel – of what was to become the *Journal of Hospital Infection* (JHI).

Figure 1A: Society Presidents and Chairs at the HIS International Conference in Edinburgh. L-R: SWB (Bill) Newsom, Robert C Spencer, Gary L French, Tom RF Rogers, AM (Mike) Emmerson, Mark W Casewell, David C Shanson and Graham AJ Ayliffe

1.2: The role of Imperial Chemical Industries

During the 1970s, Imperial Chemical Industries (ICI) manufactured antiseptics, including chlorohexidine products. Company leaders wanted to support microbiologists interested in the prevention and control of HAIs. Jack Honigman, from ICI, invited John D Williams, Graham AJ Ayliffe, David C Shanson and other microbiologists to an informal meeting at ICI House, Millbank, on 14 June 1979.

Table 1A: Founding the Healthcare Infection Society: a timeline

1979		
29 May	**14 June**	**10 July**
Honigman, of ICI, sent letter to microbiologists with a special interest in HAI to discuss forming an association for microbiologists	First informal meeting to discuss the formation of a new Society Shanson appointed Convenor of the Steering Committee	First Steering Committee Meeting
17 July	**2 August**	**11 October**
Shanson sent letter to prospective members inviting them to a meeting on 2 August 1979	Second Steering Committee Meeting. Shanson convened a meeting of microbiologists Society name agreed as Society for Clinical Microbiology	Third Steering Committee Meeting Society name changed to Hospital Infection Society Convener post split into Chairman of the Steering Committee and Secretary to the Steering Committee
29 October		
Fourth Steering Committee Meeting		
1980-1981		
11 January	**7 Feburary**	**8 May**
First Scientific Meeting. Society formally launched	HIS Council Meeting #1	HIS Council Meeting #2
17 June	**30 September**	**19 January 1981**
Second Scientific Meeting	HIS Council Meeting #3	First Annual General Meeting (AGM) of the Society, following the Third Scientific Meeting

1.3: Early meetings

1.3.1: The first informal meeting: 14 June 1979

Following the invitation from ICI, a small group of medical microbiologists met at ICI House on 14 June 1979. Those present were Ayliffe, Shanson, Williams, Philips, Sharma, Mark W Casewell, E Dowsett, AM (Mike) Emmerson, Peter D Meers, Philip J Sanderson and together with Honigman and Hinze from ICI.

Figure 1B: John D Williams, a member of First Steering Committee and central to founding the Journal of Hospital Infection. Photo credit: BSAC

Williams chaired the informal meeting. He indicated that its purpose was to discuss forming a group composed of microbiologists with an interest in various facets of infection in hospitals. Ayliffe outlined the development of studies on hospital infection in the UK and affirmed the need for a voice for medical microbiologists who addressed hospital infection problems, and for further academic study in this field.

During this first meeting, it was agreed that, despite the existence of several societies to which microbiologists already belonged, a group specifically for microbiologists with an interest in hospital infection was necessary. It was also agreed that this group would not be affiliated to any existing group, although joint meetings with other associations would be desirable. Finally, meeting attendees agreed that preliminary discussions should be held with Academic Press on the feasibility of a publication associated with the group.

A Steering Committee of six people was set up to:

- Consider the implications of forming a study group for hospital infection.
- Plan a scientific meeting on hospital infection to be held in the autumn or winter of 1979 in London.
- Consider methods of communication of information.
- Propose financing of the group.
- Consider membership of the group and association with other groups.
- Draw up a constitution for the group.

Shanson was appointed Convenor and the Steering Committee met again less than a month later, on 10 July 1979.

1.3.2: First Steering Committee Meeting: 10 July 1979

The Steering Committee of Williams, Ayliffe, Meers, Emmerson, Casewell and Shanson duly met at the Westminster Hospital Medical School to discuss five topics:

1. Areas of interest and the title of the new association

All present agreed that a new association was necessary to represent all aspects of the work of medical microbiologists. Names proposed included 'The Association of Medical Microbiologists' and 'Society for Medical Microbiology'. The Steering Committee proposed that the new association should be further discussed at a suitable meeting of a larger group of medical microbiologists.

More specifically, it was agreed that an association of microbiologists concerned with *hospital* infection was urgently required. This group could either be one section of the larger medical microbiologists' association already proposed, or it could function as a separate society. A possible title was put forward: the 'Society for Hospital Infection', and it was agreed that the title of any new association should not include the word 'British'.

2. Meetings

It was agreed that regular whole-day or half-day scientific meetings on hospital infection should be held at least twice a year: the first meeting and most subsequent meetings should be separate meetings of microbiologists. There could also be occasional joint meetings with other associations. An outline of the First Scientific Meeting was suggested: a whole-day meeting to be held between November 1979 and February 1980.

Topics for possible inclusion were:

- Changes in antibiotic resistance patterns in organisms infecting burns.
- The value of protective clothing: data, or the lack of data.
- *Klebsiella* cross-infection.
- Laboratory safety and safety cabinets.

Casewell was appointed Meetings Secretary with responsibility for the detailed planning of the first meeting.

3. Publications

Progress made during discussions between Ayliffe, Williams and representatives of Academic Press was reported. These discussions had advanced since 14 June, and a commitment had been made to proceed with the establishment of a new journal on hospital infection as soon as possible under the editorship of Ayliffe.

Meers, Sanderson and Shanson were to become Assistant Editors, and an Editorial Board consisting of about 12 members was to be established. A possible title for the new journal was agreed, which was destined to become the journal's permanent name: the *Journal of Hospital Infection*. Representatives on the Board would be drawn from countries including the USA, Scandinavia and Germany.

4. Membership, rules and Officers of the new association

It was agreed that a detailed constitution should be drafted for the new association only after a larger representative group of medical microbiologists had met to establish it, and that this should occur on the day of the First Scientific Meeting.

In the meantime, it was agreed that guidelines should be drawn up. The following proposals were made:

1. Medically-qualified microbiologists should provide the predominant membership of the association.
2. Senior non-medical microbiologists with a PhD degree were also eligible for membership.
3. Other microbiologists could occasionally be invited to join by the Council of the association. For example, a microbiologist who was non-medical, but who had the MRCPath and a special interest in hospital infection.
4. A Council consisting of several Consultant Medical Microbiologists should be established including the Officers of the association. The Officers would be: Chairman, Secretary, Meetings Secretary and Treasurer. The Editor of the new journal should also attend Council Meetings *ex-officio*.

5. Finances

It was reported that financial help would probably be forthcoming from various pharmaceutical companies, including ICI, and from BSAC. The possibility of a small membership subscription was discussed.

At this meeting, Shanson, Convenor of the Steering Committee, agreed to arrange a larger meeting of microbiologists on 2 August 1979 with the purpose of considering the above proposals.

1.3.3: Second Steering Committee Meeting: 2 August 1979

The Second Steering Committee Meeting was convened and chaired by Shanson, who was joined by 23 microbiologists. The meeting took place at ICI House on 2 August 1979. Those present are listed in Table 1B.

Table 1B: Attendees of the Second Steering Committee, 2 August 1979

GAJ Ayliffe	E Houang	DC Shanson (Convenor)
MW Casewell	B Jaimeson	E Shaw
D Coates	O Jo	N Simmons
E Dowsett	EJL Lowbury	R Simpson
AM Emmerson	PD Meers	DCE Speller
R Fallon	SWB Newsom	J Talbot
H Gaya	GL Ridgway	M Thomas
G Gibson	PJ Sanderson	

Matters arising from the Steering Committee Meeting of 10 July 1979 were discussed:

1. Areas of interest and the title of the new association

It was again agreed by most of those present that there was a need for a new society concerned with all aspects of the work of the medical microbiologist, particularly those working in clinical microbiology laboratories. At this stage, a hospital infection group within the broad society was considered preferable to a new, separate hospital infection society.

Officers from the Association of Clinical Pathologists, CSC and ICNA were present at the meeting and the possible modification of these and other societies was discussed at length. The other societies discussed

included the Royal College of Pathologists (RCPath), the British Society for the Study of Infection, BSAC, the Pathological Society and the Society for General Microbiology. All were found to be unsuitable for the needs of medical microbiologists interested in hospital infection.

The majority view was that none of the existing societies could provide:

1. A suitable forum for regular scientific meetings on 'undiluted medical microbiology' with emphasis on various aspects of clinical microbiology and hospital infection.
2. A membership consisting predominantly of medical microbiologists.
3. An influential political voice for medical microbiologists.

The pros and cons of forming a further, new, society had been discussed in June and July. These were discussed again in the 2 August 1979 meeting. Each time the topic arose in meetings, it was concluded that there was definite need for a new society for microbiologists. Discussing this fundamental question a fourth time at a much larger meeting of microbiologists in January 1980 was viewed unfavourably by many of those present.

The question of what would happen if 50% of those present at a larger meeting were against a new society and 50% were in favour was raised by Norman Simmons. Would those against would be able to stop those in favour from forming the new society? The acid test would be whether the new society flourished after its first meetings or not: it was felt that there had been enough procrastination and a new society should be formed forthwith.

It was pointed out by Robert Blowers via letter that the previously suggested title of 'The Association of Medical Microbiologists' or 'Society for Medical Microbiology' could misleadingly suggest a link with the *Journal of Medical Microbiology*, the journal of the Society for General Microbiology. After some discussion the majority of those present preferred the term 'clinical' to 'medical': it was hoped the society would recruit as members medically-qualified microbiologists and senior non-medical science graduates who were working in clinical microbiology laboratories.

The immediate establishment of a new society with the title 'Society for Clinical Microbiology' was proposed by Harry Gaya. The proposal was seconded by Geoffrey L Ridgway. The results of the vote taken were: 16 members in favour of this proposal; two members against; four abstentions. The Society for Clinical Microbiology was established. Following the vote, those present, including the members who had abstained or voted against, were glad to become founder members.

It was noted that the group of microbiologists who had catalysed the formation of the new Society for Clinical Microbiology were hospital infection specialists. The Hospital Infection Group became the first active Group in the Society. The establishment of other groups within the Society would be discussed at further meetings of the Steering Committee and at the first AGM of the Society, to be held on 11 January 1980.

It was agreed that the new Society should seek good relations with RCPath, and with existing societies such as the Association of Clinical Pathologists, the British Society for the Study of Infection, BSAC, the CSC and ICNA. Joint meetings ought to be held with these other societies, either organised by the new Society, or by the Hospital Infection Group. The Hospital Infection Group should become a useful reference body for questions from any other society, organisation or person concerned with hospital infection matters.

It was noted that haematologists were represented by the British Society for Haematology without a strong clash of interests with the Association of Clinical Pathologists or RCPath. The Society for Clinical Microbiology should likewise not cause friction with these important bodies, but should complement and strengthen them.

2. Meetings

A suggested programme was tabled by Casewell for the First Scientific Meeting of the Hospital Infection Group of the new Society for Clinical Microbiology. The meeting was to be held on 11 January 1980 at the Royal College of Obstetricians and Gynaecologists (RCOG), Regents Park, London. The possibility of inviting speakers from the USA and mainland Europe was discussed.

The Scientific Meeting was primarily intended for medical microbiologists, but others with an interest in hospital infection would be welcome to attend. In the afternoon, it was agreed that the objectives of the Society for Clinical Microbiologists should be outlined and the first AGM should take place at the meeting.

3. Publications

Further discussion about the new *Journal of Hospital Infection* had taken place with Academic Press. It was reported that there was unlikely to be a serious overlap of interests with the *Journal of Infection*, which was said to be inundated with papers. Other journals, such as *The Journal of Hygiene* and the major medical journals, were not proving to be satisfactory outlets for articles on hospital infection.

4. Membership, rules and Officers of the Society for Clinical Microbiology

It was agreed that the title of the new association, at this time the Society for Clinical Microbiology, its objectives, membership, rules and Officers would be discussed at the first AGM on 11 January 1980. The Steering Committee would meet in the months before the AGM to draw up some detailed proposals.

There was general agreement that:

1. The predominant membership of the Society for Clinical Microbiology should be medically-qualified microbiologists working in the hospital or in laboratories involved with clinical microbiology.
2. Senior non-medical science graduates working in clinical microbiology and hospital infection laboratories should also be eligible for Full membership. The qualification of a PhD or MRCPath would denote suitable seniority.
3. Exceptionally, other science graduates in microbiology and others who had shown an outstanding interest in hospital infection could be eligible for membership to the Hospital Infection Group of the Society.

5. Finances

It was agreed that the Society must be independent of all industrial or commercial interests. This would not, however, preclude the Society gratefully receiving financial support from firms such as Beechams or ICI on a 'no strings attached' basis. There was general agreement that an annual membership subscription would be necessary which would cost no more than £5.00. At this stage, the new *Journal of Hospital Infection* was under discussion and had not been officially established.

1.3.4: Next steps

Between 2 August 1979 and the next formal meeting on 11 October 1979, a number of informal meetings took place to work further on the key issues outlined above.

1.3.5: Third Steering Committee Meeting: 11 October 1979

A smaller group gathered for the Third Steering Committee Meeting of 11 October 1979 at Westminster Medical School (Table 1C).

Table 1C: Attendees of the Third Steering Committee, 11 October 1979

GAJ Ayliffe	AM Emmerson	PD Meers	DC Shanson (Convener)
MW Casewell	D Jefferies	PJ Sanderson	

Six topics were discussed:

1. A change of title

It was decided that forming the wide-ranging Society of Clinical Microbiology originally agreed upon would take much longer than creating a separate society focused solely on hospital infection. During this meeting, it was agreed that the title of the new association should be the Hospital Infection Society (HIS), and that the Scientific Meeting arranged for the 11 January 1980 would be the first meeting of the Hospital Infection Society.

2. Hospital Infection Society: Constitution, membership and subscriptions

It was agreed that a Provisional Constitution would be worked out at the next meeting of the Steering Committee, but that the membership of both the Council and of HIS would be as previously agreed in the First and Second Steering Committee meetings.

3. The Journal of Hospital Infection

It was agreed in 1979 that, from the outset, the journal should be associated with the Hospital Infection Society, and this should be formally proposed at the First Scientific Meeting of the Society on 11 January 1980, when the Society would be officially launched and progress on the journal would be reported.

4. Planning the First Scientific Meeting of the Hospital Infection Society: 11 January 1980

A scientific programme was introduced for discussion by Casewell. It was agreed that all Consultant Microbiologists and Senior Registrars in Microbiology in the UK should be invited to the First Scientific Meeting on 11 January 1980. At the event, Ayliffe would introduce the new Society, and it was hoped many of the attendees would become members.

5. Convener post divided into two roles

It was formally agreed that the Convener post should be split: Ayliffe was to be Chairman of the Steering Committee, and Shanson was to be Secretary to the Steering Committee. The Steering Committee would continue until January 1980 when it would be replaced by the elected Council. Steering Committee Meetings would be redesignated as Council Meetings.

6. Arrangements for 1980

Provisional Officers and Members of Council

The provisional Officers and Ordinary Members of Council for 1980, who would be eligible for re-election in 1981, were agreed. These are outlined in Table 1D.

Table 1D: Provisional Officers and Ordinary Members of Council for 1980

Provisional Officers

President	EJL Lowbury
Chairman	GAJ Ayliffe
Secretary	DC Shanson
Meetings Secretary	MW Casewell
Treasurer	PD Meers

Ordinary Council Members

AM Emmerson	DA Leigh	G Scott
G Gibson	SWB Newsom	JD Williams
D Jefferies	PJ Sanderson	

Subscription

The membership subscription for the Hospital Infection Society in 1980 and 1981 was confirmed as £10.00, and all members were to receive the 1980 issues of the JHI without extra charge.

1.3.6: Fourth Steering Committee Meeting: 29 October 1979

Steering Committee members present at this meeting can be seen in Table 1E.

Table 1E: Steering Committee Members present at the Fourth Steering Committee Meeting, 29 October 1979

GAJ Ayliffe (Chairman)	AM Emmerson	PD Meers (Treasurer)
MW Casewell (Meetings Secretary)	D Jefferies	DC Shanson (Secretary)

The five discussion points were as follows:

1. Change in title of the new Society

Those invited to the 2 August 1979 meeting had been consulted about renaming the new society the 'Hospital Infection Society' rather than the 'Society for Clinical Microbiology'. There had been no objections. The Secretary had been contacted by a few people to express hope that there would be rapid progress towards the creation of another broader society.

2. First Scientific Meeting on 11 January 1980

The revised programme for the First Scientific Meeting was presented by Casewell. Beechams and ICI had agreed to provide financial support, and it was agreed that this would be acknowledged at the meeting. The First Scientific Meeting would be publicised by asking Consultant Microbiologists in each region to bring it to the attention of senior Registrars.

3. Second Scientific Meeting proposed for 6 June 1980

Shanson suggested that the Second Scientific Meeting should be held in the summer of 1980, and a provisional date of 6 June 1980 was agreed.

4. Constitution of the Hospital Infection Society

A Provisional Constitution and arrangements for 1980 were agreed. The Provisional Constitution can be viewed in Appendix 1.

5. The Journal of Hospital Infection

It was reconfirmed that the JHI should be linked to the Hospital Infection Society.

1.4: The First Scientific Meeting and the first meeting of the Hospital Infection Society: 11 January 1980

The First Scientific Meeting of the Hospital Infection Society was held at RCOG. The meeting was attended by over 200 people and was heralded as a great success. A full scientific programme for the event can be found in Chapter 4.1.

Consensus was reached during the meeting for:

- The genuine need for the new Hospital Infection Society.
- A federation of many of the different microbiological and infection societies in the UK.

The audience had no adverse comments on the Provisional Constitution or the proposals for the Hospital Infection Society. The provisional Officers and Members of Council were also approved. An official observer from the Department of Health and Social Security had been invited and was present at the meeting.

1.5: The First Council Meeting of the Hospital Infection Society: 7 February 1980

With the official launch of the Hospital Infection Society, the Steering Committee Meetings were renamed Council Meetings. Attendees of the First Council Meeting can be found in Table1F.

Table 1F: Members present at the First Council Meeting, 7 February 1980

GAJ Ayliffe (Chairman)	G Gibson	PD Meers (Treasurer)	DCE Speller
MW Casewell (Meetings Secretary)	D Jefferies	PJ Sanderson	JD Williams
AM Emmerson	DA Leigh	DC Shanson (Secretary)	

During the first Hospital Infection Society Council meeting at ICI House revisions to the Constitution (Appendix 1), including a revised set of rules for membership of the Society (Table 1G), were considered. It was agreed these would be ratified at the first AGM in 1981. It was reported by the Secretary that 160 applications for membership (largely from Consultant Microbiologists) had been accepted under the rules of the previous Constitution. About 20 applications for membership had been received from physicians, clinicians, epidemiologists, science graduates with a BSc or PhD degree, members of industry and a Medical Laboratory Scientific Officer. These applications were considered under the revised rules of membership. A number of the applications from clinicians and microbiology science graduates were accepted by Council.

Table 1G: Membership criteria of the Hospital Infection Society 1979 and 1980

Provisional Constitution (1979) membership criteria	Revised Constitution (1980) membership criteria
a. The predominant membership of the Society and Council shall consist of medically-qualified microbiologists b. Suitably-qualified science graduates working in the field of hospital infection shall be admitted to Full membership at the discretion of the Council	a. Medically-qualified microbiologists and trainee medical microbiologists working in the field of hospital infection b. Other medical graduates who have demonstrated a consistent or continuing interest in hospital infection by relevant publications, or other means c. Microbiologists, with the qualifications of PhD or MRCPath, holding positions in hospital laboratories, or holding positions in other laboratories working in the field of hospital infection d. Other graduates with a consistent and continuing interest in hospital infection, displayed by the publication of relevant original observations in the literature e. In exceptional circumstances membership can be offered to others working in the field of hospital infection

The First Scientific Meeting of the Hospital Infection Society, which had been held on 11 January 1980 at RCOG, was also a topic for discussion. Positive feedback had been received about the usefulness of the presentations and the quality of the speakers.

It was agreed that the Second Scientific Meeting should be held on 13 June 1980 at either RCOG or the Royal College of Physicians. The Second Scientific Meeting was to be organised by the Society. Members were to pay less than non-members to attend. A discussion was held about the scientific programme and suggestions for speakers were made. Short contributions were to be requested from members about outbreaks of hospital infection.

It was reported on behalf of the Honorary Treasurer that there was approximately £2,000 in the Society's account. This sum included £400 from ICI for the Lowbury Lectureship (Chapter 6.1 addresses the origins of the Lowbury Lecture in more detail). The first Lowbury Lecturer, at the January 1980 meeting, had been Peter JE Cruse from Canada. Cruse had

delivered a lecture entitled 'The epidemiology of wound infections'. His expenses were met by the ICI endowment.

During this first Council meeting, it was agreed that DA Leigh and Meers would liaise and help to obtain charitable status for the Society.

1.6: Further Society progress in 1980–1981

Two further Council Meetings took place in 1980, one on 8 May and one on 30 September. Both were held at ICI House.

By the end of 1980, HIS Council reported a membership of 230. The membership fee was £10 per year, with £7 from each subscription paid to Academic Press in respect of the JHI.

During 1980, an income of £1,996 (£1,500 from ICI; £496 from HIS Scientific Meeting registration fees) was generated, £1,766 was expended on three HIS Scientific Meetings, including venue and speaker costs, and a surplus of £233 remained. By the end of the year, accountants were appointed by Council, and the process of seeking charitable status was underway.

1.6.1: First Annual General Meeting: 9 January 1981

The first AGM of the Hospital Infection Society was held at 4.15pm on 9 January 1981, at RCOG, Regents Park, London.

Approximately 70 members of the Society were present. Ayliffe, the Chairman, reported that three successful HIS Scientific Meetings had been held in 1980, and that over 200 people had attended each meeting. Membership stood at 264. The JHI, published by Academic Press in association with HIS, had published a first edition in March 1980 and was thriving. Edward JL Lowbury had kindly agreed to serve the Society as President for one more year.

It was reported by the Chairman that a Provisional Constitution had been approved by the membership at the first meeting of the Society, held in January 1980. Comments were requested by the Chairman regarding the revised Constitution. The Constitution had been revised during the first HIS Council meeting in February 1980 and subsequently circulated

to members in spring (Appendix 1). As there was no further comment, the Constitution of the Society was declared formally approved.

A list of the present Officers and Council Members of the Society had been approved at the first meeting of HIS held in January 1980. It was proposed by Williams that the four Officers who had served in the Society during its first year should all be elected for a further period of three years. The proposal was seconded by DS Reeves and was agreed by the meeting attendees without any dissent. The four Officers elected were as shown in Table 1H, and the eight Ordinary Council Members are shown in Table1I.

Table 1H: Four Elected Officers of the Hospital Infection Society

Chairman	GAJ Ayliffe
General Secretary	DC Shanson
Meetings Secretary	MW Casewell
Honorary Treasurer	PD Meers

Table 1I: Eight Ordinary Council Members of Hospital Infection Society

AM Emmerson	DJ Jefferies	SWB Newsom	DCE Speller
GL Gibson	DA Leigh	PJ Sanderson	JD Williams

The Society's finances were discussed and Meers gave a report to the group: there had been invaluable assistance from commercial organisations to support the cost of holding scientific meetings and registration fees for meetings were low for this reason. Membership of the Society and receipt of the JHI cost members only £10 per annum. It was agreed that the £10 annual subscription would continue for the year from 1 April 1981 to 31 March 1982. Charitable status for the Society was actively being sought by the Honorary Treasurer.

It was announced by the Meetings Secretary that there would be a joint half-day meeting with BSAC on Friday 20 March 1981 at Churchill College, Cambridge, and that a whole-day scientific meeting was provisionally arranged for Friday 9 October 1981. A free paper session would be included in the autumn scientific meeting. It was confirmed by Casewell that ICNs and other non-members of the Society were welcome to attend meetings – although priority of places would continue to go to members of the Society.

Chapter 2

Governance, structure and strategy

2.1: What's in a name? Charitable status and trading subsidiary

The Hospital Infection Society was registered as charity (number 286064) with the UK Charity Commission on 18 January 1983. Over a decade later, on 18 April 1996, The Hospital Infection Society [Management] Limited was incorporated as a limited company: having a separate limited company allowed for the running of the International Conferences and other occasional conferences. The Hospital Infection Society [Management] Limited acted as a trading subsidiary.

The Society's title and charitable status remained this way until, in 2010, it was agreed by HIS members that the word 'healthcare' best reflected the evolution of the field beyond the hospital setting. A vote was held and members opted to update the name to 'Healthcare Infection Society' (HIS), officially implemented in 2011. This change mirrored the Society's continued commitment to reflecting the evolving field of infection prevention and control (IPC): the *Healthcare* Infection Society was better placed to offer its expertise to the wider healthcare community. It was decided that the JHI's name would not change: this could negatively affect the journal's impact factor, which had taken many years to establish.

The newly denominated HIS was registered with the Charity Commission with charity number 1158172 on 18 August 2014. It was decided during that process that the Society's status should be transferred from a

Charitable Company with Corporate Entity to a Charitable Incorporated Organisation. This would simplify administrative matters relating to the charity, and remove the need to have a separate limited company to run international or other occasional conferences.

The original charity 286064 was removed from the register of charities on 29 April 2016, followed by the dissolution of the Hospital Infection Society [Management] Limited on 31 May 2016.

2.2: Governance

As a charity, HIS adheres to an agreed governance structure. This is outlined in more detail below.

2.2.1: HIS Constitution

The current HIS Constitution (dated November 2020) can be found in Appendix 1. The Constitution is, in effect, the rulebook which governs the Society. Changes to the Constitution can only be made with the approval of HIS members, and the Charity Commission must be informed of any changes made.

When HIS was formed in 1980, the purpose of the Society and its operational rules were set down in the original governing document. Over time, as HIS evolved, a number of changes were made. The most recent examples are from 2018: changes were approved to update the names of two membership categories, to introduce a new membership category, and to make amendments to the eligibility criteria to make the categories more inclusive and reflective of those who now work in IPC in healthcare settings. In 2020, in response to the COVID-19 pandemic, a further change was approved to allow the AGM to take place virtually.

2.2.2: Governance structure

The governance structure of the Society is described below. A complete list of Officers and Chairs from 1980-2020 is included in Appendix 2.

1. Council

HIS Council Members must be members of the Society (with the exception of the Lay Trustee). They are either appointed by Council or elected by the membership for a defined term. When the Society was first formed, the Council roles were: President, Chair, Honorary Treasurer, Meetings Secretary and Secretary (as Officers), as well as the Editor-in-Chief of the *Journal of Hospital Infection* (JHI), and Ordinary Members.

Figure 2A: HIS Presidents Medal

In 1995 the role of Meetings Secretary was changed to that of Scientific Secretary. After 2011, responsibility for the Society's conferences and events was transferred to the Education Committee, represented on Council by the Education Committee Chair. Since 2011, the membership of Council has comprised the President, Chair, Honorary Treasurer and Secretary (as Officers), as well as the Editor-in-Chief of the JHI, Ordinary Members, Committee Chairs and Co-opted Members. In 2017 the Constitution was further amended to diversify Council composition to include a non-clinical Lay Trustee.

2. Committees

The Society's Committees are formed of healthcare professionals who participate in a voluntary capacity. Committee Members have diverse roles and specialisms, including Consultant Microbiologists, infectious disease physicians and virologists, trainees enrolled on specialty training programmes, Infection Control Nurses (ICNs), staff from Public Health England and healthcare scientists.

The committee structure of the Society has evolved since 1980 to reflect the challenges faced by HIS members, the Society's evolving strategy and its key activities. For instance, when it was decided that the Society would host a large international conference (see

Chapter 5), the Conference Organising Committee and Scientific Programme Committee were established to facilitate its organisation. The composition of each of these Committees is reviewed for every International Conference to reflect the evolving fields in which HIS operates, while always including past members to ensure continuity and to drive improvement between events.

The first committee formed was the Grants Committee in 1997. The first applications for the Society's major and standard research grants were reviewed by the Grants Committee in 1997.

Between 2011 and 2019 the Society's Committees were:

- Scientific Development Committee (Chapter 7.3).
- Grants Committee (a sub-committee of the Scientific Development Committee) (Chapter 7.3).
- Education Committee (Chapter 4.2).
- Executive Editorial Board (formed in 2016) (Chapter 3).

In 2014 a Trainee Representative role was added to HIS Council, and the HIS Trainee Education Programme was launched in 2015. A Trainee Committee was then formed in 2016 (Chapter 4.5.2).

In 2017, a committee entitled the Director of Infection Prevention and Control (DIPC) Development Network Steering Group was formed. The Chair of HIS Council, Elisabeth Ridgway, was included in its membership. The role of this group was to steer the HIS DIPC Development Programme. The DIPC Development Network Steering Group was dissolved in 2019 when the DIPC Development Programme was included in the remit of the newly formed Professional Development Committee. The development of the DIPC role and more detail on the HIS DIPC Development Programme can be found in Chapter 10.

During 2018 the Society began to develop its strategy for 2020-2025. In 2019, a new committee structure was launched to clearly align the HIS Committees to the Society's future goals and objectives. The new committee structure was as follows:

- Professional Development Committee.
- Research Committee.
- Guidelines Committee.
- Trainee Committee.
- Executive Editorial Board.

The Trainee Committee and Executive Editorial Board were carried from previous years into the new committee structure. However, their membership composition was amended to reflect the current and desired composition of the wider HIS membership. Committee Chairs in 2020 can be found in Appendix 2.

3. Working Parties

The Society has long been involved with Working Parties to produce evidence-based and expert guidance in all areas of IPC. Many of these Working Parties have been led by the Society, but HIS members also provide expert representation in the Working Parties of other organisations. More information regarding HIS Working Parties past and present can be found in Chapter 8.

2.3: Strategy and membership

2.3.1: Early strategic focus

During the Society's early years, the HIS charitable objectives were to create and sustain a robust organisation concerned with all aspects of the work of medical microbiologists, particularly those working in clinical microbiology laboratories. It was therefore central to the Society's role to provide a suitable forum for regular scientific meetings on 'undiluted medical microbiology', with an emphasis on hospital infection and clinical microbiology; to encourage a membership that consisted predominantly of medical microbiologists; and to launch a scholarly journal to publish research and opinion in the field of medical microbiology. Typically, a society is formed in the first instance, and then either develops or acquires an established journal at a later date. However, the strategic coevolution of the Society and the JHI, along with the later success of the HIS International Conferences, ensured that the Society quickly became financially secure.

2.3.2: Membership

By the end of 1980, there were 264 HIS members. By 2020, there were over 1,100. In this period, HIS membership diversified significantly: members were almost exclusively Consultants during the 1980s, but by 2020 the Society was serving Consultant Microbiologists and doctors enrolled on infection specialty training programmes, nurses, clinical scientists, research scientists and others with a demonstrable professional interest in healthcare-associated infections (HCAIs). See section 2.4.2 in this Chapter for more detail on membership changes between 2002-2020.

Although the membership has diversified, the Society's core objectives have changed little in the 40 years it has served the community. In 2020, HIS charitable activities focus on the prevention and control of HCAIs in order to advance knowledge, foster scientific interest and disseminate information amongst HIS members and the wider IPC community, for the ultimate benefit of the public. Society members are acutely aware that patients acquire HCAIs either as a result of contact with a healthcare setting or via medical interventions. IPC is therefore a key focus for those working in patient-facing healthcare, and those individuals who are committed to reducing levels of HCAIs to the lowest possible levels form the membership that HIS represents and supports.

2.3.3: Membership engagement and strategy

The Society consults its membership regularly to ensure that HIS activities continue to reflect the needs of the community. Strategy is formally reviewed every five years to ensure that it aligns with current challenges within the field of HCAI and IPC, and the needs of the membership and the larger IPC community. Strategic objectives are then set, and detailed operational plans are developed to correspond to these objectives and to ensure the Society has the necessary resources available.

Strategic objectives are met by sharing research, evidence and best practice. This is achieved via a programme of training and events, the development of resources, the production of evidence-based publications and guidance, the allocation of research funding, and other activities that support and represent our members.

2.4: Evolution and strategy

The Society's strategic focus has always been on activities that support HIS members to overcome the challenges they face, and to advance research that underpins excellence in clinical practice.

During the early years, great efforts were made to ensure that HIS was well run in accordance with the regulatory requirements of the Charity Commission to fulfil these aims. Incredibly, for 20 years HIS was run by volunteers based in the university and hospital offices of the Society's Officers. However, in 1998 it was recognised that a permanent home and staff team for the Society and the JHI were necessary to allow HIS to increase its contributions to education, research and practice in IPC, at a time when the central importance of the subject in modern healthcare had never been more apparent.

2.4.1: A permanent home, staff team and changes to the membership

The minutes of the 1998 AGM record:

> Investigations are about to be launched into the feasibility of the Society acquiring (either by lease or probably by purchase) permanent premises. Such a move would raise the profile of the Society, provide a focus for its activities, in particular for those of the *Journal*, and would help the officers of the Society. These points, however, depend on the recruitment of an administrator of sufficient calibre to make appropriate decisions. London is considered to be the optimum site, given the requirements for accessibility, utility, and staffing.

After a search of over two years, 162 King's Cross Road was purchased by the Society in June 2000 for £350,000.

In 2001, staffing, the refurbishment of the new building and the need for a strategic review were discussed by Council. The renovation of the new Society premises progressed slowly, but in March 2003 162 King's Cross Road was officially opened by Sir Liam Donaldson, Chief Medical Officer for England. The building can be seen in Figure 2B, pictured in 2020 with HIS-brand blue doors and JHI-green lighting strips just visible though the window above the left door.

2.4.2: Membership 2002 to 2020

With the new premises and plans to hire staff underway, a survey of members was commissioned by Council in 2001. The survey illustrated that members considered the JHI, guidelines and conferences to be the most important functions of the Society.

The survey also revealed that the Society had an ageing membership: 38% of members were expected to retire in the next decade. In response, ways in which junior microbiologists could be encouraged to join HIS were reviewed by Council. In 2002, it was agreed that a change in the Constitution was required to attract junior members: membership fees for trainees were reduced and membership categories were expanded to include ICNs and biomedical science staff. The need for an Associate membership category (without voting rights) was also considered.

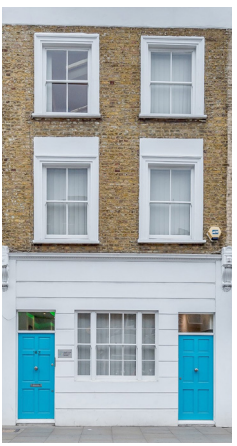

Figure 2B: 162 King's Cross Road, London, WC1X 9DH

HIS membership categories remained largely unchanged between 2002 and 2017. In 2018 the category of Honorary membership was approved, and in 2020 an Associate Trainee membership category was introduced. The category of Honorary member was created to recognise outstanding and unique contributions to the Society, over and above that which might normally be delivered in a Society role or office, or through involvement in Society activities. The creation of Associate Trainee membership reflects the ongoing ambition of the Society to raise the profile of the infection-related specialties among doctors at an earlier stage in their training, and to encourage them into specialty training. In the 2020 AGM Hilary Humphreys, the HIS President, announced that in celebration of the 40th anniversaries of HIS and the JHI three Honorary memberships were to be awarded. The recipients were Peter N Hoffman, Martin Kiernan and Peter Wilson.

The six categories of membership available in 2020, listed in Table 2A, reflect the diversity of the workforce responsible for IPC in healthcare settings today.

Table 2A: HIS Membership Categories 2020

Membership category	Eligibility criteria
Full member	• Medically-qualified microbiologists and infectious disease physicians; or • Microbiologists, with qualifications of PhD or FRCPath, working in the field of hospital and other healthcare-associated infection; or • Other graduates (for example, IPC practitioners, antimicrobial pharmacists or clinical scientists) who have demonstrated a consistent and continuing interest in hospital and other healthcare-associated infection, by relevant publication, or by other means; or • Others working in the field of hospital and other healthcare-associated infection who have a significant level of experience (at least five years working in a senior IPC role)
Trainee member	• UK and Republic of Ireland trainees for the duration of their training. Doctors on a recognised programme of specialty training in the field of microbiology, virology, infectious diseases or undertaking dual training in these disciplines who have not yet been appointed to a Consultant or academic-equivalent position (with an academic-equivalent position being that of senior lecturer, reader or professor); or • Experienced clinical scientists registered on a Higher Specialist Scientist Training programme to become a Consultant Clinical Scientist who are not already eligible for Full membership via another route
Associate member	• Anyone working in the field of hospital and other healthcare-associated infections who does not fulfil the criteria for Full or Trainee membership, who demonstrates commitment to IPC, and who has an interest in/is working in the field of hospital and other healthcare-associated infection Following five years of continuous membership as an Associate member, and having demonstrated significant and ongoing experience in IPC, Associate members may transfer to Full membership
Emeritus member	Any Full member on retiring from his/her professional position following five years of continuous membership as a Full member

Associate Trainee member	Undergraduate medical students, those in Core medical training/ internal medicine training/acute care common steam or in post medical student intern year/basic specialist training (in Ireland) with an interest in moving into medical microbiology or medical microbiology/infectious diseases specialty training
Honorary member	Recognises an outstanding and unique contribution to the Society, over and above that which might normally be delivered by holding a Society role or office, or through involvement in Society activities

2.4.3: Strategy 2015-2019

The Society's first documented strategy was developed during 2014, and included six strategic objectives for 2015-2019:

- Ensure that HIS is properly resourced to effectively fulfil its strategic objectives and to enhance its existing governance procedures.
- Promote and develop the science of IPC and strive to ensure that clinical practice is consistent with the latest scientific knowledge.
- Ensure that the JHI is the leading journal in its field.
- Design and deliver a range of educational activities that help equip healthcare professionals to prevent and control HCAIs.
- Retain, enhance engagement with and increase membership.
- Increase the numbers of people and organisations with whom HIS communicates and collaborates, particularly overseas.

By the end of 2016, Trustees were concerned that the Society was not making sufficient progress towards achieving these strategic objectives. As a result, during the 2016-2019 period it was agreed by Trustees that the permanent staff team required investment.

2.4.4: The HIS team

In 2002 Sue Hollinshead joined the Society as Administrative Officer. The Society's first Executive Director, Tim Hogan, joined HIS in 2003 and was followed by Sandra Smith until 2016. By 2020, the Society staff team had grown to eight experienced personnel. The HIS staff support Council in ensuring the organisation is well run and working to achieve its strategic goals. The roles in place at the end of 2020 are listed in Table 2B.

Table 2B: HIS Staff Roles 2020

Chief Executive Officer
Chief Financial Officer
Editorial and Production Manager
Membership, Education and Events Manager
Research and Development Manager
Researchers in Evidence Synthesis (guideline production)
Events, Membership and Communications Coordinator

The combined efforts of HIS Council, Committees, Working Parties and the new staff team ensured that by 2019 each of the 2015-2019 strategic objectives was achieved or significant progress was made. An ambitious strategy was therefore developed for 2020-2025 by Society staff and Officers. Strategy documents were circulated to members for consultation in early 2019, and were published online in September 2019.[1] The current HIS strategy is outlined in more detail in Chapter 11.3.

Figure 2C: The HIS staff team attend a Zoom meeting in 2020. Top row (L-R): Kay Miller, Adel Botfield and Moira Mugglestone. Middle row (L-R): Helen Davies, John Misselbrook and Aggie Bak. Bottom row (L-R): Christine Fears and Gemma Marsden

References

1. Healthcare Infection Society. HIS Strategy 2020-2025. London: Healthcare Infection Society; September 2019. https://his.org.uk/about/strategy-2020-2025/ [Last accessed 16 November 2020]

Chapter 3

The HIS journals

The *Journal of Hospital Infection* (JHI) and *Infection Prevention in Practice* (IPIP) are the two official journals of the Society. The development of the journals mirrors both the development of infection prevention and control (IPC) as a field, and changes in how scientists found, read and published research.

3.1: The Journal of Hospital Infection

At the fledgling HIS Steering Group Meeting of 10 July 1979, it was reported by John D Williams and Graham AJ Ayliffe that discussions with Academic Press had advanced regarding the launch of a new journal (see Chapter 1.4). Soon after, a meeting was held between Williams, Ayliffe, Peter D Meers and David C Shanson of HIS and Joan Fujimoto of Academic Press to develop the idea further. Fortuitously, Williams had prior experience of creating new journals: he had worked on 'the blue journal' (the *Journal of Antimicrobial Chemotherapy*) on behalf of the British Society for Antimicrobial Chemotherapy. Academic Press agreed to proceed with the establishment of a new journal on hospital infection as soon as possible under Ayliffe's editorship. It was agreed that the first issue would be published in 1980, and a formal agreement was duly signed between HIS and Academic Press with Meers and Shanson as witnesses.

Volume One, Number One of the JHI (Figure 3A) was issued in March 1980 with Ayliffe as Editor and Meers, Shanson and Philip J Sanderson as Assistant Editors. A list of the Editors-in-Chief of the JHI from 1980-2020 can be found in Appendix 2. The first Editorial Board was drawn from IPC experts in the UK, and a further Board of Editorial Advisors

represented the wider IPC community with editors drawn from the US, South Africa and several European countries.

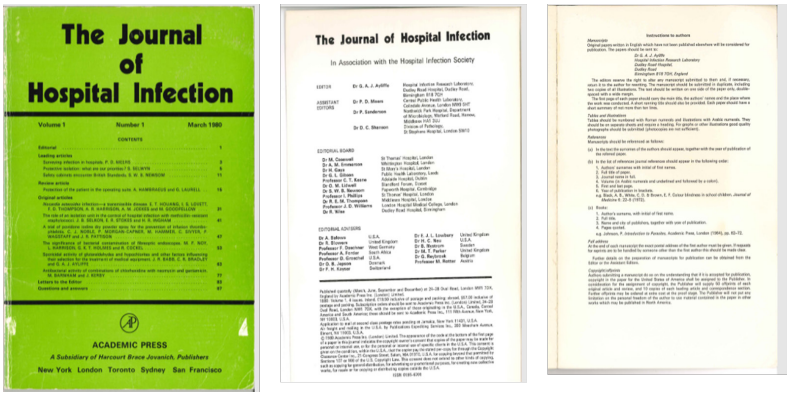

Figure 3A: JHI Volume One, Number One, March 1980

Since the first issue in March 1980 the JHI has gone from strength to strength. Originally published four times a year, the success of the journal was such that the page count was increased to six issues in 1986, eight issues in 1988 and 12 issues in 1991 to accommodate increasing submissions. In the IPC community, the journal became known affectionately as 'the green journal'.

Figure 3B: JHI Covers May 2018 and June 2018

In 1998 it was decided that the publishing format should be updated from A5 to American A4 to take advantage of a larger format and double-column printing – so long as the new cover would still be green. More recently, in 2018, the cover was redesigned with a more contemporary feel, in line with the new HIS branding (developed in consultation with the membership and brand experts, Spencer du Bois) which was also launched in 2018. The change was implemented in June 2018, and each month since then the cover has sported a new design reflecting the content of the journal. Comparison between the May 2018 and June 2018 covers can be made in Figure 3B.

One metric by which journals are measured is the impact factor (IF). The IF reflects the average number of citations in a year that articles published in the two previous years received: the 2020 IF is therefore the number of citations in 2020 to articles published in 2018 and 2019. The IF of the JHI has risen steadily over time: the 2017 the IF was 3.126, and the 2018 IF was the highest awarded to the JHI at 3.704. The 2019 IF (received in 2020) was calculated at 3.271. The IF since 1997 is shown in Figure 3C.

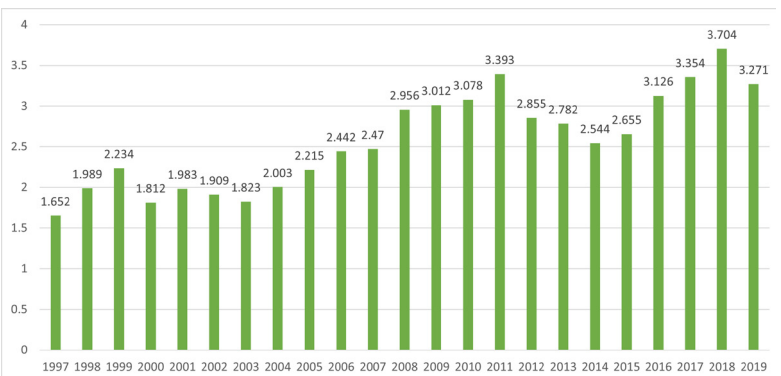

Figure 3C: JHI impact factor over time

3.2: An ongoing record of IPC research and practice

HIS and the JHI were launched in response to the increasing importance of professionalised IPC in hospitals. The first JHI editorial stated:

> Infection control staff have long felt a need for a single journal which deals with well-based research on all aspects of hospital infection, e.g. epidemiology, surveillance, administration, techniques and procedures in isolation and hygiene, and with problems of disinfection and sterilization. We hope that this journal will advance scientific information in these topics and facilitate communication between the many workers in the field.[1]

Key concerns for clinicians in 1980 were outlined as: selective antibiotic prophylaxis and environmental control in high-risk surgery, management of immunosuppressed patients and the problem of highly dangerous infections. The lack of data on the incidence of infection in most countries and an attempt to tackle this with a national prevalence survey in England, with hopes of collaboration with other European countries, were outlined in the editorial. Papers in Volume 1 of the JHI addressed issues of patient isolation,[2] disinfection of heat-sensitive instruments,[3] the re-emergence of hypochlorites as sporicidal agents,[4] the role of IPC professionals in providing patients and hospital staff with maximum protection against healthcare-associated infections,[5] the value of scientific experiment in defining priorities in the operating theatre,[6] and encouraged experts to answer reader questions.[7]

Papers published in the journal's first decade are continuously cited: Table 3A shows the top-cited JHI papers from the 1980s and the references made to each between 2015-2020. The top-cited JHI papers of all time can be found in Table 3B.

Table 3A: Top-cited JHI papers, 1980-89

Title	Authors	Publication year	Total Citations	Citations 2015-2020
Airborne contamination of wounds in joint replacement operations - the relationship to sepsis rates	OM Lidwell, EJL Lowbury, W Whyte, R Blowers, SJ Stanley, D Lowe	1983	159	47
Hand disinfection - a comparison of various agents in laboratory and ward studies	GAJ Ayliffe, JR Babb, JG Davies, HA Lilly	1988	145	12
The emergence of fungi as major hospital pathogens	GP Bodey	1988	133	5
Hospital outbreak of multi-resistant *Acinetobacter anitratus* - an airborne mode of spread	KD Allen, HT Green	1987	128	13
Epidemiology of nosocomial infections due to *Acinetobacter calcoaceticus*	E Bergogneberezin, ML Jolyguillou, JF Vieu	1987	127	3
The international spread of methicillin-resistant *Staphylococcus aureus*	DE Townsend, N Ashdown, S Bolton, J Bradley, G Duckworth, EC Moorhouse, WB Grubb	1987	112	3
An international survey of the prevalence of hospital-acquired infection	RT Mayon-White, G Ducel, T Kereselidze, E Tikomirov	1988	106	22
Enterobacter - an emerging nosocomial pathogen	MA Gaston	1988	102	12
Control of an outbreak of nosocomial aspergillosis by laminar air-flow isolation	RA Barnes, TRF Rogers	1989	97	11
Cross-infection between animals and man - possible feline transmission of *Staphylococcus aureus* infection in humans	GM Scott, R Thomson, J Malonelee, GL Ridgway	1988	84	12

100 editions later, in 2018, an editorial was published in which the editorial team, Jim Gray, Beryl Oppenheim and Nikunj Mahida, noted of the first volume:

> This objective [to launch a single journal for the field of hospital infection] was, in itself, eminently laudable, but serendipitously, JHI was launched on the threshold of an era of major changes in healthcare that presented major challenges and opportunities for infection prevention and control (IPC) that could not have been foreseen.[8]

In 2020, the JHI continues to be a record of emerging problems, successes and failures in the field of IPC globally. The international audience of the journal continues to grow: Volume One represented mainly British authors, with a few European and North American contributions. By 2020, over 40% of submissions to JHI come from Asia, and submissions were received in 2020 from Africa, Oceania, North, Central and South America as well, of course, as the UK and Europe.

Increased interest in HCAIs globally was reflected by a growing need to measure performance in IPC. This theme has been central to publications in the JHI. The first journal supplement, a 'Report on the National Survey of Infection in Hospitals, 1980' was published in 1981.[9] It provided a comprehensive analysis of an infection prevention survey in hospitals in England and Wales. Subsequently, many HCAI prevalence studies from around the globe were summitted to and published in the JHI.[8]

Table 3B: Top-cited JHI papers of all time

Title	Authors	Publication Date	Total Citations	Average per Year
Persistence of coronaviruses on inanimate surfaces and its inactivation with biocidal agents	G Kampf, D Todt, S Pfaender, E Steinmann	Feb 2020	766	766
Bacterial resistance to silver in wound care	SL Percival, PG Bowler, D Russell	May 2005	490	30.6
Risk factors for *Clostridium difficile* infection	GE Bignardi	Sep 1998	421	18.3
Non-albicans *Candida* spp. causing fungaemia: pathogenicity and antifungal resistance	V Krcmery, AJ Barnes	Apr 2002	413	21.7
'My five moments for hand hygiene': a user-centred design approach to understand, train, monitor and report hand hygiene	H Sax, B Allegranzi, I Uckay, E Larson, J Boyce, D Pittet	Sep 2007	345	24.6
Environmental contamination makes an important contribution to hospital infection	JM Boyce	Jun 2007	340	24.3
Role of hand hygiene in healthcare-associated infection prevention	B Allegranzi, D Pittet	Dec 2009	329	27.4
Guidelines for the control and prevention of methicillin-resistant *Staphylococcus aureus* in healthcare facilities	JE Coia, GJ Duckworth, DI Edwards, M Farrington, C Fry, H Humphreys, C Mallaghan, DR Tucker	May 2006	319	21.3
epic2: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England	RJ Pratt, CM Petlowe, JA Wilson, HP Loveday, PJ Harper, SRLJ Jones, C McDougall, MH Wilcox	Feb 2007	311	22.2
Revised guidelines for the control of methicillin-resistant *Staphylococcus aureus* infection in hospitals	GAJ Ayliffe, A Buckles, MW Casewell, BD Cookson, RA Cox, GJ Duckworth, GL French, A Griffiths-Jones, R Heathcock, H Humphreys, CT Keane, RR Marples, DC Shanson, D Slack, E Tebbs	Aug 1998	297	12.9
The role of environmental cleaning in the control of hospital-acquired infection	SJ Dancer	Dec 2009	280	23.3

Guideline publication has long been central to the JHI's output. The earliest guidelines published in the JHI were those produced in the 1980s by HIS on acquired immune deficiency syndrome (AIDS),[10] epidemic meticillin-resistant *Staphylococcus aureus* (MRSA),[11] and infection control organisation in hospitals in England and Wales.[12] The journal continues to publish work from the Society's Working Parties and others. Most recently, guidance for the decontamination of intracavity medical devices[13] and a joint guideline developed by HIS and the British Society of Gastroenterology on the use of faecal microbiota transplant as treatment for *Clostridioides difficile* infection.[14]

Topics that were far in the future when the JHI launched have been covered in recent years. The technological revolution which transformed life in the past 40 years is reflected in JHI publications. New technologies in molecular biology, computing and genetics transformed diagnosis and epidemiological investigations into HCAI with increased microbiological understanding.[15] Challenges as well as advancements in IPC have been created by new technology: new devices, from mobile phones, tablets and other portable devices, to bladeless fans and high-speed hand dryers, have brought new sources of contamination and disease spread into hospitals.[16]

Antimicrobial resistance and antibiotic stewardship are long-term specialities of the JHI. Antibiotic-resistant Gram-negative bacteria were a concern in 1980. By the 2000s multi-drug resistant Gram-negative bacteria were increasingly common around the world: accounts from the UK, Spain, Brazil, New Zealand and Bulgaria were published in the JHI.[17] In 2020 the JHI continues to be a leader in this field: the first 40th anniversary edition of the journal featured a Special Section the subject.[18] Work was also presented in the November 2020 edition to mark World Antimicrobial Awareness Week, which included an editorial entitled 'Antimicrobial stewardship: a COVID casualty?'.[19]

In 2020, one novel virus dominated the headlines. The workload and subject balance of the JHI were impacted, with submissions to the journal more than doubling over the period of the first peak of the virus – a comparison between submissions in 2018, 2019 and 2020 is shown in Figure 3D. A Special Section of commentary and review articles about the COVID-19 outbreak was published in March 2020.[20] By late 2020 new research had been conducted and was published in the JHI. As part of a collaboration organised by the Wellcome Trust, all HIS journal

papers relating to the pandemic were made freely available online upon publication to aid the swift dissemination of knowledge, and notable research was shared directly with the World Health Organization (WHO).

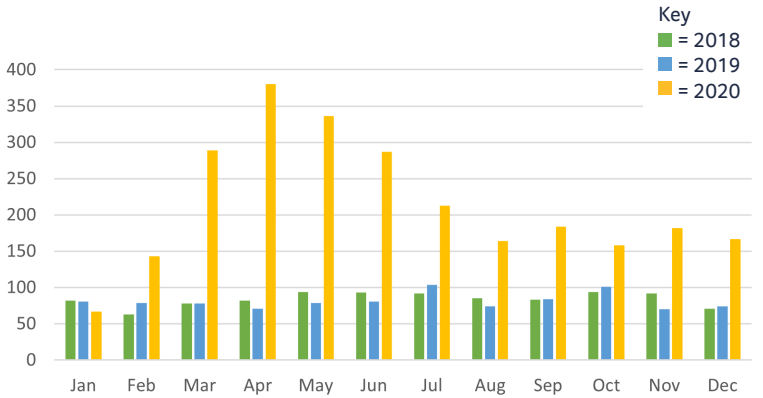

Figure 3D: JHI submissions by month

The 100th Edition Editorial concluded that, over 100 volumes, the JHI chartered a fascinating history in which IPC developed from being a subject of interest to a small number of dedicated medical microbiologists, to a subject that is now of concern not just to all healthcare workers, but to politicians, policymakers and the general public. This chapter can only give a flavour of the research and commentary published in the JHI over the past 40 years. It would be interesting to fast forward another 40 years, to see what as yet unheard-of topics the Editor-in-Chief in 2060 will publish as the JHI turns 80.

Figure 3F: Past JHI Editors. L-R: Steve P Barrett, Tom Rogers, Graham AJ Ayliffe, Jenny Child and Gary L French. A list of all past and present HIS journal Editors can be found in Appendix 2

3.3: Scientific publishing: the financial backbone of the Society

The primary source of income for HIS is currently institutional subscriptions to the JHI, which are brokered by the Society's publisher, Elsevier. The journal enjoys extensive global readership through access sold as part of Elsevier's subscription model. Additionally, access forms a key benefit for HIS members who are given free access to the digital version of the JHI, and can opt to receive a discounted print subscription. However, over the past decade the subscription model of journal sales has been disrupted by digital technology, which has allowed articles to be published at less cost, and to be shared more openly. In response (and discussed in more detail in Section 3.5) a new HIS journal, IPIP, was launched in 2019.

Since 1980 income from JHI subscription sales, surplus income from HIS International Conferences (from 1987; see Chapters 4.1 and 5), and more recently open access (OA) fees have been reinvested into HIS running costs, grants and training programmes. This allows the delivery of a programme of expert-led events at low or no cost, and provides funding for IPC research and careers. The funds not deployed to deliver charitable activities have been reinvested in the stock market, which has allowed the Society to hold the strong financial position it does in 2020.

The publication of the JHI and IPIP remain key Society activities, and one of the main ways in which the Society achieves its charitable goals – by disseminating expert information, by financing other charitable activities and by safeguarding the Society's future.

3.4: The future of Society publishing is uncertain

Over the past 10-15 years, discontent has grown among librarians, authors, funders, reviewers, readers and researchers regarding the perceived inflated profit margins of the larger commercial publishers. This discontent has led to a fall in publisher revenues from library and institutional subscriptions as buyers form coalitions and push back against expensive bundled subscription deals. However, the greatest disruption to the scholarly publishing landscape has been the increased popularity of OA publishing models, which have driven change across the industry and in recent years and have formed the basis of research publication policy for government funding bodies across the world. These changes in the publishing environment threaten the Society's subscription income.

Most recently, an initiative known as cOAlition S has pushed forward the case for OA publishing.[21] cOAlition S is a large coalition of national research funding organisations, supported initially by the European Commission and the European Research Council, and later by organisations such as WHO, the Wellcome Trust, and the Gates Foundation. Their stated goal is:

> With effect from 2021, all scholarly publications on the results from research funded by public or private grants provided by national, regional and international research councils and funding bodies, must be published in Open Access Journals, on Open Access Platforms, or made immediately available through Open Access Repositories without embargo.[22]

To achieve this, in September 2018 cOAlition S members drafted Plan S: ten principles to implement to move towards OA as the standard for scientific publication:

1. Authors should retain copyright on their publications, which must be published under an open license such as Creative Commons.

2. The members of the coalition should establish robust criteria and requirements for compliant open access journals and platforms.
3. They should also provide incentives for the creation of compliant open access journals and platforms if they do not yet exist.
4. Publication fees should be covered by the funders or universities, not individual researchers.
5. Such publication fees should be standardized and capped.
6. Universities, research organizations, and libraries should align their policies and strategies.
7. For books and monographs, the timeline may be extended beyond 2021.
8. Open archives and repositories are acknowledged for their importance.
9. Hybrid open-access journals are not compliant with the key principle.
10. Members of the coalition should monitor and sanction non-compliance.[23]

The JHI is a hybrid journal: authors can choose to either publish behind the subscription paywall or to pay for an OA licence. It therefore does not qualify as a Plan S compliant publication: hybrid journals are only permissible if they are signed up to a transitional agreement and pledge to move towards full OA. This is not practical for the JHI. Many JHI authors do not receive sufficient research funding grants to fund payment of the OA fee (also known as the article processing charge or APC), which currently stands at US$3,300 (Society member price US$2,880).

3.5: Future-proofing the Society

3.5.1: Infection Prevention in Practice and gold open access

In March 2019, *Infection Prevention in Practice*, a new Plan S-compliant gold OA journal, was launched. Gray, Mahida and Gemma Winzor were appointed as the editorial team. 'Gold' in this context refers to the funding model and speed with which papers are made available. Peer-reviewed articles are made freely available online under a creative commons licence and the copyright of the article remains with the

authors. A one-off APC is charged to cover the cost of editing, reviewing, typesetting and hosting the publication.

Global infection and IPC, in particular work from lower-income countries and emerging economies, are key topics covered in IPIP. An increased emphasis in the IPC community on global cooperation in antimicrobial resistance, surveillance and the novel infection patterns seen due to global warming are reflected in the work published. IPIP is designed to be fully OA resource for those working on HCAIs and communicable diseases worldwide. The APCs charged by IPIP are competitive: US$645 for research and commentary articles and US$1,548 for review articles (member discounted APCs are US$516 and US$1,238 respectively).

The launch of IPIP meets the Society's stated strategic aim to futureproof HIS and its publishing operations. The view of HIS Council is that OA publications benefit the IPC community by making research accessible and discoverable. However, the Society has acknowledged that many authors are unable to pay APCs: in 2020 IPIP became a member of the Research4Life scheme. Under this scheme full fee waivers are offered to authors from lower-income countries, and partial waivers are offered to those from middle-income countries.

It is the intention of the Society that IPIP's low fees and broad scope make OA accessible to all. However, HIS retains the option of free publication in the JHI, which remains a hybrid publication with both an OA and subscription-based offering.

The contributions of Society members to HIS journals as authors, readers, editors or reviewers furthers knowledge in the field, and safeguards the future of HIS to continue to support the IPC community. The Society is grateful to all those who have been involved with the journals over the last 40 years.

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Chapter 4

Education

Education is the most powerful weapon which you can use to change the world

Nelson Mandela

4.1: Educational events

HIS educational activities have been a core element of Society activity and have received Society investment from the beginning. During the early 1980s, educational events were directed at established hospital Consultants: the First Scientific Meeting was held for this cohort on 11 January 1980 in the Nuffield Hall, Royal College of Obstetricians and Gynaecologists, Regents Park, London.

The event was titled Practical Problems in Hospital Infection (Figure 4A), and the opening presentation on the epidemiology of resistant organisms in burned patients was delivered by Edward JL Lowbury. Around 200 delegates attended the meeting, and its success encouraged Council to plan twice-yearly meetings, one of which was to be jointly hosted with another scientific society.

In 1981, the first of many joint events with British Society for Antimicrobial Chemotherapy was arranged. The topic of the event was Bacterial Genetics in Clinical Practice. The reach of the educational programme soon expanded to include medical trainees, dentists and nurses. The first joint event between HIS and the Infection Control Nurses Association (ICNA) was organised in 1988.

THE HOSPITAL INFECTION SOCIETY

SYMPOSIUM ON

"Practical Problems in Hospital Infection"

Friday, 11th January 1980
at 9.45 am

at
The Nuffield Hall,
Royal College of Obstetricians
and Gynaecologists,
27 Sussex Place,
Regent's Park,
London NW1 4RG

The Hospital Infection Society thanks Beecham Research Laboratories for generously sponsoring this meeting.

PROGRAMME

9.45 Registration and Coffee.

SESSION I

Chairman: Professor R. Blowers,
lately of The Clinical Research Centre,
Harrow, Middlesex.

10.15 Introduction

10.20 **"The Epidemiology of Resistant Organisms in Burned Patients"**
Professor E. J. L. Lowbury, O.B.E.
lately of The Accident Hospital,
Birmingham.

10.45 **"Necrotising Enterocolitis Not Caused by *Clostridium butyricum*"**
Dr. M. W. Casewell,
Department of Microbiology,
St. Thomas' Hospital, London.

11.10 **"Nocardia in a Renal Unit"**
Dr. E.T. Houang,
Department of Medical Microbiology,
London Hospital Medical College.

11.25 **"Acinetobacter in a Hospital"**
Dr. G. L. French,
Department of Microbiology,
St. Thomas' Hospital, London.

11.50 **"Rotavirus at Home and Abroad"**
Professor J. E. Banatvala,
Department of Virology,
St. Thomas' Hospital, London.

12.10 **"The Epidemiology of Wound Infection"**
Professor P. Cruse,
Department of Surgery,
University of Calgary, Canada.

12.45 Lunch.

SESSION II

Chairman: Professor J. G. Collee,
Edinburgh University Medical School.

2.00 **"The Formation of the *Hospital Infection Society* and *The Journal of Hospital Infection*"**
Dr. G. A. J. Ayliffe,
Infection Research Laboratory,
Dudley Road, Birmingham.

2.15 **"Does Medical Microbiology Need a New Deal?"**
Professor J. D. Williams,
Department of Medical Microbiology,
London Hospital Medical College.

2.20 Discussion.

SESSION III

SYMPOSIUM: **Why and How Howie?**

Chairman: Professor R. A. Shooter,
Department of Medical Microbiology,
St. Bartholomew's Hospital,
London.

3.00 **"The Conception of the Howie Report"**
Dr. T. H. Flewett,
Regional Virus Laboratory,
East Birmingham Hospital.

3.15 **"The Misconception of the Howie Report"**
Dr. N. A. Simmons,
Department of Clinical Bacteriology
and Virology,
Guy's Hospital, London S.E.1.

3.30 **"Problems of Implementation"**
Dr. A. M. Emmerson,
Department of Microbiology,
Whittington Hospital, London, N.19.

3.45 **"Any Old Safety Cabinets?"**
Dr. S. W. B. Newsom,
Simms Woodhead Memorial
Laboratories,
Papworth Hospital, Cambridgeshire.

4.00 Discussion

4.30 Tea.

Figure 4A: Practical Problems in Hospital Infection Programme

During the late 1980s the HIS programme of educational events and grants was further expanded. The first Foundation Course in Hospital Infection was organised by David C Shanson, who represented HIS, and EM (Mary) Cooke, who represented the Public Health Laboratory Service (PHLS). Later, a Hospital Hygiene Course was organised at Eastwood Park, Falfield, by Rosemary Simpson of PHLS and Peter N Hoffman of PHLS and then of the Health Protection Agency (HPA).

The first HIS International Conference was held in 1987. More detail on the development of the International Conferences is given in Chapter 5. The International Conference, along with the Foundation Course and Hospital Hygiene Course, have been regular features of the HIS education programme throughout the Society's history, and remain part of the HIS educational events programme in 2020. The Foundation Course now runs twice a year as the four-day HIS/Public Health England Foundation Course in Infection Prevention and Control (see 4.3.1). The Hospital Hygiene Course now also runs twice a year as the residential five-day Engineering Aspects of Infection Control (see 4.3.2).

Figure 4B: HIS Foundation Course Lecturers in the 1990s and 2000s. From left to right: Barry D Cookson, Linda Taylor, Helen Glenister, Judith Sedgwick, Hilary Humphreys and Louise Teare

Over the Society's 40-year history, the HIS events programme has diversified in response to developments in the prevention and control of healthcare-associated infections (HCAIs) and the needs of HIS members and the IPC community. The events programme now includes a Trainee Education Programme (since 2015), a programme for current or aspiring Directors of Infection Prevention and Control (DIPC Programme, since 2017), the Outbreaks Training Course (since 2018) and the Media Training Course (since 2020). The response of the HIS events organisers to the unusual circumstances of 2020 amidst a global pandemic can be found later in this Chapter, in Section 4.8.

4.2: The Education Committee

A strategic review of the Society's mission, vision and values was completed in 2010. As a result, two new Committees were formed to support Society activities: the Education Committee and the Scientific Development Committee.

The Education Committee was chaired by the Scientific/Meetings Secretary, Tim Boswell, until the role was replaced. The Committee was then led by the Education Committee Chair. The role of the Education Committee was to design and deliver a programme of conferences, seminars and courses in collaboration with the HIS staff team. The Education Committee reported to Council.

The Terms of Reference of the Education Committee were reviewed in 2014. As a result, the name of the Committee was updated to the Education Coordinating Group. From 2011-2017, a key activity for the Education Committee/Education Coordinating Group was to facilitate and contribute to the content of the MSc/Postgraduate Diploma in Healthcare-Associated Infection (often referred to as the DipHIC) which ran from 1997-2012. The DipHIC is discussed further later in this chapter (Section 4.3.3).

As part of a review of all HIS Committees, the Terms of Reference were reviewed again in 2017 and the name reverted to the Education Committee. 'Education Committee' is therefore used throughout this book to refer to the Committee's activities, including those in the years between 2014 and 2017. Key additions to the Committee's activities in 2017 were to review and approve two new grants, the HIS Public Engagement Grant and the HIS Sponsored Event Grant (see Chapter 7.5).

4.3: 1987 to 2020: HIS educational courses

4.3.1: The Foundation Course in Hospital Infection

The Foundation Course in Hospital Infection (the 'Foundation Course') was discussed during the 19th HIS Council Meeting in July 1986. A list of subject headings for the proposed course was tabled by Cooke. It was then suggested by Cooke that the event be co-chaired by the Chairs of HIS and of the Division of Hospital Infection of the PHLS. A working group comprising

Cooke (Chair), David C Shanson (Co-Chair), David CE Speller, Graham AJ Ayliffe, C Bartlett and SWB (Bill) Newsom was formed to arrange the event. It was agreed that the Foundation Course would be a five-day event, and a convener was appointed to help organise the programme. The first Foundation Course was held in March 1987. Barry D Cookson succeeded Cooke as Director of the PHLS Laboratory of Hospital Infection in 1990, and took the reins of organising the Foundation Course from Cooke. The Foundation Course that year was held at the PHLS Headquarters, Colindale, London, and was fully subscribed. It was recorded in HIS Council minutes that the course was open to UK and overseas doctors and the content was aimed at medical trainees, although many junior Consultants were also in attendance.

Figure 4C: Foundation Course attendees 2013

The Foundation Course has been offered at least once each year since its launch to members and non-members of HIS. The course was initially jointly organised with the PHLS (1987-2003), then the HPA (2004-2013, when Cookson retired) and in more recent years PHE (2014-present). Now known as the Foundation Course in Infection Prevention and Control, the four-day, non-residential course continues to be delivered from PHE Colindale. Due to rising demand, capacity was increased to 44 attendees in 2019 (from 30), and from 2021 the intention is to run the course twice each year. Attendees, who now are comprised of medical trainees, newly appointed Consultants and other practitioners such as nurses and clinical scientists, gain a firm grounding in IPC with the

opportunity to learn from the leading UK experts in the field.

The Foundation Course in Infection Prevention and Control learning outcomes are focused on:

- Developing a sound approach to the prevention and control of HCAIs and related issues of antimicrobial resistance.
- Learning how to develop a surveillance programme and gaining knowledge of data collection, analysis and feedback to produce information for action.
- Outbreaks: learning about prevention and control with emphasis on investigation and data analysis.
- Learning how to use molecular-typing techniques for outbreak investigation.
- Introducing technical aspects of hospital hygiene, for example ventilation, disinfection and sterilisation.
- Understanding the basics of antimicrobial stewardship.
- Covering organisational aspects of HCAI prevention and control.

The course is approved annually by RCPath for 24 continuing professional development (CPD) credits.

Figure 4D: Foundation Course attendees 2013

Figure 4E: John Lee, Tina Bradley and Peter N Hoffman lecturing on aspects of hospital hygiene at the Foundation Course 2013

4.3.2: The Hospital Hygiene Course: Engineering Aspects of Infection Control

Between 1986-1988 the residential Hospital Hygiene Course was run by Simpson (PHLS) at Falfield College, Gloucestershire (now Eastwood Park). Initially run as a short course focused on steam sterilisers, it developed into a course that provided 'hands-on' training in the engineering aspects of IPC. During the 1990s these courses were led by Hoffman. Hoffman was assisted by John R Babb and Tina Bradley (Figure 4E). The Hospital Hygiene Course was, together with the Foundation Course, an essential module for completion of the Diploma in Hospital Infection Control.

The course is known in 2020 as Engineering Aspects of Infection Control and is a five-day residential course. Aspects of IPC where engineering criteria are a vital component are covered. Sessions are included on specialist ventilation, such as in operating theatres, thermal (surgical instrument) and chemical (endoscope) washer-disinfectors, steam sterilisers, healthcare laundry and other aspects of hospital hygiene and decontamination. These elements are supplemented by discussion sessions, which put engineering concepts into the context of practical IPC.

Figure 4F: Engingeering Aspects of Infection Control attendees, June 2018

4.3.3: Diploma in Hospital Infection Control

The London School of Hygiene and Tropical Medicine (LSHTM) established a DipHIC in 1997. The course supporting the DipHIC was run jointly by HIS and the PHLS. The course was designed to provide infection control staff with systematic training in the sciences relevant to hospital infection control. This would allow them to provide, and to take responsibility for, a broad-based infection control service.

This initiative followed the 1995 Department of Health report *Guidance on the Control of Infection in Hospitals*, commonly called the 'Cooke Report' after the Chair, Mary Cooke. The need for appropriate arrangements and activities to control infection in hospitals, regardless of their type, was emphasised in the report. The need for surveillance of HCAIs and the infrastructure required was set out. The importance of the Infection Control Team, consisting of the Infection Control Doctor (ICD), Infection Control Nurses (ICNs) and the Infection Control Committee (ICC) was emphasised. It was suggested in the report that a training course could help an ICD to perform their duties better. Later, in January 1996, a job description for a hospital ICD was published by the Association of Medical Microbiologists. The grade, the qualification and experience required were defined, along with accountability,

administrative duties, the requirements of the post and links with other personnel involved with infection control, especially Consultants for Communicable Disease Control.

Basic knowledge of the principles of infection control, attendance at a week-long HIS/PHLS Foundation Course in Infection Prevention and Control, attendance at the residential Hospital Hygiene Course at Eastwood Park and a reflective portfolio of 10-15 pieces of work covering a range of activities formed the core of the DipHIC course. It was anticipated to be a two-year part-time course for most students.[1]

In 2001 an evaluation was published following two successful sets of examinations. Progress since the announcement of the DipHIC in 1997 and subsequent changes to the written examination and reflective portfolio were outlined by the authors. The reflective process was described, and guidance provided to assist infection control practitioners wishing to pursue applications for the DipHIC by accreditation of prior learning.[2]

In 2006 important changes in the assessment of eligibility for the DipHIC were outlined with respect to accreditation of prior experimental learning. All who had been awarded the DipHIC were listed in the 2006 JHI paper 'Diploma in Hospital Infection Control – important changes to the accreditation of prior experimental learning and update': in total 12 honorary DipHICs, seven DipHICs by examination, and 18 accreditations by prior experimental learning were awarded.[3]

A phased withdrawal of the LSHTM began following the retirement of several course convenors with relevant expertise. The DipHIC course ceased enrolling new students in 2009. The final examination was held in 2012.

4.3.4: Healthcare-Associated Infection Control Diploma/MSc

The DipHIC was superseded in 2010 by the Healthcare-Associated Infection Control Diploma and an MSc. The Diploma and the MSc were established and developed jointly by HIS, the HPA (represented by Cookson) and University College London (represented by Susan Hopkins). The postgraduate course became available for both UK and overseas applicants in September 2011.

Figure 4G: Susan Hopkins

Students of the DipHIC Programme were given systematic training and assessed competencies in the science of infection control in hospitals and other healthcare establishments. The new Diploma/MSc course was designed to reflect changing patterns of healthcare delivery and new issues arising. It was taught as a modular distance-learning programme to provide systematic training in the control and prevalence of HCAIs over a flexible duration of two to five years. The new programme (Table 4A) consisted of core modules, optional modules and an independent research project culminating in a dissertation of approximately 10,000 words. Modules were taken to the value of 120 credits for the Postgraduate Diploma or 180 credits for the MSc. However, the number of attendees required to make the course financially viable became unrealistic: the final course intake was in 2016 and examinations will run up to 2021.

Following the end of the DipHIC in 2012 and the Diploma/MSc options in 2018, two new certificates in IPC were launched by the Society.[4] These are discussed in Section 4.7. The PHE/HIS Foundation Course at Colindale and the Engineering Aspects of Infection Control Course at Eastwood Park remain extremely popular as stand-alone events.

Table 4A: Healthcare-Associated Infection Control MSc Programme

Healthcare-Associated Infection Control MSc Programme
Core modules (75 credits)
Foundation Course
Healthcare-associated infection prevention, control and organisational aspects
Antimicrobial resistance and stewardship
Decontamination aspects (including sterilisation, disinfection, cleaning and engineering)
Optional modules (45 credits)
Health economics
Legal and regulatory aspects
Laboratory introduction to basic bacteriology
Basic epidemiology
Surveillance and epidemiology: systems, data analysis and statistics
Other appropriate modules from University College London's distance-learning programmes were also included, as agreed with the Programme Director
Dissertation/Report (60 credits)
All MSc students were required to undertake an independent research project culminating in a dissertation of approximately 10,000 words

4.4: International profile of HIS in the 1980s

International interest in the activities of HIS and the JHI increased during the 1980s. Many doctors from outside the UK and ROI became members of HIS. The Editorial Board of the JHI had strong international representation. Companies like Imperial Chemical Industries (ICI) sponsored events both in the UK and overseas where HIS members were able to become involved in workshops and interact with hospital-infection practitioners from abroad. During the 1980s, HIS did not formally organise overseas meetings, but participation by members and speakers was encouraged and included Society Officers.

The first Middle East Symposium on Hospital Infection and its Control was held in November 1981 in Kuwait under the sponsorship of the Gulf Ministers of Health. The speakers at this symposium, including Mark W Casewell, R Marples, I Phillips, Ayliffe, Shanson, Gould and from the UK and John E McGowan from Atlanta, USA, were sponsored by ICI.

A workshop on the Control of Hospital Infection in the USA and the UK was held between 25-29 June 1983 at King's College, Cambridge. The event was sponsored by ICI. Many members of HIS and the Society of Hospital Epidemiologists of America attended with speakers represented from both Societies.

A workshop held in Bangkok in May 1986 for doctors and nurses from Thailand, Malaysia, the Philippines, Singapore and Indonesia was attended by HIS members.

A one-week course on Hospital Infection and its Control was organised by Peter D Meers in Singapore in November 1986 for the benefit of local hospital practitioners. Meers had been the Honorary Treasurer of HIS and was Associate Professor of Microbiology in the University of Singapore. ICI assisted with sponsorship of speakers. Speakers included Meers, Ayliffe, Shanson, Casewell, Shaheen Mehtar, and UK ICNs Linda Taylor and Margaret Worsley.

Contact between HIS Officers and members and hospital practitioners in other countries was strengthened by these international events. Doctors and nurses from all over the world then attended the first HIS International Conference in London in September 1987 (see Chapter 5).

4.4.1: HIS educational-lecture visits and study tours

Between 1996 and 2007 HIS participated in or organised a number of lecture and study tours outside the UK and ROI. These were developed to provide education and training to healthcare workers involved in the prevention and control of HCAIs. The HIS representatives that took part in these overseas visits were entirely self-funded or received external sponsorship.

HIS study tours took place every two or three years and all participants were required to submit a CV and a list of subjects on which they were prepared to speak. A list of potential participants was submitted to regional event organisers in the target country, and a programme was chosen. Grants were offered to trainees to encourage their participation.

Southern India, 1996

An educational visit to four centres in Southern India was led by Geoff Scott in January 1996. Several joint meetings were held in each centre to share new science and ideas. The Society sponsored two junior scholars.

South Africa, 1997

Figure 4H: South Africa 1997

A tour was organised in collaboration with Mehtar, a previous HIS Meetings Secretary and Lowbury Lecturer. It entailed a tour to four centres in South Africa and took place in the spring of 1997. Data and experience were shared between HIS representatives and infection control specialists in Johannesburg, Baragwanath (a teaching hospital on the edge of Soweto), Durban and Cape Town. The Johannesburg trip was notable for the discussion of the deaths from Ebola of both a doctor who had flown in to attend a private hospital from Zaire and a nurse who had acquired the virus from a patient. Robert Masterton recalled of the trip:

> A large contingent of ICNOs appeared from far and wide to our meeting at Durban. Some had started driving from near the Mozambique border at 3am! We were warmly welcomed wherever we went and probably learnt a lot more than we had to teach. Two scholars were sponsored by HIS: Caroline Pankhurst (*Burkholderia cepacia*) and Craig Mackintosh (audit of operating theatre practice and ostrich riding). Both gave excellent informative talks.

Argentina and Uruguay, 1999

A HIS study tour to Argentina was organised in 1999. Six HIS members took part, including one trainee with a HIS Travelling Scholarship and two ICNs, one of whom had an ICNA bursary. Several hospitals in Buenos Aires were visited by the group, who then participated in two conference days in southeast Argentina and in Uruguay.

North India, 2001

An educational visit to North India for a small group of Society members was organised in January and February 2001. A series of successful scientific meetings with Indian colleagues took place. There was much interest in the recently launched Diploma in Hospital Infection. A similar visit was arranged again to Southern India in 2005.

Figure 4I: Geoff Scott, Nandini Shetty and Barry D Cookson with healthcare workers in India.

South America, 2002

A HIS study tour to South America was organised in conjunction with the European Study Group for Nosocomial Infection. The trip was due to take place between 8-22 April 2002, but it was postponed following the events of 11 September 2001.

Australia, 2003

11 participants took part in a successful four-centre HIS study tour of Australia in September 2003 to provide support for educational projects in the southern hemisphere.

South Africa, 2005

19 HIS delegates took part in a HIS study tour of South Africa in January 2005.

Figure 4J: Tina Bradley (front row, centre left) and Shaheen Mehtar (second row, centre right) at a training workshop in South Africa.

Kosovo, 2007

The Society was approached by Lul Raka (Assistant Professor of Medical Microbiology, National Institute for Public Health of Kosova) about a tour to Kosovo. In the autumn of 2007 two representatives were sent to Kosovo. Bradley and Adam Fraise assisted in developing an infection control programme and discussed and advised on development of sterilisation and disinfection services.

South America, 2007

A HIS study tour to four South American countries took place in April-May 2007. The HIS group visited Chile, Argentina, Uruguay and Brazil. The tour consisted of a series of presentations, lectures, seminars and workshops. A bursary was awarded to David Enoch, then a microbiology trainee based at Addenbrookes, Cambridge. Enoch later served as a member of HIS Council. Representatives of both HIS and ICNA attended the study tour.

Figure 4k: HIS and Infection Control Nurses Association study tour to South America, 2007 From HIS: Drs Andrew Telfer Brunton and David Enoch, Prof. Gary French, Drs Marjory Greig, Judith Richards, Ed Smith and Zubaidia Adhami. From the Infection Control Nurses Association: Carole Fry, Irene Thompson and Martin Kiernan.

4.5: The development of education specifically for trainees

The needs of trainees have evolved over the Society's lifespan. HIS has adapted to meet these needs and better represent its Trainee members. In 2009 there were only 19 Trainee members of HIS. It was decided, following a survey of the trainees, that the Society would organise the first HIS Infection Control Day for this audience. A one-day meeting entitled Infection Control for Trainees was held in Birmingham. The meeting was convened by Boswell and Fraise, and was organised with help from Mary Ashcroft. Ashcroft was the first Trainee Representative on HIS Council, serving from 2005-2007. She was the first Trainee member to present an Annual Report to Society members at an AGM.

The meeting was free to attend and topics included the role of the DIPC, water-related infection control problems, the hospital environment, *Clostridioides difficile*, and the epidemiological investigation of outbreaks. The meeting was fully subscribed and received positive feedback. The 34 microbiology trainees present, including a foundation-year-two trainee, dominated the audience. There were three trainees from a joint-infectious diseases and microbiology background, and one

trainee virologist. Following the success of this meeting, training days became an annual event in the HIS educational programme until 2013, when two training events took place in Glasgow and Dublin. Two events were also organised in 2014.

4.5.1: The Trainee Education Programme

It was decided during the 111th HIS Council Meeting in 2011 that the development of Trainee membership was vital for the future of the Society. Free membership of the Society for Trainee members was ratified by Council in April 2014.

During 2014 discussions began regarding the development of a structured training programme. Gayti Islam (HIS Trainee representative between 2011-2015) and Carlene Rowson (British Infection Association regional representative) worked with Martin Kiernan and the HIS Education Committee on a structured, three-year Trainee Education Programme aligned to the RCPath curricula for specialty registrars in medical microbiology and virology, and those undertaking joint training with infectious diseases.

The Trainee Education Programme was launched in 2015. It comprised three one-day, topic-led sessions per year run as a three-year rolling programme (Table 4B). Attendance at the trainee days was free, with a maximum travel bursary awarded of £50 to each qualifying participant.

To recognise the popularity of the Trainee Education Programme, in 2018 the HIS Constitution was updated to include experienced clinical scientists enrolled on a Higher Specialist Scientist Training Programme in the eligibility criteria for Trainee membership and to expand free access to the Trainee Education Programme.

In 2020, the Trainee Education Programme is in its second cycle and remains aligned to the RCPath Medical Microbiology curriculum, which incorporates combined infection training. Attendance is primarily aimed at trainees and newly appointed consultants. However, five spaces per event are ringfenced for other healthcare workers in IPC. Attendance at the training days has increased significantly from 40-60 trainees per event in 2015 to 80-120 in 2019. A collaboration between HIS and the London Trainee Network was started in 2018 to organise one joint trainee day per year. Joint trainee days in London in February 2018 and February 2019 each saw over 140 trainees in attendance.

Table 4B: The HIS Trainee Education Programme

The HIS Trainee Education Programme
Year 1 • Reducing harm to patients and improving quality of care • Public health aspects of IPC including implications of travel • Environmental aspects of IPC risks and solutions
Year 2 • IPC in adult and paediatric critical care • IPC in non-acute settings • IPC in specialised settings
Year 3 • Antimicrobial resistance and stewardship • Behaviour change, quality, improvement and leadership • Aspects of decontamination

Figure 4L: Trainee education day IPC in Specialised Settings, November 2019

4.5.2: The Trainee Committee

A new HIS Standing Committee was formed in 2016 following the implementation of the Trainee Education Programme: the Trainee Committee. It was agreed that the Trainee Committee was to be responsible for overseeing Trainee membership and establishing regular communication and engagement with Trainee members throughout the UK. The first Chair of the Trainee Committee (2016-2019) was James Price, then a medical microbiology/infectious diseases specialty registrar. Trainee Committee roles included a Professional

Affairs Representative, an Education Representative, a Communication Representative and a Council Representative. A two-year Strategic Plan was produced by Trainee Committee members. The plan recommended recruiting regional representatives across eight regions of the UK and ROI to bridge the gap between the Trainee Committee and the trainees.

Figure 4M: Gary L French and James Price

4.5.3: HIS IPC Curriculum

A further educational resource was developed for trainees in 2018: the HIS Infection Prevention and Control Curriculum for Core Infection and Higher Infection Trainees.[5] The IPC knowledge and competencies required of medical microbiology and medical virology trainees, and of those undertaking joint training with infectious diseases, are clarified in this resource. The core elements of this curriculum were influential in ensuring inclusion of appropriate IPC competencies in the 2020 review of the RCPath infection specialities curricula.

4.5.4: Outbreaks Training Course

For all infection doctors, outbreak management is an essential duty. Whether based in the community, on the ward, or in the laboratory, all infection doctors must understand the key principles of outbreak management, know the processes, roles and responsibilities involved, and be able to communicate and collaborate effectively in multidisciplinary agency situations in an outbreak.

The current inclusion of outbreaks as a topic in the RCPath and the Joint Royal Colleges of Physicians' Training Board Curricula for Combined Infection Training (the preliminary two years of training for all infection trainees) and Higher Specialist Training reflects its importance. Outbreaks are also a subject for examination in the FRCPath Part 1/ Combined Infection Certificate Examination (CICE) and in subsequent higher specialty (FRCPath Part 2) examinations.

Each trainee must take responsibility for ensuring that they gain sufficient knowledge and the necessary experience of outbreak management to prepare for future involvement in outbreaks as a Consultant. In February 2018, an audit was conducted by Joanna Walker (then Specialty Registrar in Medical Microbiology and Infectious Diseases, NHS Grampian, and subsequently Chair of the HIS Trainee Committee) of infection trainees' experience of outbreak training. The results from 25 trainees were presented during the HIS Spring Meeting in 2018 and concluded that:

> Gaining sufficient experience of outbreaks occurring randomly within an already stretched local hospital system is proving difficult. The majority of trainees are looking at their current local learning environment and finding their learning needs for outbreaks training are not being sufficiently met. Outbreaks is a subject trainees are interested in and want to learn more about. Trainees are expecting to look externally for the necessary learning opportunities, including utilising online resources and study courses. There is a deficit in available study resources for trainees to do this.

Figure 4N: HIS Outbreaks Training Course 2019

It was decided in response to the results of the audit that a new HIS Outbreaks Training Course was to be delivered. The course was convened by Boswell and Nikunj Mahida in December 2018. The theory and practice of the investigation and control of HCAI outbreaks were

covered in a one-day intensive course designed to provide trainees with the knowledge and confidence to lead and manage outbreaks. The course contained a mixture of taught theory, interactive tutorial-style work and a desktop exercise using a real example of an outbreak. There were 15 attendees: a mixture of junior doctors in specialty training and trainee clinical scientists in Higher Specialist Scientist training posts in medical microbiology/virology. The attendees rated the course positively.

The Outbreaks Training Course was run twice in 2019 and will continue to be organised regularly within the HIS training programme. The Outbreaks Training Course consistently reaches capacity in advance and has received excellent feedback with comments such as 'really useful, structured approach to managing healthcare outbreaks'.

4.6: The HIS DIPC Network and Development Programme

The role of DIPC is a requirement for all registered NHS care providers under current legislation (see Chapter 10). The DIPC is responsible for ensuring strategies are implemented to prevent avoidable HCAIs at all levels in an organisation. The professional backgrounds of DIPCs are varied: they may be Consultants, nurses, clinical scientists, or from other backgrounds.

The HIS DIPC Network and DIPC Development Programme was developed by the Society in 2017 to acknowledge the diversity of the DIPC role and the professional backgrounds of those who are employed in it: it addresses the knowledge gaps which arise from this diversity. A launch event was held in May 2017, which attracted over 90 participants. Numbers had been anticipated to be a maximum of 65.

The DIPC Development Programme is now delivered as a three-year rolling programme of six events. Each event includes a workshop element, speaker presentations and ample time for questions and discussion. It addresses current challenges faced by DIPCs. Delegates can network with senior IPC colleagues and share experiences and knowledge. The Programme is based on the 'expert level' competencies outlined in the 2013 European Centre for Disease Prevention and

Control (ECDC) document *Core Competencies for Infection Control and Hospital Hygiene Professionals*.[6] Current or aspiring DIPCs, Deputy DIPCs and those in a similar role, irrespective of professional background, are encouraged to attend.

The 2017-2020 DIPC Development Programme was as follows:

- 8 December 2017, London. Influencing others and changing behaviours.
- 3 July 2018, Manchester. Taking surveillance forwards: making the most of your data.
- 7 December 2018, London. Navigating the minefield: dealing with complaints, litigation and the media.
- 20 June 2019, Manchester. Outbreaks and the DIPC: managing the fallout.
- 6 December 2019, London. Managing services and infrastructure: getting the basics right.
- June 2020, London. Investing in the Future: Quality Improvement and Education.

The final event in the programme, due to take place in June 2020 was postponed due to the COVID-19 pandemic. Initially transferred to a virtual format to be delivered in December 2020, at the onset of the second wave of COVID-19 it was postponed to June 2021. The second cycle of DIPC events will start in December 2021.

Figure 40: Second DIPC Development Day 6 December 2019

4.7: Certificates in Infection Prevention and Control

Three Certificates in Infection Prevention and Control were launched in January 2018 to recognise members who demonstrate a sustained commitment to their professional development in IPC. For all three certificates applicants are required to submit certificates of attendance for qualifying events, plus a 500-word reflection on each event describing how learning has been applied to their own practice.

4.7.1: Foundation Certificate in Infection Prevention and Control

Trainee members who attend seven of the nine trainee education days in a rolling programme and complete the HIS/PHE Foundation Course in Infection Control are eligible to apply for the Foundation Certificate in Infection Prevention and Control. The certificate recognises Trainee members and new Consultants who have demonstrated a sustained commitment to their professional development in IPC.

The first Foundation Certificate in Infection Prevention and Control was awarded to Joanna Walker at the HIS AGM in November 2019. In 2020, the second certificate was awarded to Leila White at the November AGM.

4.7.2: Foundation Certificate in DIPC Development

Full and Associate members who attend six DIPC Development Days are eligible to apply for the Foundation Certificate in DIPC Development.

4.7.3: Advanced Certificate in Infection Prevention and Control

Full and Associate members who attend six DIPC Development Days and attend the Engineering Aspects of Infection Control Course are eligible to apply for the Advanced Certificate in Infection Prevention and Control.

4.8: The continual development of the HIS educational programme

Since 1980, the Society has continually developed and reviewed courses and training events to ensure HIS educational activities remain relevant to the needs of the community. In 2019 it was agreed for the 2020-2025 strategy that engagement with, and professional development of, Society members and the wider IPC community would be key objectives (Chapter 11).

4.8.1: *Don't Panic!*

Elisabeth Ridgway has convened the *Don't Panic!* event annually since 1997. HIS has actively supported the meeting since 2006, by providing a prize bursary for best paper, chairing sessions and promoting it to members.

Figure 4P: 'Don't Panic!' *programme book selection from 1998, 2006 and 2019*

It was run by the Society for the first time in 2019 in collaboration with IPS and is now an annual event in the HIS programme. *Don't Panic!* takes a practical approach to topical infection control issues and is primarily of interest to microbiologists and infection control practitioners. Public health staff, biomedical scientists and others working in IPC also attend the event.

4.8.2: Virtual events

In response to the COVID-19 pandemic during 2020, several events were transferred to an online format and an audience-led webinar series, COVID-19 Challenges and Solutions, was launched. Adapting face-to-face events to virtual formats generated challenges, but also provided new opportunities for the Society. A key benefit was to widen the reach of HIS events to IPC practitioners around the world. Each COVID-19 webinar was watched live by between 150 and 300 attendees and webinar recordings were accessed over 2,000 times in 2020 by delegates in 66 countries. Online delivery of trainee education days lifted restrictions on attendee numbers and allowed the Society to open the programme to unlimited numbers of non-trainees.
The first Media Training Day was cancelled in light of the coronavirus pandemic. Instead, a pre-recorded training webinar by communications expert Mark Brealey, Using Media Interviews to Fight Infection, was made freely available on the HIS website and Brealey delivered one-to-one media training via Skype.

The large conference run by HIS, FIS/HIS International, was scheduled to take place in Edinburgh in November 2020. Instead, it was transferred to an online format. The virtual event ran in a similar format to the planned in-person event, with multiple parallel streams of presentations and live Q&A sessions. Over 1,000 attendees registered. The 2020 Lowbury Lecture was presented by Evelina Tacconelli of the University of Verona, Italy. The subject addressed was 'Linking infection control to clinical management of infection to overcome antimicrobial resistance'.

Figure 4Q: Lowbury Lecture 2020

The introduction of webinars and the successful move to a virtual format for the International Conference illustrates how an educational programme that is responsive to the needs of Society members must respond rapidly to changes in the professional environment, and how HIS has successfully risen to the challenge.

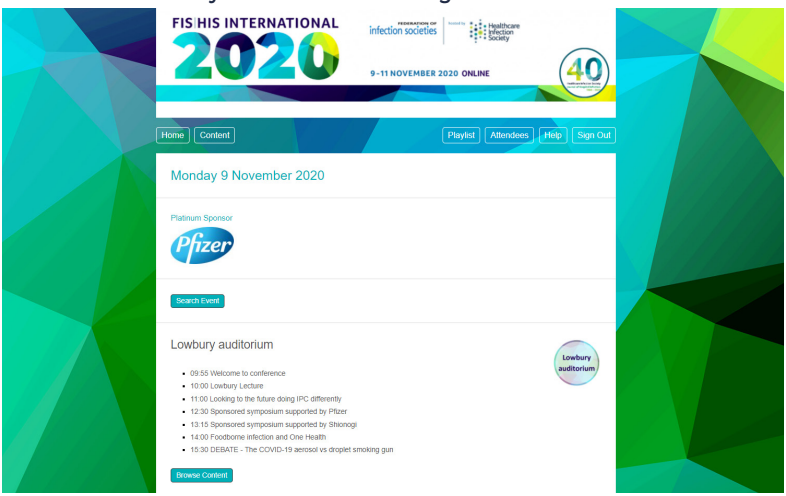

Figure 4R: FIS/HIS International 2020 online platform

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Chapter 5

HIS International Conferences

Between 1980 and 1987 over 20 events were organised by HIS, including one- and two-day symposia and joint events with other societies such as the British Society for Antimicrobial Chemotherapy (BSAC), the British Infection Association (BIA) and the Central Sterilising Club (CSC). International speakers were represented in event programmes, including the annual Lowbury Lecturer (see Chapter 6.1 for more details on the origins of the Lowbury Lecture). In 1985, Council announced its intention to organise the first multi-session HIS International Conference under the direction of the Meetings Secretary, Tom RF Rogers.

The first International Conference was held at Kensington Town Hall between 31 August and 4 September 1987. The event was described as an opportunity to meet colleagues and to hear world authorities in the field of hospital infection and clinical microbiology speak. Symposia topics included:

- Staphylococcal infections in hospital.
- Surgical sepsis and the role of antibiotic prophylaxis.
- Contribution of molecular biology to vaccine development and other advances with immunisation.
- Antiseptics and the surgical patient.
- Surveillance and the use of computers in hospital epidemiology.
- Isolation procedures.
- Rapid diagnosis in clinical microbiology.
- New techniques for typing organisms.
- Hospital-associated viral infections.
- AIDS and hepatitis.

- Infections in the immunocompromised patient.
- Equipment-related problems and recent advances in equipment design.
- Organisation of infection control including the role of the Control of Infection Officer (hospital epidemiologist) and Infection Control Nurse.

The following account of the event was written by David C Shanson, the Chairman of the first HIS International Conference:

> The first International Conference of the Hospital Infection Society was held between 31 August and 4 September 1987 at the spacious conference centre in the Kensington Town Hall and Kensington Close Hotel in London. Over 1000 delegates registered for this Conference which was the largest medical meeting on hospital infection ever held in the world. There was excellent attendance at all of the 12 main symposia, six workshops, five satellite symposia and the many free paper oral and poster sessions. More than half of the delegates, and many of the expert invited speakers, were from overseas and included doctors, scientists, infection control nurses and others. Scientific sessions which especially included new facts and controversial discussion, were those on staphylococcal infections and methicillin resistant *Staphylococcus aureus*, AIDS, hepatitis, antibiotic resistance, intensive care units and administrative aspects of the control of infection in hospitals. Many of these sessions were reported on during the week of the Conference by the press, radio and television. The programme started with a stimulating opening lecture on the 'Challenge of infection control in hospitals into the 1990s' by Professor I. Phillips, and ended with an excellent Lowbury Lecture delivered by Dr Bodey on the increasing importance of fungal infections in hospital. The social programme included an opening reception in the medieval section and Pirelli Gardens of the Victoria and Albert Museum, an event assisted by sunny weather which fortunately persisted during the week of the Conference. The Conference banquet was held in the Guildhall of the City of London, and was attended by 400 delegates and guests. As Chairman of the Organising and Scientific Committee, I would like to thank once again all the delegates, speakers and chairmen for participating in the Conference and helping to make it such a great success. In

particular, the Conference would not have run so smoothly without the efforts of the Scientific Meetings Secretary, Dr Tom Rogers, the Organising Secretary, Dr Michael Kelsey, the Social Programme Secretary, Rosemary Simpson, and the Treasurer, Dr Bill Newsom. The Conference organisers, Conference Coordinates Ltd., gave valuable assistance. Financial support for the Conference was generously provided by the British Society for Antimicrobial Chemotherapy, the Association of Medical Microbiologists, the Central Sterilising Club, and by the Pharmaceuticals Division of I.C.I., Bayer, Glaxo and many other sections of industry. I am glad that the *Journal of Hospital Infection* is publishing many of the invited papers presented at the Conference in this special supplement. The Organising Committee of the Conference is grateful to the Editor, Dr Philip Sanderson, and the Assistant Editors who have especially helped with the preparation of this supplement, Professor Graham Ayliffe, Dr Richard George and Dr Tony Howard. Finally, the Hospital Infection Society is pleased to report that preparations have started for the Second International Conference of the Hospital Infection Society to be held in London in 1990.[1]

Figure 5A: First International Conference of the Hospital Infection Society 1987. Back row: Tony Howard, Mark W Casewell, Peter JE Cruse, Paul Edelstein, Geoffrey L Ridgway, John E McGowan, Dr Morre, Mike C Kelsey, Tom RF Rogers, SWB (Bill) Newsom. Front row: Mike Parker, Gerald P Bodey, Edward JL Lowbury, David C Shanson

The inclusion of a trade exhibition and the support of sponsors for the first HIS International Conference ensured that the event was financially well-supported and generated a surplus to be carried forward to fund future Society activities.

Figure 5B: Peter D Meers, EM (Mary) Cooke and Norman Simmons at the First International Conference in 1987

The second HIS International Conference took place in September 1990 at Kensington Town Hall, and was again was considered a success. Thereafter, HIS International Conferences took place at four-year intervals until 2010, usually in the UK (1994, London; 1998 and 2002, Edinburgh; 2010, Liverpool), although the 2006 event was held in Amsterdam. The success of these events was such that in 2010 the decision was made to hold them biennially, alternating between a freestanding HIS International Conference and an event combined with a Federation of Infection Societies (FIS) conference. The FIS/HIS format is covered in more detail in Section 5.2. Subsequent meetings were held in Liverpool (2012), Lyon (2014), Edinburgh (2016) and Liverpool once more (2018). In 2020, for the first time, FIS/HIS was delivered online as discussed in Chapter 4.

HIS International Conferences attract significant levels of sponsorship from industry and have historically generated a financial surplus. In 2014 (Lyon) and 2018 (Liverpool), however, the event ran at a financial loss. In 2018 this was attributed to the close proximity of the FIS

Conference hosted by BIA in the same month, which impacted on both delegate numbers and commercial sponsorship. This conflict and changes in the conference landscape necessitated a reassessment of the HIS International Conferences and the relationship between the Society and FIS.

Figure 5C: Elisabeth Ridgway, Hilary Humphreys and Gary French at HIS conference *in 2018*

5.1: Federation of Infection Societies Conferences

FIS was established in 1993. Its sole purpose at this stage was to organise a national conference at which the infection speciality societies in the UK would be represented. The first conference was held in 1994.

Between 1994 and 1999 the FIS Conference was organised jointly by professional societies and was supported by an external conference organiser, Index Communications Ltd. On 7 March 2000, FIS (Management) Ltd., a charitable company limited by guarantee, was incorporated. The purpose of the charitable company was partly to risk-manage the event, and predominantly to enable greater freedoms for the group. This would allow organisers to work with commercial sponsors and an external conference organiser with the intention to grow the conference beyond the 200 delegates it routinely attracted. An Advisory Board comprised representatives of all societies represented by FIS: at the time, HIS, BSAC, BIA and the Society for General Microbiology – now

the Microbiology Society (MS). Programme development was guided by the Advisory Board, with authority delegated to a smaller Conference Organising Committee, the composition of which was agreed anew each year.

FIS (Management) Ltd. failed to thrive financially, showing losses in the accounts for the years 2002 and 2003. Protracted discussions were held between organising societies, and the event was emergency-hosted in 2004 by HIS. It was decided by the directors that closure of the charitable company was to be requested. Alternative ways to manage the conference were explored.

FIS (Management) Ltd. was dissolved in 2006. Prior to closure, a Memorandum of Understanding which outlined agreements and a timetable for the organisation of FIS meetings until 2020 was agreed. The Memorandum stated that four societies (HIS, BSAC, BIA and MS) were to rotate the organisational responsibility for the event. Organisational responsibility entailed underwriting the event, including losses, and retaining any surplus that the conference made. Initially, it was proposed that the four organising societies would partner with a smaller society each year to offer all original parties a role in the organisation of the event. This objective was met in part when the smaller infection societies were invited to participate via the organisation of a symposium session.

Extensive discussions were held in 2018 and 2019 between organisers. It was agreed that HIS, BIA and MS would continue to host and organise FIS Conferences beyond 2020. The role of organiser was relinquished by BSAC, although it committed to contribute to the scientific programme.

5.2: FIS/HIS Conferences

The FIS Conference has been incorporated into the HIS International Conference timetable since 2012: every four years the Society has hosted FIS under the hybrid FIS/HIS International Conference umbrella (to date, in 2012, 2016 and 2020). The FIS/HIS International Conference offers a unique opportunity for scientists from interconnected but distinct academic and clinical disciplines to network and attend sessions on a larger scale. Delegates are international and the event has a strong focus on infection prevention and control. In 2020, the

event was organised by HIS as FIS/HIS International 2020 and was delivered online for the first time (see Chapter 4.8.2 for more on online events, including FIS/HIS 2020). From 2021 the intention is that the FIS Conference will be organised by HIS every two years, and by the BIA and MS every four years.

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Chapter 6

HIS awards

Members who make outstanding contributions to HIS and to the wider field of infection prevention and control (IPC) have been recognised by the Society since its inception. Five awards are currently bestowed: the Lowbury Lecture, the HIS Gold Medal, the Gary French Lecture, Honorary membership and the HIS Early Career Award. Each of these is discussed in detail in this Chapter.

6.1: The Lowbury Lecture

Edward JL Lowbury was a founding member of the Hospital Infection Society and was central to the launch of the *Journal of Hospital Infection* (JHI; see Chapters 1 and 3 respectively). Lowbury was elected as the Society's first President (1980-1984) and was an editorial advisor to the journal.

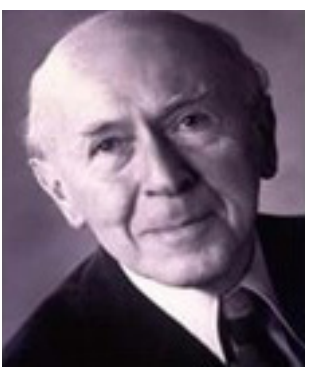

Figure 6A: Edward Joseph Lister Lowbury (1913–2007)

A pioneering and innovative medical microbiologist, Lowbury was also an accomplished poet. The first of his 14 volumes of poetry was published in 1936. The annual Lowbury Lecture was created in 1980 to honour Lowbury's personal achievements in IPC and his unwavering support for the Society. The Lowbury Lecture recognises outstanding international voices and has been awarded annually to a distinguished international speaker recognised by the Society as a pioneer in the field of IPC (Table

6A). To commemorate the event, a signed volume of Lowbury's poetry entitled *Mystic Bridge* is presented to the distinguished lecturer by the Society President.

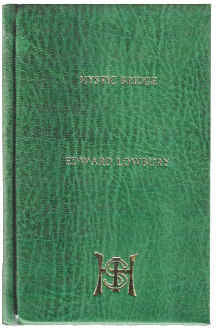

Figure 6B: Mystic Bridge

The Lowbury Lecture was traditionally paired with a Lowbury Lunch to which trainees were invited. HIS now boasts over 350 Trainee members (see Chapter 2.3 for more information on Trainee membership), and therefore, since 2018, the Lowbury Lunch has been replaced by a less formal social event at HIS International Conferences or Federation of Infection Societies events, to which all members of the Society are invited.

Figure 6C: Edward JL Lowbury with Professors Kobyashi and Keiichi Hiramatsu (Lowbury lecturer 1998) from Japan

Figure 6D: Nicholas Graves (Lowbury Lecturer 2017) and Gary L French (President of HIS 2014-2018)

Table 6A: Lowbury Lectures. Lecturer names and lecture titles are presented as fully as extant records allow

Year	Lecturer	Title
1980	Peter Joseph Erasmus Cruse	The epidemiology of wound infections
1981	L Kallings	The efficacy of individual procedures for the prevention of infection in intensive care patients
1982	Elisheva Simchen	Determinants of surgical wound infection
1983	D Armstrong	Fungal infections in the immunocompromised
1984	JE McGowan	Can antibiotic policies affect the development of transferable resistance?
1985	Paul Edelstein	Control of *Legionella* in hospitals[1]
1986	Dennis Maki	Emergence of coagulase-negative Staphylococci as hospital pathogens
1987 1st HIS International Conference	Gerald P Bodey	The emergence of fungi as major hospital pathogens[2]
1988	Franz D Daschner	Cost-effectiveness in hospital infection control[3]
1989	HW Jaffe	Healthcare personnel and exposure to HIV
1990 2nd HIS International Conference	Walter F Schlech	Infections in small community hospitals
1991	B Nyström	The role of hospital infection control in the quality system of hospitals[4]
1992	AA Forder	Infection control: a challenge in a land of contrasts[5]
1993	Elaine Larson	Hand disinfection
1994 3rd HIS International Conference	Richard P Wenzel	The economics of nosocomial infection[6]
1995	R Rubin	The diagnosis of intracranial disease in immunocompromised patients
1996	Jonathan Sackier	Aesop's Fables and other stories through the looking glass[7]
1997	S Valway	*Lecture title unavailable*
1998 4th HIS International Conference	Keiichi Hiramatsu	The evolution of MRSA[8]

1999	OB Jepson	Infection control in Danish healthcare: organization and practice[9]
2000	Andreas Voss	Hand hygiene and behaviour
2001	Adriano G Duse	Out of Africa: infection control in the living and the dead. The 2005 Marburg outbreak in Uige Province, Angola
2002 5th HIS International Conference	William A Rutala	Decontamination of heat-sensitive items
2003	Didier Pittet	Behaviour in infection control[10]
2004	John W Pearman	The Western Australian experience with vancomycin-resistant enterococci: from disaster to ongoing control[11]
2005	Anna Hambraeus	Infection control from a global perspective[12]
2006 6th HIS International Conference	William Jarvis	The United States approach to strategies in the battle against healthcare-associated infections, 2006: transitioning from benchmarking to zero tolerance and clinician accountability[13]
2007	Shaheen Mehtar	Infection prevention and control strategies for tuberculosis in developing countries: lessons learnt from Africa[14]
2008	Lul Raka	Infection control and limited resources: searching for the best solutions[15]
2009	Klaus Roth	Cleaning validation and instrument design
2010 7th HIS International Conference	Hajo Grundmann	Epidemiology and surveillance of MRSA
2011	Satoshi Hori	Infection control challenges in Japan
2012	Stephan Harbarth	What can we learn from each other in infection control? EU versus US experience
2013	Michael A Borg	Cultural determinants of infection control behaviour: understanding drivers and implementing effective change
2014 9th HIS International Conference	Wing Ho Seto	Airborne transmission and precaution: facts and myths
2015	Herman Goossens	Lessons learned after 15 years of research on antimicrobial use
2016 10th HIS International Conference	Sanjay Saint	The role of intersectional innovations in preventing infection[16]

2017	Nicholas Graves	Make economics your friend[17]
2018 11th HIS International Conference	Susan S Huang	Decolonisation to reduce multidrug-resistant organisms in healthcare: who, what, where, when and why?[18]
2019	Petra Gastmeier	From one size fits all to personalized infection prevention[19]
2020 FIS/HIS International Online	Evelina Tacconelli	Linking infection control to clinical management of infection to overcome antimicrobial resistance

Figure 6E: Lowbury Lunch Birmingham 2013
Back row (L-R): Graham AJ Ayliffe, Martin Kiernan, Geoffrey L Ridgway, Fred Faulkner, Tim Boswell, Steve P Barrett, David C Shanson, Geoff Scott and Alaric Colville
Middle row (L-R): Michael A Borg (Lowbury Lecturer), Tom RF Rogers, Mike C Kelsey, Adam Fraise, Gary C French, Robert C Spencer, and Andrew Telfer-Brunton
Front row (L-R): SWB (Bill) Newsom, Marjory Grieg, Judith Richards, Jenny Child, Carole Fry, Davide CE Speller

In recent years, the Lowbury Lecturer has been invited to submit the text of their lecture to the JHI for publication, which the Society makes freely available. These can be found in the references at the end of this Chapter.

Figure 6F: Gary L French presents 2018 Lowbury Lecturer Susan S Huang with a copy of Mystic Bridge

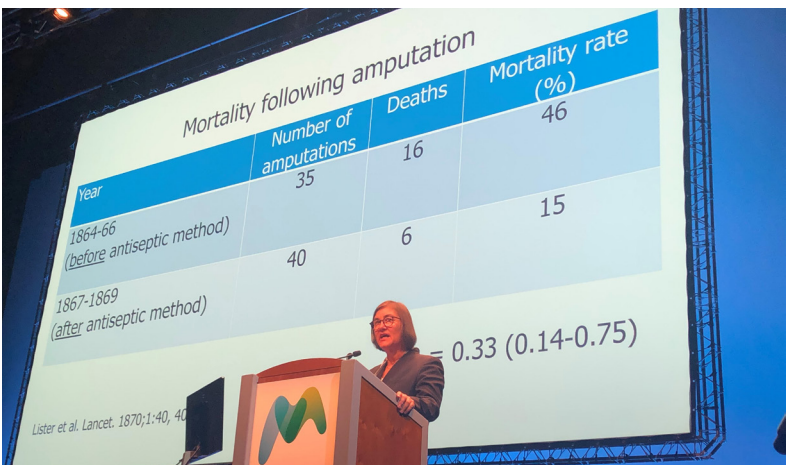

Figure 6G: Petra Gastmeier delivers the 2019 Lowbury Lecture

Figure 6H: Michael A Borg delivers the 2013 Lowbury Lecture during FIS 2013

Figure 6I: Gary L French delivers the inaugural Gary French Lecture during FIS 2018

6.2: HIS Gold Medal

HIS Gold Medals, also referred to as Lowbury Medals, have been awarded to founding members of the Society since 1996. The Gold Medal is awarded by HIS in recognition of significant contributions to the Society during its early years. Recipients of the HIS Gold Medal are listed in Table 6B.

Figure 6J: HIS Gold Medal

Table 6B: HIS Gold Medal Recipients

HIS Gold Medal Recipient	HIS Role
Edward JL Lowbury	President 1980-1984
Graham Ayliffe	Chair 1980-1984; President 1988-1994
AM (Mike) Emmerson	Chair 1990-1993; President 2002-2006
SWB (Bill) Newsom	President 1998-2002
David C Shanson	Secretary (1980-1983); Chairman (1984-1987)

Six HIS Gold Medals were struck: five have been awarded and one remains securely stored at HIS HQ. The design of the medal is based on the original Society logo, and the medals were struck in Birmingham and hallmarked by the Birmingham Assay Office.

Figure 6K: SWB (Bill) Newsom pictured receiving the HIS Gold Medal in 2013

6.3: The Gary French Lecture

The Gary French Lecture was launched in 2018 to recognise the contribution of an individual who is currently based, or has spent the majority of their career, in the UK or ROI to the field of IPC. The inaugural Gary French Lecture, entitled 'The rise and fall of MRSA in England' was given by Gary L French himself on Thursday 15 November 2018 during the FIS Conference.

6.3.1: The Gary French Award Medal

The design of the Gary French Award Medal was based on the HIS logo launched in 2018. It was designed by Fattorini, a family-run, UK-based manufacturing company, and cast in steel with coloured enamel infills in the logo. Recipient details are imprinted on the reverse and the words 'Gary French Lecture' with the Award criteria are imprinted on the front. The only words to be included as an embossed feature in the die are 'Healthcare Infection Society' so that the template may be used for any new awards that the Society creates.

Figure 6L: The Inaugural Gary French Lecture Medal

6.4: Honorary Membership

In 2020, the award of HIS Honorary membership replaced the HIS Gold Medal. The award recognises an outstanding and unique contribution to the Society, over and above that which might normally be delivered by holding a Society role or office, or through involvement in Society activities. In contrast to the HIS Gold Medal, which recognised a historical contribution to the Society, this award is made contemporaneously.

The first three Honorary membership awards were announced in November 2020 during the AGM in recognition of contributions to the Society's guideline development, training and educational activities. Hilary Humphreys, the HIS President, announced that the first Honorary members were: Martin Kiernan, Peter N Hoffman and Peter Wilson. Coincidentally, the recipients were a Infection Control Nurse, Clinical Scientist and Medical Microbiologist, reflecting the breadth and diversity of the Society's membership.

Figure 6M: Martin Kiernan, Peter N Hoffman and Peter Wilson

6.5: HIS Early Career Award

The HIS Early Career Award was established in early 2020 to mark the 40th anniversary year of HIS and the JHI. The Award was introduced to recognise outstanding and innovative contributions in IPC and the control of HCAIs from early-career clinicians.

The award is made annually to clinicians within five years of beginning a substantive Consultant post and working in the UK or ROI, who have applied an innovative approach to IPC in clinical practice, public engagement, leadership or management, education or training, development of new techniques or devices or addressing emerging areas of need. The winner of the HIS Early Career Award is recognised with the HIS Early Career Award Medal and a prize of £1,000.

Figure 6N: HIS Early Career Award Medal

Figure 6O: Benjamin Parcell

In June 2020 Benjamin Parcell was announced as the first recipient of the HIS Early Career Award. Parcell, a Consultant in Medical Microbiology and NRS Career Researcher Fellow at Ninewells Hospital, Dundee, was given the HIS Early Career Award in recognition of his innovative contribution to the prevention and control of HCAIs.

Elisabeth Ridgway, Chair of Trustees, commented:

> HIS Council were particularly impressed by Dr Parcell's enthusiastic commitment to implementing and communicating novel research during his clinical role in order to improve patient experiences and outcomes. HIS Council also recognised Dr Parcell's role in the application of rapid molecular diagnostics

within routine clinical pathways to optimise and inform IPC strategies, and the use of innovative data analysis to understand the epidemiology of healthcare associated infections.

An element of the Early Career Award is the opportunity to publish an essay in the JHI. Parcell published his work, entitled 'Clinical perspectives in integrating whole genome sequencing into the investigation of healthcare and public health outbreaks – hype or help?', in November 2020.[20]

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Chapter 7

Research and grants

The belief that good science underpins good clinical practice, and that continual professional learning and development is necessary to reduce the incidence of healthcare-associated infections (HCAIs), has long been upheld by HIS. Scholarships, grants and other means of supporting research and professional development therefore remain an integral part of Society strategy.

7.1: HIS Travelling Scholarships

The HIS Travelling Scholarships, introduced in 1986, were the first grants to be offered by the Society. The Scholarships provided up to £1,000 for travel and accommodation. Funds were donated by Lederle Laboratories, and later Imperial Chemical Industries, specifically for this purpose.

HIS Travelling Scholarships were proposed as a scheme to support younger members of the Society who showed promise in research in the field of hospital infection. It was agreed that only those below Consultant grade and under 35 years of age would be eligible to apply. Nominations required support from two Consultant members of the Society, and the award was made by HIS Council. After the first awards were presented in 1987, it was decided that all future awardees were to provide a written report for publication in the *Journal of Hospital Infection* (JHI). In 1989 the value of the award was increased to £1,500. Awardees are listed in Table 7A.

Table 7A: HIS Travelling Scholarship recipients. Details of the location of travel and topic studied are presented as fully as extant records allow.

Year	Recipient and topic
1987	RG Feldman (University College Hospital) and FA Harvey (King's College Hospital). Visits to the Transplant Units at Omaha, Pittsburgh, and the Mayo Clinic.
1988	WR Gransden (St. Thomas' Hospital, London). Visit to the LDS Hospital, Utah, USA to investigate the role of computers in infection control. S Dealler (St. James' Hospital, Leeds) to study the rapid screening of colonies from *Listeria* selective agar.[1]
1990	Tim Bull (Westminster Hospital). Visit to the Peterson laboratory, Los Angeles, USA to look at gene probes for rapid diagnosis of mycobacterial infection.[2]
1991	Mark H Wilcox (Sheffield) to work with G Peters in Germany on coagulase-negative Staphylococci.[3, 4, 5]
1992	Roland Korner (Bristol) to study the development of a new endotracheal-tube and its effect on the incidence of hospital-acquired respiratory infections in ventilated neonates.
1993	Selma Erbaydar (Turkey) to visit BD Cookson from the Division of Hospital Infection, Central Public Health Laboratory, London, to gain insight into the functioning of a governmental body.
1993	N Woodford. Unknown.

In 1989, the criteria for application to the HIS Travelling Scholarship scheme was widened to include all workers in infection prevention and control (IPC) under 35 years of age (excluding medical Consultants and those of equivalent grade), whether or not they were members of the Society. The Scholarships were later further diversified to permit doctors in developing countries to attend HIS courses.

7.2: HIS research grants

During the 1997 HIS AGM, it was reported by Elisabeth Ridgway (then Grants Secretary) that HIS would establish a Major Research Grant (MRG) of up to £20,000 per year for 1-3 years, and four Small Research Grants (SRGs) of up to £5,000. Over 40 applications were received for the MRG. The first MRG of £39,970 was awarded to DWG Brown and colleagues at the Central Public Health Laboratory, London, and the Royal Preston Hospital. Their project was entitled 'Investigation of patterns of environmental contaminants with SRSV on hospital wards and the evaluation of decontamination procedures'. In addition, four SRGs were awarded; these are listed in Table 7B.

Table 7B: HIS Research Grants awarded 1997-1998

Major Research Grant
DWG Brown, JS Cheesebrough, PN Hoffman and J Green (Central Public Health Laboratory, London and Royal Preston Hospital): 'Investigation of patterns of environmental contamination with SRSV on hospital wards and the evaluation of decontamination procedures'. £39,970 over 2 years
Small Research Grants
S Lacey: 'High efficiency masks and MRSA transmission' (£5,764)
JY Maillard: '*Ex-vivo* test of microbial survival on human skin' (£5,000)
KE Orr: 'Survival of enterococci in hospital laundries' (£4,980)
KJ Towner: 'RAPD-ALFA and bacterial transmission in ITU' (£5,000)

7.3: The role of the Grants Committee and Scientific Development Committee

From 1997, MRGs and SRGs were awarded on an annual basis under the auspices of a Grants Committee, which was led by the Grants Secretary (later known as the Grants Committee Chair). Grants Secretaries/ Committee Chairs are listed in Table 7C.

In 2010 the Scientific Development Committee was formed as a Standing Committee of HIS Council to promote the development of the science of IPC, and to foster the translation of scientific developments into clinical practice through the development of evidence-based guidelines. The Scientific Development Committee was responsible for the coordination of Working Parties and the development of the Society's research policy. It was also granted oversight of the Society's grants programme via the Grants Committee which operated as a sub-committee of the Scientific Development Committee.

In 2019 the committee structure of the Society was updated in alignment with the organisational strategy for 2020-2025. Details of the changes are given in Chapter 2. The Scientific Development Committee was reconfigured to form two new groups: the Research Committee (established to design, plan, deliver and monitor HIS research strategy, including the management of grants, awards and fellowships) and the Guidelines Committee (established to plan, prepare and update Society guidelines). It was felt that these two groups better reflected the breadth and volume of activity undertaken by the Scientific Development Committee.

Table 7C: Grants Secretaries and Grants Committee Chairs

Year	Role	Name
1996/1997	Grants Secretary	Elisabeth Ridgway
1999	Grants Secretary	Robert C Spencer
2002	Grants Secretary	Ed Smythe
2003/2005	Grants Secretary	Richard Cooke
2006/2008	Grants Secretary	Andrew Telfer Brunton
2009	Grants Secretary	Peter Jenks
2010	Grants Secretary	Peter Jenks [became Chair of the new Scientific Development Committee]
2013	Grants Secretary/ Committee Chair	William Newsholme
Nov 2017	Grants Committee Chair	Emma Boldock [became Chair of the new Research Committee in 2019]

7.4: The value of HIS grants

The value of the HIS grants portfolio has increased in line with inflation, the Society's strengthened financial situation and the costs associated with conducting research. From an award of approximately £60,000 in 1997, the total value of the grants awarded in 2019 alone reached £193,465. Details of grant holders, values and projects funded by HIS can be found in Appendix 3.

7.5: The HIS grants portfolio in 2020

7.5.1: Major Research Grants

In 2020 HIS supports PhD studentships, MDs and other research workers, as well as covering the consumables and equipment related to their research, with MRGs. It is the preference of the Research Committee that MRGs are awarded for translational research rather than pure science projects. Grant payments are made in arrears, and are subject to the submission of satisfactory biannual progress reports. It has been agreed that MRGs are suitable for National Institute for Health Research Partnerships in their Clinical Research Network Portfolio.

Table 7D: Major Research Grant Criteria 2020

Total funding:	£99,000 over 3 years
Duration:	Minimum one year, maximum three years
Minimum size of award:	£33,000
Availability:	One award per year
Other conditions:	Principle Investigator must be UK or ROI based

7.5.2: Small Research Grants

SRGs of up to £10,000 are given to support small-scale research projects, or the costs associated with the visit of an overseas research fellow, for a project of 12 months duration. The primary grant holder and their institution must the based in the UK or ROI.

Table 7E: Small Research Grant Criteria

Total funding:	£20,000 per annum
Maximum size of award:	£10,000 per award
Duration:	Maximum two years
Availability:	Two awards per year
Other conditions:	Applicant must be UK or ROI based

7.5.3: Pilot Project Grants

In 2019 a new funding scheme was launched to encourage clinical researchers to formulate and refine a hypothesis in the form of a preliminary project. Proposals for the grant are required to show an understanding of the clinical practice of IPC. There are two awards per year. Research may be conducted outside the UK or ROI, but the primary grant holder must be based in UK or ROI. The maximum size of each award is £5,000.

7.5.4: Career Development Bursaries

In 2018 the Career Development Bursary scheme was launched to support the continued professional development of career-grade members. The scheme was launched in recognition of the difficulty of

securing funds for continued professional development in a challenging financial climate. Full and Associate members are eligible to apply for a bursary once every three years. From a total pot of £10,000 per annum the value of each individual bursary is capped at £2,500.

7.5.5: Sponsored Events Grants

In 2018, a scheme was introduced to provide sponsorship of up to £1,000 to assist with the organisation of events that focus on the prevention and control of HCAIs. Events are to be held in an academic or healthcare setting, and should be specifically aimed at healthcare professionals. Eligible events include single lectures or small one-day events, and cross-institutional or regional events.

7.5.6: Public Engagement Grants

Since 2018, HIS funds have supported events where information about clinical microbiology, IPC and HCAIs are promoted to the public and other relevant stakeholders. Events eligible for support have been diverse, from artworks to popular music, and funds have been used to aid individuals to exhibit at public science festivals. The main criterion is that the event or activity must promote the science of microbiology in the context of HCAIs. Priority is given to activities or events that could not go ahead without HIS support.

7.6: Funded events in 2018

7.6.1: *Nosocomial: A Microbiology Play*

A Public Engagement Grant was awarded to Elaine Cloutman-Green of Great Ormond Street Hospital to produce a play. Cloutman-Green worked with playwright Nicola Baldwin to create a play in which audiences could participate in a microbiology lab experience.

The play was co-created with scientists from across healthcare and academia: three workshops were attended by 24 healthcare scientists from eight institutions. Scientists were able to work directly with actors and a creative team. The experiences of the scientists were shared with a playwright in the working groups, and this was portrayed to the general public through the play. *Nosocomial* was programmed for three nights as a site-specific performance at Camden People's Theatre during the September 2018 Underground Festival.

Figure 7A: Nosocomial: A Microbiology Play. *Photo credit: Rabbit Hole Photography, Elaine Cloutman-Green and Nicola Baldwin*

The *Nosocomial* project was extremely well received by microbiologists and the public. Scientists were enthusiastic about sharing their experiences with colleagues and audiences, but audience members previously unfamiliar with microbiology had the strongest reaction: people were amazed they had known so little about healthcare science, and described *Nosocomial* as 'eye-opening', 'fascinating' and 'astonishing'.

7.6.2: Let's Get Buggy: interactive session for Key Stage One children

Gayti Morris (*née* Islam) of the Sheffield Teaching Hospitals NHS Foundation Trust was awarded a Public Engagement Grant to bring microbiology teaching into a Sheffield primary school.

Figure 7B: Let's Get Buggy

Six members of Sheffield Teaching Hospital NHS Foundation Trust's Microbiology and IPC Department were funded to spend a morning with three successive classes of Year Three pupils at Sheffield Hallam Primary School. In total, over 90 children experienced the event.

The project provided a fun, engaging and interactive session to help the children, aged 7-8 years, consolidate their understanding of the importance of handwashing with soap and water and to introduce different types of microbe (viruses, bacteria and fungi). A simple practical experiment was performed to allow children to observe the effect of soap on pretend microbes in water. Children were asked to design and build their own 'helpful' or 'harmful' microbes. A true-or-false quiz was held to reinforce key messages and pupils had a chance to quiz the experts.

The sessions were greatly enjoyed by pupils, who were enthusiastic participants in all the activities. The final true-or-false quiz demonstrated that they had retained key messages of the importance of washing hands with soap and water and different kinds of useful and harmful microbes. Thoughtful questions were asked, such as 'how are microbes born?' and 'what's the most deadliest microbe?' It was agreed with teaching staff that the session had been useful, engaging and fun.

7.7: Mike Emmerson Early Career Award (2010-2019)

The Mike Emmerson Early Career Award was launched in 2010 following the death of AM (Mike) Emmerson, a founder member, past Chair and past President of the Society. Emmerson was an inspiring teacher who had encouraged many young doctors, nurses and other healthcare professionals to become involved in the science and practice of IPC.

Figure 7C: Mike Emmerson

The Mike Emmerson Early Career Award was aimed at medical graduates, nurses and clinical or biomedical scientists based in the UK. Up to

£10,000 was provided over two years to undertake a specific project. Scientific merit and the career stage of the applicant were the principal criteria for this award. The Award was made four times between 2010 and 2019 (see Table 7F).

Table 7F: Mike Emmerson Early Career Award

Year	Awardee	Project
2010	Samford Wong, Buckinghamshire Healthcare NHS Trust	Do probiotics prevent antibiotic-associated diarrhoea in patients with spinal cord injuries? A randomised controlled trial[6]
2011	Simon Friar, Health Protection Agency Public Health Laboratory	Molecular investigation of multi-drug resistant *Enterobacter* isolates, and screening of MDR coliforms for common resistance gene markers
2013	Vassiliki Dimou, Health Protection Agency	Molecular epidemiology of carbapenem-resistant *Enterobacteriaceae* in a tertiary-care hospital
2015	Elaine Cloutman-Green, Great Ormond Street Hospital	Investigation of cross-transmission by *Enterobacteriaceae*

Figure 7D: Shaheen Mehtar, Nizam Damani, Margaret Worsley and AM (Mike) Emmerson at a Safety Meeting in Cambridge in 1997.

7.8: Mike Emmerson International Fellowship (from 2020)

In celebration of the 40th anniversary of the Society, the Mike Emmerson Early Career Award was repurposed and renamed as the Mike Emmerson International Fellowship. The Mike Emmerson International Fellowship has been designed to support overseas visitors from low-or lower-middle-income economies (as defined by the World Bank) to travel to the UK to take part in a four week (maximum) Clinical Observership at a UK hospital or community setting, specifically to gain experience in the management of HCAIs.

The aspiration of the Society to support the development of IPC practitioners from developing countries, in the spirit of Emmerson, is reflected by the award. Emmerson's obituary can be read in full in the JHI.[7]

7.9: Graham Ayliffe Training Fellowship

Established in 2013, the Graham Ayliffe Fellowship has enabled microbiology speciality trainees and Infection Control Nurses to undertake one-year paid sabbaticals to pursue a specialist area of interest, to develop their knowledge base and to impart that knowledge to the wider scientific and medical community.

Figure 7E: Graham AJ Ayliffe

Nikunj Mahida was awarded the Graham Ayliffe Fellowship in 2015. Half of Mahida's Fellowship year was used to develop the skills and competencies necessary to work as an Assistant Editor for the JHI. Mahida has subsequently progressed to become an Editor on the JHI, and since 2019 he has also been an Editor on *Infection Prevention in Practice* (IPIP). Following the success of Mahida's fellowship year, two Graham Ayliffe Fellows were funded on a similar basis in 2019, Chris Lynch and Katie Prescott.

The maximum size of the award in 2020 is £72,000 for a one-year period. A list of Graham Ayliffe Fellows can be found in Table 7G.

Table 7G: Graham Ayliffe Fellows and project titles

Year	Recipient	Project
2014	Eftihia Yiannakis, Nottingham University Hospitals NHS Trust	Cystic fibrosis centre, environmental contamination by respiratory pathogens, infection control and guideline development
2015	Nikunj Mahida, Nottingham University Hospitals NHS Trust	Develop the skills and competencies to work as an Assistant Editor for the JHI and develop a specialist interest in the healthcare infection prevention and control issues surrounding clinical haematology/bone marrow transplantation.
	Damian Mawer, Leeds Teaching Hospitals	Develop audit skills and practical IPC training/experience including the set up and management of the Hospital-onset Diarrhoea Investigation (HOODINI).
2016	Emma Wiley, University College Hospital London	Develop specialism in infection control with the aim to become a Consultant Microbiologist and Infection Control Doctor
2017	Bozena (Jenny) Poller, Northern General Hospital	Design and establish a UK PPE model and national PPE simulation programme [8,9]
2019	Chris Lynch, Northern General Hospital, Sheffield	Develop the skills and competencies to work as an Assistant Editor for the JHI and IPIP, and develop a specialist interest in infection control in operating theatres
	Katie Prescott, Nottingham University Hospitals NHS Trust	Develop the skills and competencies to work as an Assistant Editor for the JHI and IPIP, and undertake MSSA audits in infection prevention and control
2020	Razan Saman	Strategies to prevent transmission of Extended Spectrum Beta-Lactamase *Enterobacterales* [start delayed until 2021]

Hundreds of thousands of pounds have been devoted by HIS over the last 40 years to encourage, promote and disseminate relevant research into HCAI prevention and control. As part of the 2020-2025 strategy, £250,000 per year has been ringfenced by HIS Council for research funding.

Accurately measuring the direct impact of Society-funded research is a challenge: publications resulting from Society-funded research or fellowships offer a way to qualify the Society's impact. Recent HIS-funded publications are listed in Appendix 4.

Figure 7F: Professor Graham Ayliffe with Sanjay Saint (Lowbury lecturer 2016)

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Chapter 8

Working Parties, guidelines and government

The Society's 3rd AGM was held on 3 November 1983 at the Zoological Society of London. At the meeting the Chairman, Graham AJ Ayliffe, stated:

> In the future it is hoped that the Society could play a greater part in the decision-making process, particularly at the Department of Health and Social Security level. To this end, the formation of Working Parties may be considered for the future to present an expert view of hospital infection.

The first Working Party was formed in 1982, and HIS Working Parties have been a Society initiative since that time (Table 8A). Important contributions in establishing the evidence base for measures to prevent and control healthcare-associated infections (HCAIs) have been made by HIS Working Parties, often in cooperation with other relevant organisations.

Commensurate with much of this working party activity, several HIS members were called upon to discuss various aspects of infection prevention and control by the media. These activities were very important in raising awareness in the Houses of Parliament, National Audit Office and, indeed, the general public. For example, MRSA infection prevention became a national priority in the 1980s and 1990s, and some impactful programmes were made, including the BBC *Panorama* 'Superbugs' programme. These helped create pressures to address the serious issues facing infection prevention and control at that time.

Figure 8A: Left to right: Georgia Duckworth and Mark W Casewell for BBC Newsnight*, 1984; Barry D Cookson and Gary L French for the BBC* Panorama *'Superbugs' programme, 1986*
Photo credit: BBC

The monitoring and reporting of the activities of the Working Parties was delegated to the Scientific Development Committee in 2010. The Committee was Chaired by Peter Jenks (2010-2013) and Peter Wilson (2014-2019). The Scientific Development Committee was replaced by the Guidelines Committee in November 2019 (see Chapter 7.3).

Table 8A: Formation of HIS Working Parties

Year	Working Party
1982	• Operating Theatre building regulations
1983	• Environmental sampling in the operating theatre and pharmaceutical preparation areas
1984	• Meticillin resistant *Staphylococcus aureus* (MRSA), in collaboration with British Society for Antimicrobial Chemotherapy • Human immunodeficiency virus-autoimmune deficiency syndrome (HIV-AIDS)
1986	• Infection control organisation in hospitals in England and Wales as part of the Department of Health and Social Services Infection Control Working Party • Organisation of infection control of communicable diseases as part of the Department of Health and Social Services Infection Control Working Party • The role of the Infection Control Doctor
1987	• Infection control in healthcare and the community • British Standards Institute working parties on the operating theatre, waste disposal and cook chill guidelines
1988	• Human immunodeficiency virus-autoimmune deficiency syndrome (HIV-AIDS) [update] • Infection control manual • British Standards Institute working party on sharps containers
1989	• Burns unit design and infection control, in collaboration with the British Burn Association • Guidelines for hospitals during building programmes • Evaluation of hand disinfectants

1991	• Decontamination of urological equipment • Surgery and HIV, in collaboration with the Surgical Infection Study Group
1992	• Operative endoscopes
1993	• Vancomycin resistant enterococci (later called Glycopeptide resistant enterococci)
1994	• Birthing pools • MRSA • Compliance • Standards for washer-disinfectors and water for endoscopy
1995	• Decontamination of invasive minimal access surgical equipment
1996	• Hospital catering and food safety for immunocompromised patients • Handwashing working group
1997	• Royal College of Physicians group on intravascular line associated infection • Standards for Sterile Services Departments
1998	• Tissue transplantation • Hospital isolation precautions (in collaboration with IDS, the Infection Control Nurses Association, AlvThI, British Infection Society, PfIS and Department of Health) • Rituals and behaviours in operating theatres • Monitoring and commissioning in the operating theatre • Management of hospital outbreaks of gastro-enteritis due to small roundstructured viruses
2000	• Handwashing working group renamed 'handwashing liaison group' • Developing MRSA surveillance in UK Hospitals
2002	• Core data sets • Single use items
2003	• MRSA [update], in collaboration with the British Society for Antimicrobial Chemotherapy, the Infection Control Nurses Association and the Department of Health • National *Clostridium difficile* Standards Group
2004	• Infection control in Residential and Nursing Homes
2005	• Extended Spectrum Beta Lactamase producing bacteria
2006	• Safe handling of contaminated fatalities committee • Uniform and laundry review group • National Guidance on Use of Ventilation in Hospitals (incl. Negative pressure facilities) • NICE SSI guidance implementation • epic2: national evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, in collaboration with Infection Prevention Society and the British Infection Association

2008	• Facilities required for Minor Surgery and Minimal Access Interventions 'Commissioning and monitoring of operating theatre suites' [update]
2009	• Infection prevention and control of Group A Streptococcal infection in acute healthcare and maternity settings in the UK, in collaboration with British Infection Association, British Society of Antimicrobial Chemotherapy, Department of Health, Royal College of Physicians, Health Protection Scotland, Health Protection Agency, Infection Prevention Society, Public Health Agency Northern Ireland, Public Health Medicine Environmental Group, Public Health Wales, Royal College of Midwives, Royal College of Obstetrics & Gynaecology, United Kingdom Clinical Pharmacy Association • MRSA [update]
2011	• Multi-drug resistant Gram-negative infection, in collaboration with the British Society for Antimicrobial Chemotherapy and the British Infection Association • Sporicides, in collaboration with the Antimicrobial Resistance and Healthcare-associated Infections Committee • Respiratory and facial protection • Prevention and control of infection in burns units, in collaboration with the British Burn Association [update] • Prevention and control of bone and joint infections, in collaboration with the British Infection Association and the British Orthopaedic Association • epic3: national evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, in collaboration with Infection Prevention Society and the British Infection Association [update] • Management of norovirus outbreaks in acute and community health and social care settings [update] in collaboration with British Infection Association, Health Protection Agency, Infection Prevention Society, National Concern for Healthcare Infections and NHS Confederation
2012	• Decontamination of intracavity devices • Neurosurgical infection surveillance
2013	• Decontamination of breast pump collection kits and associated equipment • Screening for MRSA, in collaboration with the Department of Health and the British Infection Association
2014	• Final rinse water for endoscope washer disinfection and water management, in collaboration with Public Health England, Royal Society for Public Health, Institute of Healthcare Engineering and Estate Management, Society of Public Health Engineers and the SPHE Water Management Society [update]
2015	• Faecal microbiota transplantation, in collaboration with the British Society of Gastroenterology

2016	• Automatic room decontamination devices, in collaboration with the Health and Safety Executive and Public Health England
2017	• Water management • National Standards of cleanliness task and finish group
2018	• Behaviours and rituals in the operating theatre, in collaboration with the European Society of Clinical Microbiology and the Infectious Diseases' Study Group for Nosocomial Infections (ESCMID ESGNI) [update]
2019	• Infection prevention and control of Group A Streptococcal infection in acute healthcare and maternity settings in the UK, in collaboration with the British Infection Society, Royal College of Midwives, Public Health England, Public Health Wales [update] • Management of norovirus outbreaks in acute and community health and social care settings [update]
2020	• COVID-19 rapid guidance
Planned for 2021	• Respiratory and Facial Protection[update] • Aspergillus • epic4, in collaboration with Infection Prevention Society [update] • Guidelines on the facilities required for minor surgical procedures and minimal access interventions [update]

8.1: NICE accreditation

The process of obtaining accreditation from the National Institute for Health and Care Excellence (NICE) was started in 2014. A HIS Guideline Methodology Manual was produced to facilitate the production of guidelines and ensure their eligibility for NICE accreditation. The multi-resistant Gram-negative bacteria Working Party report was the first guideline to be produced under this methodology. In 2015 these guidelines were formally accredited by NICE. At the same time, a range of patient and staff information leaflets were accredited.

NICE accreditation is granted to organisations only after they demonstrate that they implement the most rigorous processes when developing their guidelines. NICE accreditation helps health and social care professionals to identify the most trusted sources of guidance with a guarantee that they are developed using critically evaluated, high-quality processes. Thus, for healthcare professionals, guidelines carrying the accreditation mark represent the 'seal of approval by NICE' and therefore provide confidence that they are based on the best available evidence to support clinical practice.

To obtain and retain NICE accreditation, guideline developers such as HIS must adhere to the six key NICE principles. Guideline developers are assessed by NICE and their external peer reviewers against six internationally recognised standards (the AGREE II instrument). Once accreditation is secured by an organisation, it can be applied to future publications produced using the same methodology, with all NICE accredited guidelines requiring update every four years.

The accreditation is reviewed every five years to ensure that guideline developers continue to adhere to the principles. To renew the accreditation, guideline developers are required to actively apply and to provide their documented process for guideline development along with examples of completed guidelines that provide evidence that the process was used.

The key principles for NICE guidelines include:

- Guidelines are based on the best available evidence and consider what works, what is cost-effective and what is acceptable to healthcare professionals and patients.
- Guidelines are developed by a group of independent and unbiased experts, which must include at least two lay members.
- Guidelines must go through a regular consultation process, including the selection of the topics to be covered and the recommendations set by the guidelines. This ensures that all stakeholders' values are considered. Social value judgements (those that take into account broader societal norms and expectations) are also respected.
- Guidelines are regularly checked and updated as new evidence emerges.
- The Working Party ensures that methods and policies for guideline development remain up to date.
- Stakeholders and individuals have an opportunity to comment on recommendations before the guidelines are published. This is achieved via the consultation process.

Since 2017, NICE has not accepted new applications for accreditation. The receipt of NICE accreditation status in 2015 was therefore a great achievement for the Society, and fulfilled Ayliffe's hope that HIS Working Parties would be central to the Society playing a greater role in decision-making in the field of infection prevention and control (IPC). HIS remains the only infection Society to have achieved NICE accreditation.

In 2018, work was completed to update the HIS methodology in line with changes to SIGN (Scottish Intercollegiate Guidelines Network) and NICE guideline production methods. In July 2020 the NICE accreditation of the process used by HIS to produce clinical guidelines was renewed until 31 March 2025.

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Journal of Antimicrobial Chemotherapy

Treatment of infections caused by multidrug-resistant Gram-negative bacteria: report of the British Society for Antimicrobial Chemotherapy/ Healthcare Infection Society/British Infection Association Joint Working Party†

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The Working Party makes more than 100 tabulated recommendations in antimicrobial prescribing for the treatment of infections caused by multidrug-resistant (MDR) Gram-negative bacteria (GNB) and suggest further research, and algorithms for hospital and community antimicrobial usage in urinary infection. The international definition of MDR is complex, unsatisfactory and hinders the setting and monitoring of improvement programmes. We give a new definition of multiresistance. The background information on the mechanisms, global spread and UK prevalence of antibiotic prescribing and resistance has been systematically reviewed. The treatment options available in hospitals using intravenous antibiotics and in primary care using oral agents have been reviewed, ending with a consideration of antibiotic stewardship and recommendations. The guidance has been derived from current peer-reviewed publications and expert opinion with open consultation. Methods for systematic review were NICE compliant and in accordance with the SIGN 50 Handbook; critical appraisal was applied using AGREE II. Published guidelines were used as part of the evidence base and to support expert consensus. The guidance includes recommendations for stakeholders (including prescribers) and antibiotic-specific recommendations. The clinical efficacy of different agents is critically reviewed. We found there are very few good-quality comparative randomized clinical trials to support treatment regimens, particularly for licensed older agents. Susceptibility testing of MDR GNB causing infection to guide treatment needs critical enhancements. Meropenem- or imipenem-resistant Enterobacteriaceae should have their carbapenem MICs tested urgently, and any carbapenemase class should be identified: mandatory reporting of these isolates from all anatomical sites and specimens would improve risk assessments. Broth microdilution methods should be adopted for colistin susceptibility testing. Antimicrobial stewardship programmes should be instituted in all care settings, based on resistance rates and audit of compliance with guidelines, but should be augmented by improved surveillance of outcome in Gram-negative bacteraemia, and feedback to prescribers. Local and national surveillance of antibiotic use, resistance and outcomes should be supported and antibiotic prescribing guidelines should be informed by these data. The diagnosis and treatment of both presumptive and confirmed cases of infection by GNB should be improved. This guidance, with infection control to arrest increases in MDR, should be used to improve the outcome of infections with such strains. Anticipated users include medical, scientific, nursing, antimicrobial pharmacy and paramedical staff where they can be adapted for local use.

†NICE has accredited the process used by the Healthcare Infection Society to produce the 'Treatment of infections caused by multidrug-resistant Gram-negative bacteria: report of the British Society for Antimicrobial Chemotherapy/Healthcare Infection Society/British Infection Association Joint Working Party' guidelines. Accreditation is valid for 5 years from March 2015. More information on accreditation can be viewed at http://www.nice.org.uk/about/what-we-do/accreditation.

NICE accredited

Figure 8B: Treatment of infections caused by multidrug-resistant Gram-negative bacteria: report of the British Society for Antimicrobial Chemotherapy/ Healthcare Infection Society/ British Infection Association Joint Working Party

8.2: Support staff

In 2017, a full-time Research and Development Manager, Gemma Marsden, was recruited to support the Working Parties and the production and development of NICE accredited guidelines. In 2018, two Researchers in Evidence Synthesis (RES) positions were created on fixed-term contracts to provide support for the production and publication of NICE accredited guidelines. In 2020, these RES positions became a permanent component of the HIS staff structure.

8.3: Published HIS Guidelines, guidance and updates

The vast scope of healthcare-associated IPC is reflected in the diversity of the topics covered by the Working Parties. Some topics, such as burns, MRSA, operating theatres and endoscopy have been represented since the Working Parties were created. Others emerged then became less prominent as healthcare workers became familiar with the problems they presented, such as HIV and AIDS. Yet others emerged as new techniques and methods were introduced into healthcare: automatic room decontamination, faecal microbiota transplantation, minimally-invasive surgery. This diversity can been seen in Appendix 5, which lists the HIS Guidelines which have appeared in print over the last 40 years and highlights the work and endeavour of all concerned.

8.4: Broader impact: government guidance and HIS input

In 2006 the Society was closely involved with Department of Health (DoH) and Health Protection Agency (HPA) initiatives involving a report on *Infection Control Guidance for Care Homes*[1] and the Health Act. In 2007 the Society worked again with the DoH and HPA to aid the publication by the Healthcare Commission of an investigation into hospital outbreaks of *Clostridium difficile* in Stoke Mandeville, Maidstone and Tunbridge Wells Hospitals.[2]

In 2008 the HIS Chairman reported that he had meet with Lord Darzi, at that time a Labour peer in the House of Lords, who was receptive to the role that the Society could take in informing DoH initiatives relating

to HCAI. There has additionally been useful discussion with many of our sister societies on potential collaborations and the possibility of providing a 'one stop shop' for government and other organisations who need to quickly get the best possible advice from professionals within the IPC and HCAI.

In 2019 the Society continues to be involved and represented on a range of major committees including Engineering and Science Advisory Committee of the DoH, the Creutzfeldt-Jakob disease (CJD) Incidents Panel, the Advisory Committee on Dangerous Pathogens' Transmissible Spongiform Encephalopathy (TSE) Risk Management Group, the Rapid Review Panel and other committees reviewing and revising documentation such as *Infection Control in the Built Environment* and the new *Health Technical Memoranda*.

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Chapter 9

Prevalence surveys

In 1979, a survey to determine the prevalence of healthcare-associated infection (HCAI) among hospital inpatients in England and Wales was designed by leading authorities in infection prevention and control, many of whom were to become the founding members of the Society. This was the first *National Survey of Infection in Hospitals*.

9.1: First prevalence study

The methods used for the first *National Survey* were initially tested in a pilot study. The survey took place after the hospitals to be involved were selected and the personnel trained (43 hospitals and 18,186 patients). It was completed in mid-1980. Overall, the prevalence of a HCAI was found to be 9.2% (95% confidence interval: 8.8-9.6). A full report was published as a supplement to the *Journal of Hospital Infection* (JHI) in 1981 (Figure 9A).[1]

Journal of Hospital Infection (1981) **2,** (Supplement), 1–11

Part 1: Methods

1. DESIGN AND EXECUTION

Summary: A study to determine the prevalence of infection among patients in hospital in England and Wales was designed during 1979. The methods to be used were tested in a pilot study. After the hospitals to be involved had been selected and the personnel concerned trained, a survey involving 43 hospitals and 18,186 patients was completed in mid-1980. The methods that were employed are described, and where necessary simplifications or improvements are suggested. The level of comparability in the methods used and the results achieved by the teams from different hospitals is discussed.

Introduction

A Study Group on Hospital Infection was set up by the Public Health Laboratory Service (PHLS) Staff Committee in November, 1978. This Group saw a need for a survey of infection in the hospitals of the United Kingdom, and formed a Sub-Committee (Advisory Group on a Prevalence Survey) with the following terms of reference:

> 'To advise on the development of prospective studies for the collection of information on the incidence or prevalence of infection in acute hospitals.'

The members of the Sub-Committee are listed among the authors of the papers in this Supplement.

Although much hospital activity reflects some thought about the prevention of infection, the Sub-Committee recognized that there was no recent information on the size of the problem presented by hospital acquired infection (HAI) in the U.K., and only a little from the past (PHLS, 1960, 1965; Ayliffe, 1971). Because action aimed at controlling HAI in the absence of data on its frequency might be ill-founded, it was agreed that an effort should be made to derive this information. A prevalence or cross-sectional survey was chosen for this purpose, as being less demanding in effort than the alternative of a much more time-consuming and costly incidence study. In essence, the prevalence study produced a snapshot noting the state of the community surveyed at the moment at which each patient included in the survey was visited. In comparison an incidence survey would have resulted in a cine-film, recording events as they took place over a significant time, requiring patients to be followed for a period usually measured in months. A few studies using the prevalence technique have been made here and elsewhere. The results of some of these are summarized in Table I.

Results derived in surveys using the two methods are not directly comparable, because slightly different things are measured. In the present context, an incidence survey estimates the number of patients who develop an infection by comparison with those who do not. The result takes no direct account of any change in the time infected patients stay in hospital. A prevalence survey, by concentrating on a

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Figure 9A: 'Report on the National Survey of Infection in Hospitals 1980' was published in the JHI

9.2: Second prevalence study

During 1993-1994, the second *National Prevalence Survey* was funded by the Society and a research grant was awarded to AM (Mike) Emmerson by the Nuffield Provincial Hospitals Trust on behalf of HIS. The second study was larger than the first, with more patients and more hospitals surveyed, and data collected by computer. This study was designed to assess the overall prevalence of infection of patients in hospitals in the UK and ROI, together with their associated risk-factors and sites of infection. Definitions of infection were agreed, as was the use of a computer-assisted questionnaire. Patient data were collected and entered directly into a portable Olivetti computer with a custom-designed program (Epi-Info Version 5.01). In total, 37,111 patients from 157 hospitals were studied. The mean HCAI prevalence rate was 9.0% (95% confidence interval: 8.8-9.6). The results of the study were again published in JHI in an overview in 1996.[2]

9.3: Third prevalence study

In late 2004 the Society had been approached by the Department of Health (DOH) in England with a proposal for a third HCAI prevalence survey. HIS agreed, and a Steering Group was formed to oversee the project. Soon after, agreement to participate was reached with the relevant DOH in Wales, Northern Ireland and the Republic of Ireland. All agreed to employ the same methodology. Scotland had already agreed to embark on a HCAI prevalence survey of their own, but they readily agreed to standardise methodologies. The third HCAI prevalence survey, the *Four Country Healthcare-associated Infection Prevalence Survey*, was conducted between February and May 2006. It was a marvellous example of cooperation between many sections of the Health Service.

The project was embraced by the Infection Control Nurses Association, which became an active partner. It was agreed that Edward TM Smyth (The Belfast Health and Social Care Trust) would act as lead. A secure web-based data recording system was implemented to facilitate timely information feedback. This was developed by the Welsh HCAI Programme and hosted by the NHS intranet, and enabled hospitals to access their own data via the system. A number of template reports were available and data could be downloaded for local analysis. For comparative purposes, hospitals were provided with a data summary for

England. Individual data feedback to participating hospitals went live in March 2007. A total of 75,694 adult patients were surveyed, 5,743 of whom had HCAIs giving a prevalence of 7.59% (95% confidence interval: 7.40-7.78). HCAI prevalence in England was 8.19%, Wales 6.35%, Northern Ireland 5.43% and the Republic of Ireland 4.89%.[3]

The *Four Country Healthcare-associated Infection Prevalence Survey* was the largest HCAI prevalence survey ever performed in the four countries. It was anticipated that the methodology and organisation would be used as a template for future HCAI surveillance initiatives, nationally, locally or at unit level. Information obtained from this and future surveys would contribute to the prioritisation of resources and inform Departments of Health, hospitals and other relevant bodies in the continual effort to reduce HCAIs.

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Chapter 10

The changing role of the Infection Control Doctor: *Winning Ways* and the development of the DIPC

10.1: Standards in Infection Control in Hospitals

During the 1990s and early 2000s the role and importance of the Infection Control Doctor (ICD) evolved alongside changes in healthcare delivery. Increasingly, it was recognised that infection control needed to be integrated into clinical and corporate governance processes. A representative of the Society (Graham AJ Ayliffe) was present on both of the Department of Health's (DoH) Hospital Infection Working Groups,[1,2] which laid out the expected structures and processes that needed to be in place for effective infection prevention and control (IPC).

The Society had played an important role in the establishment of the first UK *Standards in Infection Control in Hospitals* in 1993.[3] *Standards in Infection Control in Hospitals* was written in collaboration with other key professional organisations and the DoH.[4] The published document became known as the 'Pink Document' (Figure 10A). The colour had been chosen to stand out from the other documents that the health authorities received.

In 1999 a comprehensive socioeconomic report (a surveillance and modelling study) for English Acute Hospitals by Plowman *et al.*[5] found that healthcare-associated infections (HCAIs) accounted for 5,000

deaths per year directly and were a contributing factor in another 15,000 fatalities. These HCAIs cost at least one billion pounds per year. They did not include, for example, patients in intensive care. Of the HCAIs, one third of deaths were considered potentially preventable, but a 5-10% reduction was considered a more realistic target.

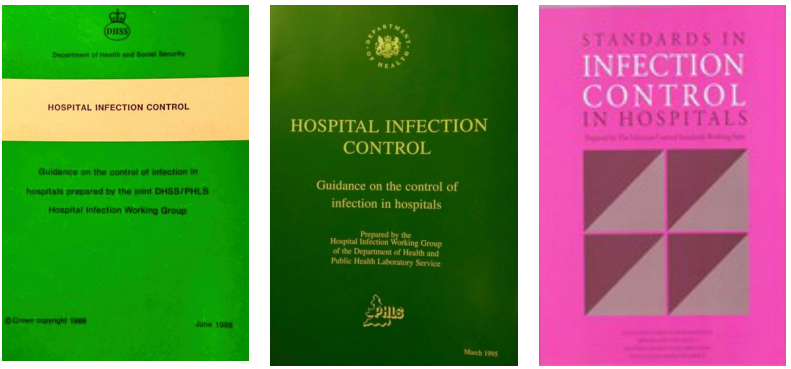

Figure 10A: Two Hospital Infection Working Group reports (1988, 1993) and the First UK Standards in Infection Control in Hospitals *(1993)*

This work influenced the National Audit Office 2000 report, entitled *The Management and Control of Hospital Acquired Infection in Acute NHS Trusts in England*. It focused on infection control teams and their work in hospitals.[6] In total 29 recommendations for improving the management and control of HCAI were included. The following conclusions were drawn:

- Infection control was not high enough on the agenda of NHS Trusts.
- Chief Executives should be responsible for ensuring that there were effective arrangements for infection control.
- HCAIs could not be prevented completely. It was important, therefore, that HCAIs were readily detected and dealt with.
- There needed to be improvements in surveillance and feedback of information to clinicians.
- There was further scope for improvement in education, training and audit of compliance with infection control guidelines.

The NHS was issued extensive guidance in the 2000 report. However, the degree of subsequent improvement was small. In 2003 a workshop was convened by the Association of Medical Microbiologists to discuss the role and future of the ICD. Recommendations were produced in

which it was emphasised that the Diploma in Hospital Infection Control (DipHIC) remained a desirable qualification for the ICD.[7]

10.2: *Winning Ways* and the development of the DIPC

In 2003, two DoH documents that focused on reducing HCAIs were published by Sir Liam Donaldson, the then Chief Medical Officer. These were:

- *Getting ahead of the curve: a strategy for combating infectious disease (including other aspects of health protection). A report by the Chief Medical Officer* (2002).[8]
- *Winning Ways: working together to reduce healthcare associated infection in England. A report by the Chief Medical Officer* (2003).[9]

An article was published in the *Journal of Hospital Infection* in 2004 by the Chairs of HIS and the Infection Control Nurses Association (Robert C Spencer and Christine Perry). In this article, it was concluded that much of what was presented during the 'future of the infection control doctor' workshop in 2003 had been superseded by the publication of *Winning Ways*.[10]

The authors of *Winning Ways* conceded that HCAIs had historically not been awarded as high a priority for action as some other aspects of healthcare. Seven action areas were proposed:

1. Active surveillance and investigation.
2. Reducing the infection risk from use of catheters, tubes, cannulae and instruments and other devices.
3. Reducing reservoirs of infection.
4. Higher standards of hygiene in clinical practice.
5. Prudent use of antibiotics.
6. Management and organisation.
7. Research and development.

It was with reference to action area six (management and organisation) that a new Director of Infection Prevention and Control (DIPC) role was designated for each organisation that provided NHS services, including primary care trusts.

The individual in the DIPC role would:

- Oversee local control of infection policies and their implementation.
- Be responsible for the infection control team within the healthcare organisation.
- Report directly to the Chief Executive and the Board, and not through any other officer.
- Have the authority to challenge inappropriate hygiene practices as well as antibiotic prescribing decisions.
- Assess the impact of all existing and new policies and plans on infection and make recommendations for change.
- Be an integral member of the organisation's (or organisations') clinical governance and patient safety teams and structures.
- Produce an annual report on the state of HCAI in the organisation(s) for which he/she is responsible and release it publicly.

The Spencer and Perry report posed the question 'where did this leave infection control doctors and would they still have a role?'[10] The authors agreed that ICDs would have a role: in some acute trusts, the ICD would become the DIPC. In other trusts, nurse consultants in infection control, medical directors, directors of nursing or clinical governance leads would be given the role. In these cases, the ICD would remain pivotal due to their experience in the management of infected patients, knowledge of current guidelines for decontamination and expertise in the appropriate clinical use of antibiotics.

Winning Ways was advocated by Spencer and Perry as a welcome intervention for ICDs: their role was strengthened and their function was promoted. The introduction of *Winning Ways* was therefore pivotal for Societies such as HIS and the Infection Control Nurses Association who represented IPC specialists in their membership.

In 2006 the role of the DIPC was reinforced and made mandatory as part of the DoH's *Code of Practice for the Prevention and Control of Healthcare Associated Infections*.[11] It was ensured in this report that infection control would be handled at an executive level, and that it would be the shared responsibility of everyone in an NHS Trust. In 2009, a National Audit Office report stated:

> We found that the DIPC role has been implemented in a variety of ways in different trusts. There is no single 'best practice' model for how the role is performed or whether roles are carried out by nurse, consultant or microbiologist. What matters is their commitment to quality and patient safety, good communication and reporting channels and access to people with expert prevention and control advice. [12]

10.3: The evolution of the DIPC role and the creation of the HIS DIPC Development Programme

In 2017, the HIS Chair Elisabeth Ridgway proposed that the Society should run an educational programme for DIPCs. It was felt that DIPCs were poorly served in terms of tailored HIS educational events. The trainee education model had been successful, and it was agreed that the DIPC events would run in a similar rolling programme format. Fortuitously, David Jenkins, a HIS Council Member, had undertaken a questionnaire survey of DIPCs in 2016. It confirmed that those in the DIPC role were from a mixture of clinical and management backgrounds, and there were knowledge gaps in each area of expertise that needed to be filled.

It was agreed that HIS would support a DIPC Network that would allow the sharing of knowledge and expertise amongst DIPCs. In addition, a DIPC Development Programme was planned to bridge the disparity in knowledge of IPC and managerial skills between DIPCs and Deputy DIPCs. In May 2017, a launch meeting for the HIS DIPC Network took place. The launch event was over-subscribed, which was indicative of the depth of the perceived personal-development gap among those undertaking the DIPC role.

In December 2017, the DIPC Development Programme was launched as a rolling programme of six meetings over three years. More details about the launch and the development of the programme are included in Chapter 4.6. Six DIPC Development Days were organised between 2017 and 2020; the event is now firmly established within the HIS events programme. A new and enthusiastic cohort of over 300 members and non-members who hold, or aspire to hold, a DIPC role have so far been served by HIS DIPC Development Days.

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Chapter 11

HIS today: welcoming the next 40 years

It is not the strongest or the most intelligent who will survive, but those who can best manage change

Leon C Megginson

HIS membership has grown from 200 in 1980, to over 1,150 worldwide in 2020. The body of this book has chartered the adaptations the Society has made to represent, support and champion this expanding membership. This Chapter will look at HIS today, in 2020, and into the future.

11.1: HIS Headquarters

By 2018, it was clear that the Society had outgrown its offices at 162 King's Cross Road (see Chapter 2.4). The Society therefore invested in a new, three-storey, 4,500 square foot building on Wakefield Street, Bloomsbury, London. The building was constructed during 2019-2020 on the site of an old dairy, and was named Montagu House. In March 2020, Montagu House officially became the new headquarters of the Healthcare Infection Society .

The name Montagu House was chosen by HIS Council to honour an important historical figure in infection control: Lady Mary Wortley Montagu.

In 2018, one of the Society's founding members and later President (1998-2002), SWB (Bill) Newsom, bequeathed his extensive collection of medical history books to the Society. Newsom had a passion for the history of medicine, and he greatly admired Montagu (1689-1762) who was an aristocrat, traveller and writer who played an important role in introducing smallpox inoculation to Great Britain in the Eighteenth Century. In his book Infections and their Control, Newsom writes of Montagu:

Figure 11A: Lady Mary Wortley Montagu, by James Hopwood Sr.[1]

> Although [Jenner] rightly gets the credit for the eradication of smallpox, I want to focus on his predecessors who played a significant part in the story. Lady Mary Wortley Montagu was a very talented and outspoken lady.[2]

The Chapter continues with a description the impact of smallpox on Montagu's life: her brother died of the disease, and she later had an attack herself.

Following these two episodes, in 1716 Montagu accompanied her husband to Turkey, where he had been appointed an ambassador. It was in Turkey that Montagu became familiar with the practice of smallpox inoculation. She became so convinced of its value, she had her son inoculated, and on her return to London she persuaded her physician to set up an 'inoculator'. Newsom goes on to say:

> This 'heathen rite' drew antipathetic sermons, together with abuse from the medical faculty. However, Lady Mary persisted and obtained powerful support from Dr Richard Mead (who was a Fellow of the Royal Society and Royal College of Physicians, and a founding governor of the Foundling Museum). In 1721 she

obtained permission for a 'clinical trial' on seven condemned criminals. Thereafter inoculation went from strength to strength. When two members of the royal family underwent the operation successfully, it became the fashion.[2]

There is significant evidence to suggest that Montagu was responsible for the introduction of smallpox inoculation to Britain and Western Europe. Indeed, the collection of medical books and archives bequeathed to the Society by Newsom includes copies of Montagu's letters, the originals of which are located in the Wellcome Library.

Figure 11B: Newsom Library

Figure 11C: Newsom's book collection

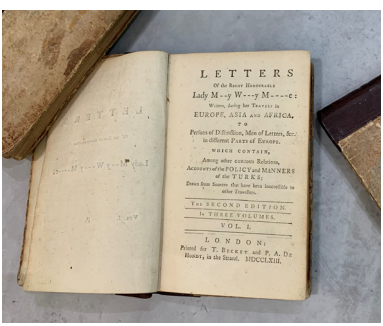

Figure 11D: Lady Montagu's letters

Montagu's descendants, the Bute family, survive today, and the Society acknowledges their permission to name its new headquarters Montagu House. Newsom's collection is on display in the Newsom Library, located within Montagu House. Members of HIS are welcome to view the collection.

Montagu House was purchased with the intention of occupying the lower ground floor and letting the two upper floors to tenants for the purposes of income generation. One impact of the 2020 COVID-19 pandemic has been a shift in the way people and organisations view office-based work. This has led to potential opportunities for the Society to generate income: at the end of 2020, ideas such as creating a 'hub' office which can be rented by the day to a variety of organisations rather than permanently to one are under consideration.

Figure 11E: Montagu House boardroom

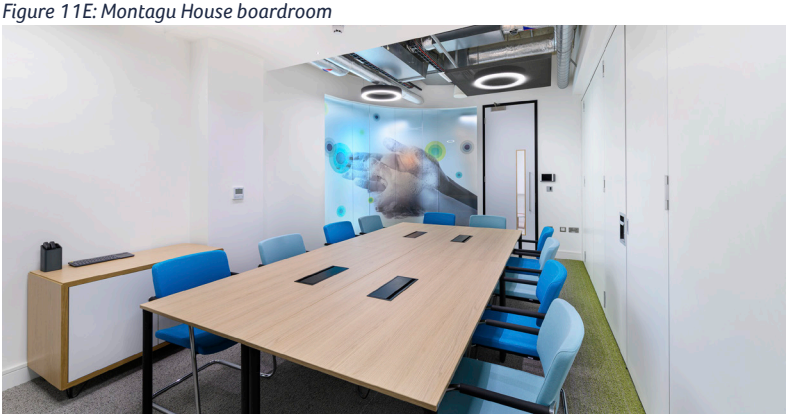

Figure 11F: Montagu House boardroom

Figure 11G: Office space in Montagu House

Figure 11H: Montagu House staff kitchen

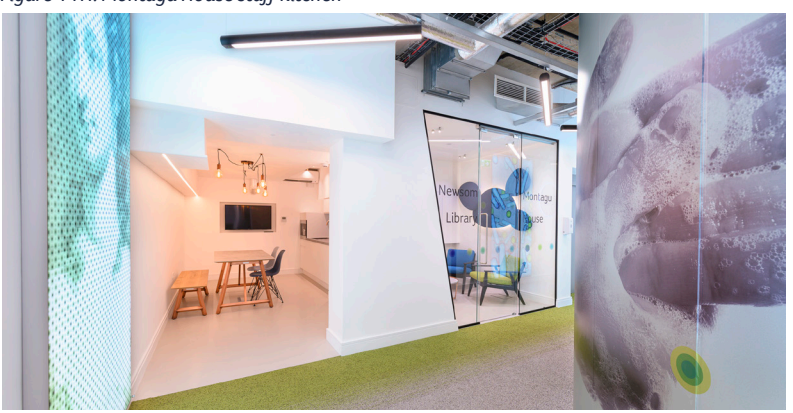

Figure 11I: Montagu House kitchen area and the Newsom Library

11.2: Strategy 2020–2025

HIS Council developed the ambitious *Strategic Plan for 2020-2025* (see Chapter 2.4.3 for earlier strategy), which was published online in September 2019. The current HIS strategy is centred on supporting healthcare professionals to manage, prevent and control healthcare-associated infections. The *Strategic Plan* has five elements:

1: Grow and engage
We will grow our membership, and engage and support our members. We will do this by:

- Expanding our membership categories and benefits for all IPC professionals.
- Developing a membership ambassador programme.
- Championing IPC as a career, and supporting those who chose to follow the infection and healthcare science specialties.
- Continuing to shape our social media strategy to communicate our membership pathway and benefits, engage members and the wider IPC community.
- Creating a strong awareness of our brand, and developing a reputation for excellence, relevance and expertise across all of our activities.

2: Professional development
We will design and deliver a range of expert-led educational activities, grants and resources that will promote the application of clinical best practice, and equip healthcare professionals to reduce the levels of HCAIs, and educate and inform the public. We will do this by:

- Delivering focused, relevant and accessible events and training programmes delivered by experts.
- Developing e-resources that enhance the HIS training events and support the application of clinical best practice.
- Recognising and encouraging outstanding contributions to the field of IPC.
- Promoting professional development by providing career development and training bursaries, and travel grants.
- Awarding grants for IPC education or engagement events run for the public (delivered by hospital/teaching/research staff).

3: Research and guidelines
We will support, develop and communicate research focused on infection prevention and control that will evidence best clinical practice and promote patient safety. We will do this by:

- Developing and reviewing our funding portfolio in order to address gaps in evidence and knowledge.
- Ensure our research funding is focused on HCAIs, and is patient-centred and robust.
- Resourcing the professional production of expert-led guidelines and guidance.
- Maintaining our NICE accredited methodology.
- Continuing to develop and promote the *Journal of Hospital Infection*.
- Developing our new open access journal, *Infection Prevention in Practice*.

4: Collaborate
We will strive to collaborate with like-minded organisations to promote best practice and influence key opinion leaders. We will do this by:

- Developing joint events and working with UK-based and international organisations.
- Facilitating and supporting joint guideline production.
- Developing a reputation as a source of experts who can inform key opinion leaders and organisations.
- Being represented on national and local bodies, on key aspects of IPC and HCAIs.

5: Safeguard
We will safeguard our future through investment and diversification. We will do this by:

- Building a robust and sustainable business model to ensure financial security, continuity and the exploration of new opportunities.
- Valuing and supporting our staff, volunteers and members.

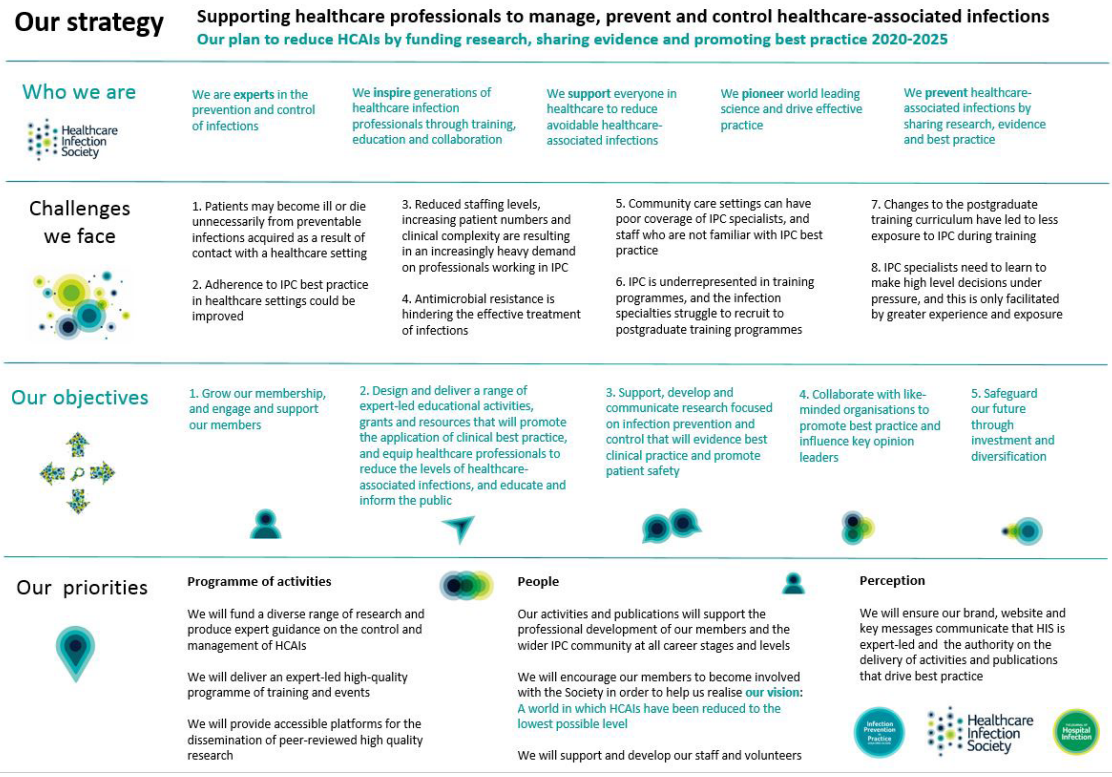

Figure 11J: HIS strategy summary

11.3: Activites to celebrate 40 years

It was the intention that in June 2020 a Special Celebration Event would take place at BMA House, London. However, the celebration was cancelled due to the COVID-19 pandemic which gripped the world throughout 2020. The event is now planned to take place in 2022.

While disappointing that the event could not go ahead, it was fitting that a new challenge in IPC had caught the headlines in the year of the Society's anniversary.

Figure 11K: 40th anniversary logo

As the 40th anniversary year drew to a close, attendees of the 2020 AGM reflected on how, despite the uncertainty regarding the delivery of many planned activities for 2020, the COVID pandemic enabled HIS to demonstrate its resilience. As the outbreak developed the Society immediately adapted its plans, focused on supporting its members and ensuring that the journals could respond to the increased demand in submissions. Although face-to-face events were cancelled, the Society rapidly switched to the delivery of online events and created an audience-led webinar series which has been highly successful, with the format copied by many other organisations.

Figure 11L: COVID-19 Challenges and Solutions *webinar series logo*

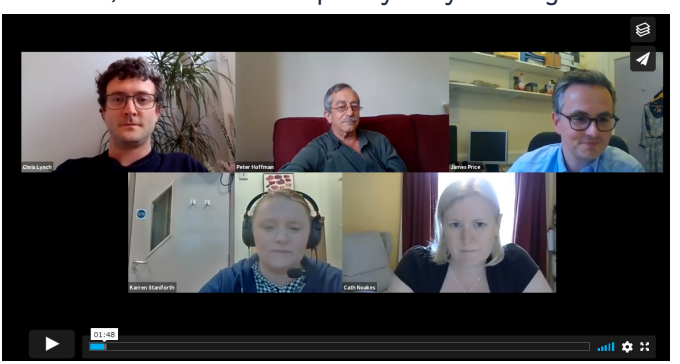

Figure 11M: COVID-19: *Challenges and Solutions 3. Managing ventilation in the context of COVID-19. Top row (L-R): Chris Lynch, Peter N Hoffman, James Price; Bottom row (L-R): Karren Staniforth, Catherine Noakes*

In addition, the first module of the new HIS e-resource *IPC Matters* was launched in October on the topic of specialised ventilation systems. More modules will follow in 2021, and are fitting for an ever-more digitised learning environment.

Figure 11N: IPC Matters *logo*

Figure 11O: IPC Matters page for *'Specialised Ventilation Systems'*

11.4: Looking forward

As stated in the Preface, future members of HIS will not be short of challenges, and will need to combat them in novel ways using the knowledge, expertise and technology available to them.

The Society remains cautiously optimistic that during 2021 control measures for SARS-CoV-2 will allow us to return to organising face-to-face events in some capacity – as this book goes to press, the first vaccines are being administered in the UK. Whatever the future brings, the Society will adapt and continue with our strategy to support

healthcare professionals to manage, prevent and control healthcare-associated infections. No doubt managing change and creatively tackling new problems in IPC will be the Society's top priority over the next 40 years.

However, while the Society today looks forward to another 40 years of success, the previous 40 must not be forgotten. As activist Marcus Garvey so eloquently observed, 'a people without knowledge of their past history, origin and culture is like a tree without roots': it is the aim of the authors of this book to capture the past history and origins of HIS so that future members, Officers and staff feel rooted in the proud history of the Healthcare Infection Society.

References

1. Lady Mary Wortley Montagu by James Hopwood Sr., published by Vernor, Hood & Sharpe, after Christian Friedrich Zincke. Stipple engraving, published 1 May 1811 NPG D14129 © National Portrait Gallery, London.
2. Newsom, SWB. Infections and their Control: A Historical Perspective. London: Sage; 2009. Chapter 9.

Appendix 1: HIS Constitution 1981 and 2020

The Constitution (adopted 9th January 1981)

HOSPITAL INFECTION SOCIETY

CONSTITUTION:

NAME

Hospital Infection Society

OBJECTIVES

The Society aims to promote the dissemination of information and to further the study of hospital associated infection.

RULES

1. Membership

Membership of the Hospital Infection Society shall, at the discretion of the Council, be open to:

a) Medically qualified microbiologists and trainee medical microbiologists working in the field of hospital infection.

b) Other medical graduates who have demonstrated a consistent or continuing interest in hospital infection, by relevant publications, or other means.

c) Microbiologists, with the qualifications of Ph.D or M.R.C. Path, holding positions in hospital laboratories, or holding positions in other laboratories working in the field of hospital infection.

d) Other graduates with a consistent and continuing interest in hospital infection, displayed by the publication of relevant original observations in the literature.

e) In exceptional circumstances membership can be offered to others working in the field of hospital infection.

2. Council and Officers

a) The business of the Society shall be conducted by the Council and Officers of the Society.

b) The Council and Officers consist of a total of 12 members, of which not less than 10 will be medically qualified microbiologists, elected by the ordinary membership of the Society.

c) The tenure of office, or membership of the Council, shall be for 3 years. An individual will not be eligible for re-election for one year.

d) The Officers of the Society shall be a President, Chairman, General Secretary, Meetings Secretary and Hon. Treasurer. All the officers, excluding the President, are member of the Council. The President is elected by the Council and may hold office for up to 3 years.

e) At the discretion of the Council, not more than 2 extra members may be co-opted on to the Council in an advisory capacity only. They should serve for 1 year in the first instance, renewable up to 3 years on an annual basis.

3. Annual General Meetings and Extraordinary Meetings

The A.G.M. shall take place in January each year. Extraordinary General Meetings may be held at the discretion of Council provided there is at least three weeks notice to members.

4. Scientific Meetings

There shall be at least two scientific meetings each year.

Dr D.C. Shanson

Secretary to the Hospital Infection Society

February 1980

Date of constitution (last amended): 09 November 2020

1. Name
The name of the Charitable Incorporated Organisation (the "**CIO**") is the Healthcare Infection Society ("**HIS**").

2. National location of principal office
The CIO must have a principal office in England or Wales. The principal office of the CIO is in England.

3. Objects
The objects of HIS are, for the public benefit, to advance education among the general public and in particular among medical and allied professionals in the prevention and control of hospital and other healthcare associated infections and to promote research in all aspects of that subject and to publish the useful results.
Nothing in this constitution shall authorise an application of the property of HIS for the purposes which are not charitable in accordance with section 7 of the Charities and Trustee Investment (Scotland) Act 2005 and section 2 of the Charities Act (Northern Ireland) 2008.

4. Powers
HIS has power to do anything which is calculated to further its objects or is conducive or incidental to doing so. In particular, HIS's powers include power to:
(1) borrow money and to charge the whole or any part of its property as security for the repayment of the money borrowed. HIS must comply as appropriate with sections 124 and 125 of the Charities Act 2011 if it wishes to mortgage land;
(2) buy, take on lease or in exchange, hire or otherwise acquire any property and to maintain and equip it for use;
(3) sell, lease or otherwise dispose of all or any part of the property belonging to HIS. In exercising this power, HIS must comply as appropriate with sections 117 and 119-123 of the Charities Act 2011;
(4) employ and remunerate such staff as are necessary for carrying out the work of HIS. HIS may employ or remunerate a charity trustee only to the extent that it is permitted to do so by clause 6 (Benefits and payments to charity trustees and connected persons) and provided it complies with the conditions of those clauses;

(5) deposit or invest funds, employ a professional fund-manager, and arrange for the investments or other property of HIS to be held in the name of a nominee, in the same manner and subject to the same conditions as the trustees of a trust are permitted to do by the Trustee Act 2000;
(6) to raise funds. In doing so, the trustees must not undertake any substantial permanent trading activity and must comply with any relevant statutory regulations;
(7) to co-operate with other charities, voluntary bodies and statutory authorities and to exchange information and advice with them;
(8) to establish or support any charitable trusts, associations or institutions formed for any of the charitable purposes included in the Objects;
(9) to acquire, merge with or enter into any partnership or joint venture agreement with any other society formed for any of the Objects;
(10) to set aside income as a reserve against future expenditure but only in accordance with a written policy about reserves;
(11) to obtain and pay for such goods and services as are desirable for carrying out the work of HIS;
(12) to open and operate such bank and other accounts as the trustees consider desirable for the promotion of the Objects and to invest funds and to delegate the management of funds in the same manner and subject to the same conditions as trustees of a trust are permitted to do by the Trustee Act 2000;
(13) to do all such other lawful things as are necessary for the achievement of the objects.
(14) to co-opt members to help with the business of HIS. These members are invited to attend trustee meetings but will not vote; and
(15) to establish standing and other committees and appoint the chairs of those committees.

5. Application of income and property
(1) The income and property of HIS must be applied solely towards the promotion of the objects:

(a) A charity trustee is entitled to be reimbursed from the property of HIS or may pay out of such property reasonable expenses properly incurred by him or her when acting on behalf of HIS.

(b) A charity trustee may benefit from trustee indemnity insurance cover purchased at HIS's expense in accordance with, and subject to the conditions in, section 189 of the Charities Act 2011.
(2) None of the income or property of HIS may be paid or transferred

directly or indirectly by way of dividend, bonus or otherwise by way of profit to any member of HIS. This does not prevent a member who is not also a charity trustee receiving:

(a) a benefit from HIS as a beneficiary of HIS.

(b) reasonable and proper remuneration for any goods or services supplied to HIS.

(3) Nothing in this clause shall prevent a charity trustee or connected person receiving any benefit or payment which is authorised by clause 6.

6. Benefits and payments to charity trustees and connected persons

(1) General provisions

No charity trustee or connected person may:

(a) buy or receive any goods or services from HIS on terms preferential to those applicable to members of the public;

(b) sell goods, services, or any interest in land to HIS;

(c) be employed by, or receive any remuneration from HIS;

(d) receive any other financial benefit from HIS; unless the payment or benefit is permitted by sub-clause (2) of this clause, or authorised by the court or the Charity Commission ("**the Commission**"). In this clause, a "financial benefit" means a benefit, direct or indirect, which is either money or has a monetary value.

(2) Scope and powers permitting trustees' or connected persons' benefits

(a) A charity trustee or connected person may receive a benefit from HIS as a beneficiary of HIS provided that a majority of the trustees do not benefit in this way.

(b) A charity trustee or connected person may enter into a contract for the supply of services, or of goods that are supplied in connection with the provision of services, to HIS where that is permitted in accordance with, and subject to the conditions in, section 185 to 188 of the Charities Act 2011.

(c) Subject to sub-clause (3) of this clause a charity trustee or connected person may provide HIS with goods that are not supplied in connection with services provided to HIS by the charity trustee or connected person.

(d) A charity trustee or connected person may receive interest on money lent to HIS at a reasonable and proper rate which must be not more than the Bank of England bank rate (also known as the base rate).

(e) A charity trustee or connected person may receive rent for premises let by the trustee or connected person to HIS. The amount of the rent and the other terms of the lease must be reasonable and proper. The charity trustee concerned must withdraw from any meeting at which such a proposal or the rent or other terms of the lease are under discussion.

(f) A charity trustee or connected person may take part in the normal trading and fundraising activities of HIS on the same terms as members of the public.

(3) Payment for supply of goods only – controls

HIS and its charity trustees may only rely upon the authority provided by sub-clause (2)(c) of this clause if each of the following conditions is satisfied:

(a) The amount or maximum amount of the payment for the goods is set out in a written agreement between HIS and the charity trustee or connected person supplying the goods ("the supplier").

(b) The amount or maximum amount of the payment for the goods does not exceed what is reasonable in the circumstances for the supply of the goods in question.

(c) The other charity trustees are satisfied that it is in the best interests of HIS to contract with the supplier rather than with someone who is not a charity trustee or connected person. In reaching that decision the charity trustees must balance the advantage of contracting with a charity trustee or connected person against the disadvantages of doing so.

(d) The supplier is absent from the part of any meeting at which there is discussion of the proposal to enter into a contract or arrangement with him or her or it with regard to the supply of goods to HIS.

(e) The supplier does not vote on any such matter and is not to be counted when calculating whether a quorum of charity trustees is present at the meeting.

(f) The reason for their decision is recorded by the charity trustees in the minute book.

(g) A majority of the charity trustees then in office are not in receipt of remuneration or payments authorised by clause 6.

(4) In sub-clauses (2) and (3) of this clause:

(a) "HIS" includes any company in which HIS:

(i) holds more than 50% of the shares; or

(ii) controls more than 50% of the voting rights attached to the shares;

(iii) has the right to appoint one or more directors to the board of the company;

(b) "connected person" includes any person within the definition set out in clause 30 (Interpretation);

7. Conflicts of interest and conflicts of loyalty

A charity trustee must:

(1) declare the nature and extent of any interest, direct or indirect, which he or she has in a proposed transaction or arrangement with HIS or in any transaction or arrangement entered into by HIS which has not previously been declared; and

(2) absent himself or herself from any discussions of the charity trustees in which it is possible that a conflict of interest will arise between his or her duty to act solely in the interests of HIS and any personal interest (including but not limited to any financial interest).

Any charity trustee absenting himself or herself from any discussions in accordance with this clause must not vote or be counted as part of the quorum in any decision of the charity trustees on the matter.

8. Liability of members to contribute to the assets of HIS if it is wound up

If HIS is wound up, the members of HIS have no liability to contribute to its assets and no personal responsibility for settling its debts and liabilities.

9. Membership of HIS

(1) Admission of new members

(a) Eligibility

Membership of HIS is open to anyone who:

(i) is interested in furthering its purposes, and who, by applying for membership, has indicated his, her or its agreement to become a member and acceptance of the duty of members set out in sub-clause (3) of this clause; and

(ii) falls within one or more of the following categories.

Full membership shall, at the discretion of the charity trustees, be open to:

- Medically qualified microbiologists and infectious disease physicians; or
- Microbiologists, with qualifications of PhD or FRCPath, working in

the field of hospital and other healthcare-associated infection; or
- Other graduates (for example, infection prevention and control practitioners, antimicrobial pharmacists or clinical scientists) who have demonstrated a consistent and continuing interest in hospital and other healthcare-associated infection, by relevant publication, or by other means; or
- Others working in the field of hospital and other healthcare-associated infection who have a significant level of experience.

Trainee membership shall be open to:
- UK and Republic of Ireland trainees for the duration of their training. For the purposes of trainee membership, a trainee shall be:
- a doctor on a recognised programme of specialty training in the field of microbiology, virology, infectious diseases or undertaking dual training in these disciplines who has not yet been appointed to a consultant or academic equivalent position (with an academic equivalent position being that of senior lecturer, reader or professor); or
- an experienced clinical scientist who is registered on a Higher Specialist Scientist Training (HSST) programme to become a consultant clinical scientist and who is not already eligible for Full membership via another route; or
- those in core medical training who demonstrate a suitable commitment to infection prevention and control, and who have an interest in/working in the field of hospital and other healthcare-associated infection.
- Each trainee member shall pay a reduced annual fee and will, for the purposes of HIS, be considered a full member and shall have full voting rights but shall be identified in the register of members as a 'trainee member' except that at the end of their training, the trainee member will transfer to the 'full members' list in the register of members. Upon transferring to the 'full members' list in the register of members within six months of receiving their Certificate of Completion of Training, a trainee member shall be required to pay a full membership annual fee.

Associate membership shall, at the discretion of the charity trustees, be open to:
- Anyone working in the field of infection prevention and control in hospital and other healthcare-associated infection who does not

fulfil the criteria for full or trainee membership, who demonstrates commitment to infection, prevention and control, and who have an interest in/working in the field of hospital and other healthcare-associated infection.

- Each associate member shall pay a full annual fee. Associate members will not be eligible to vote at general meetings and will not be eligible for election as a charity trustee. Each associate member shall be identified in the register of members as an 'associate member'.
- Following five years of continuous membership as an associate member, and having demonstrated significant and on-going experience in infection prevention and control, associate members may transfer to the 'full members' list in the register of members.

Emeritus membership will be available for any full member on retiring from his/her professional position following five years of continuous membership as a full member. Emeritus members will not be eligible to vote and will not be eligible for election as a charity trustee. Each emeritus member shall pay a reduced annual fee and shall be identified in the register of members as an 'emeritus member'.

Honorary membership is awarded by Council to an individual who has been nominated (by Council) in recognition of a significant and longstanding commitment to infection prevention and control, and who has worked in the field of hospital and other healthcare-associated infection and who has a clear connection with the Society.
Honorary members will not have or retain any voting rights. Each Honorary member shall not pay an annual fee and shall be identified in the register of members as an 'Honorary member'.

All references in this constitution to "members" and "membership" apply to each category of membership identified above, but in each case subject to any restrictions applying to particular categories of membership in accordance with this constitution.

(b) Admission procedure

The charity trustees:

(i) may require applications for membership to be made in any reasonable way that they decide;

(ii) shall, if they approve an application for membership, notify the applicant of their decision within 21 days;

(iii) may refuse an application for membership or a transfer to a new category of membership, if they believe that it is in the best interests of HIS for them to do so;

(iv) shall, if they decide to refuse an application for membership or a transfer to a new category of membership, give the applicant their reasons for doing so, within 21 days of the decision being taken, and give the applicant the opportunity to appeal against the refusal; and

(v) shall give fair consideration to any such appeal, and shall inform the applicant of their decision, but any decision to confirm refusal of the application for membership shall be final.

(2) Transfer of membership

Membership of HIS cannot be transferred to anyone.

(3) Duty of members

It is the duty of each member of HIS to exercise his or her powers as a member of HIS in the way he or she decides in good faith would be most likely to further the purposes of HIS.

(4) Termination of membership

(a) Membership of HIS comes to an end if:

(i) the member dies; or

(ii) the member sends a notice of resignation to the charity trustees; or

(iii) any sum of money owed by the member to HIS is not paid in full within 56 days of its falling due; or

(iv) the charity trustees decide that it is in the best interests of HIS that the member in question should be removed from membership and pass a resolution to that effect.

(b) Before the charity trustees take any decision to remove someone from membership of HIS they must:

(i) inform the member of the reasons why it is proposed to remove him or her from membership;

(ii) give the member at least 21 clear days' notice in which to make representations to the charity trustees as to why he or she should not be removed from membership;

(iii) at a duly constituted meeting of the charity trustees, consider whether or not the member should be removed from membership;

(iv) consider at that meeting any representations which the member makes as to why the member should not be

removed; and

(v) allow the member, or the member's representative, to make those representations in person at that meeting, if the member so chooses.

(5) Membership fees

HIS may require members to pay reasonable membership fees to HIS.

(6) Informal or non-voting membership

(a) The charity trustees may create other classes of non-voting membership, and may determine the rights and obligations of any such members (including payment of membership fees), and the conditions for admission to, and termination of membership of any such class of members.

(b) References in this constitution to "members" and "membership" do not apply to classes of member created under clause 9(6)(a) and such non-voting members do not qualify as members for any purpose under the Charities Acts, General Regulations or Dissolution Regulations. For the avoidance of doubt, this clause 9(6)(b) does not apply to associate members or emeritus members described in clause 9(1)(a).

10. Members' decisions

(1) General provisions

Except for those decisions that must be taken in a particular way as indicated in sub-clause (4) of this clause, decisions of the members of HIS shall be made by the voting members only and may be taken either by vote at a general meeting as provided in sub-clause (2) of this clause or by written resolution as provided in sub- clause (3) of this clause.

(2) Taking ordinary decisions by vote

Subject to sub-clause (4) of this clause, any decision of the members of HIS may be taken by means of a resolution at a general meeting. Such a resolution may be passed by a simple majority of votes cast at the meeting (including votes cast by postal or email ballot, and proxy votes).

(3) Taking ordinary decisions by written resolution without a general meeting

(a) Subject to sub-clause (4) of this clause, a resolution in writing agreed by a simple majority of all the members who would have been entitled to vote upon it had it been proposed at a general meeting shall be effective, provided that:

(i) a copy of the proposed resolution has been sent to all the members eligible to vote; and

(ii) a simple majority of voting members has signified its

agreement to the resolution in a document or documents which are received at the principal office within the period of 28 days beginning with the circulation date. The document signifying a member's agreement must be authenticated by their signature by a statement of their identity accompanying the document, or in such other manner as HIS has specified.

(b) The resolution in writing may comprise several copies to which one or more voting members have signified their agreement.

(a) Eligibility to vote on the resolution is limited to members who are voting members of HIS on the date when the proposal is first circulated in accordance with paragraph (a) above.

(b) Not less than 10% of the voting members of HIS may request the charity trustees to make a proposal for decision by the members.

(c) The charity trustees must within 21 days of receiving such a request comply with it if:

(i) The proposal is not frivolous or vexatious, and does not involve the publication of defamatory material;

(ii) The proposal is stated with sufficient clarity to enable effect to be given to it if it is agreed by the members; and

(iii) Effect can lawfully be given to the proposal if it is so agreed.

(d) Sub-clauses (a) to (c) of this clause apply to a proposal made at the request of members.

(4) Decisions that must be taken in a particular way

(a) Any decision to amend this constitution must be taken in accordance with clause 28 of this constitution (Amendment of constitution).

(b) Any decision to wind up or dissolve HIS must be taken in accordance with clause 29 of this constitution (Voluntary winding up or dissolution). Any decision to amalgamate or transfer the undertaking of HIS to one or more other CIOs must be taken in accordance with the provisions of the Charities Act 2011.

11. General meetings of members

(1) Types of general meeting

There must be an annual general meeting (AGM) of the voting members of HIS. The first AGM must be held within 18 months of the registration of HIS, and subsequent AGMs must be held at intervals of not more than 15 months. The AGM must receive the annual statement of accounts (duly audited or examined where applicable) and the trustees' annual report and must elect trustees as required

under clause 13.
Other general meetings of the members of HIS may be held at any time.
All general meetings must be held in accordance with the following provisions.
(2) Calling general meetings
(a) The charity trustees:
(i) must call the annual general meeting of the voting members of HIS in accordance with sub-clause (1) of this clause, and identify it as such in the notice of the meeting; and
(ii) may call any other general meeting of the members at any time.
(b) The charity trustees must, within 21 days, call a general meeting of the voting members of HIS if:
(i) they receive a request to do so from at least 10% of the voting members of HIS; and
(ii) the request states the general nature of the business to be dealt with at the meeting and is authenticated by the member(s) making the request.
(c) If, at the time of any such request, there has not been any general meeting of the voting members of HIS for more than 12 months, then sub-clause (b)(i) of this clause shall have effect as if 5% were substituted for 10%.
(d) Any such request may include particulars of a resolution that may properly be proposed, and is intended to be proposed, at the meeting.
(e) A resolution may only properly be proposed if it is lawful, and is not defamatory, frivolous or vexatious.
(f) Any general meeting called by the charity trustees at the request of the voting members of HIS must be held within 28 days from the date on which it is called.
(g) If the charity trustees fail to comply with this obligation to call a general meeting at the request of its voting members, then the members who requested the meeting may themselves call a general meeting.
(h) A general meeting called in this way must be held not more than three months after the date when the members first requested the meeting.
(i) HIS must reimburse any reasonable expenses incurred by the members calling a general meeting by reason of the failure of the

charity trustees to duly call the meeting, but HIS shall be entitled to be indemnified by the charity trustees who were responsible for such failure.

(3) Notice of general meetings

(a) The charity trustees, or, as the case may be, the relevant members of HIS, must give at least 21 clear days' notice of any general meeting to all of the voting members, and to any charity trustee of HIS who is not a voting member. The charity trustees may, at their discretion, invite any or all of the non voting members to attend at any general meeting provided that any notice of invitation to such non voting members need not comply with the formalities set out in this clause 11 (3) (a).

(b) If it is agreed by not less than 90% of all voting members of HIS, any resolution may be proposed and passed at the meeting even though the requirements of sub-clause (3)(a) of this clause have not been met. This sub-clause does not apply where a specified period of notice is strictly required by another clause in this constitution, by the Charities Act 2011 or by the General Regulations.

(c) The notice of any general meeting must:

(i) state the time and date of the meeting:

(ii) give the address at which the meeting is to take place;

(iii) give particulars of any resolution which is to be moved at the meeting, and of the general nature of any other business to be dealt with at the meeting; and

(iv) if a proposal to alter the constitution of HIS is to be considered at the meeting, include the text of the proposed alteration;

(v) include, with the notice for the AGM, the annual statement of accounts and trustees' annual report, details of persons standing for election or re- election as trustee, or where allowed under clause 22 (Use of electronic communication), details of where the information may be found on HIS's website.

(d) Proof that an envelope containing a notice was properly addressed, prepaid and posted; or that an electronic form of notice was properly addressed and sent, shall be conclusive evidence that the notice was given. Notice shall be deemed to be given 48 hours after it was posted or sent.

(e) The proceedings of a meeting shall not be invalidated because

a member who was entitled to receive notice of the meeting did not receive it because of accidental omission by HIS.

(4) Chairing of general meetings

General meetings shall be chaired by the chairman of HIS. If the chairman is not present, a trustee nominated by the charity trustees shall chair the meeting. If there is only one trustee present and willing to act, he or she shall chair the meeting. If no trustee is present and willing to chair the meeting within fifteen minutes after the time appointed for holding it, the members present and entitled to vote must choose one of their number to chair the meeting.

(5) Quorum at general meetings

(a) No business may be transacted at any general meeting of the members of HIS unless a quorum is present when the meeting starts.

(b) Subject to the following provisions, the quorum for general meetings shall be 10 voting members in addition to any charity trustees who may be present.

(c)If the meeting has been called by or at the request of the members and a quorum is not present within 15 minutes of the starting time specified in the notice of the meeting, the meeting is closed.

(d) If the meeting has been called in any other way and a quorum is not present within 15 minutes of the starting time specified in the notice of the meeting, the chair must adjourn the meeting. The date, time and place at which the meeting will resume must be notified to HIS's voting members at least seven clear days before the date on which it will resume.

(e) If a quorum is not present within 15 minutes of the start time of the adjourned meeting, the voting member or voting members present at the meeting constitute a quorum.

(f) If at any time during the meeting a quorum ceases to be present, the meeting may discuss issues and make recommendations to the trustees but may not make any decisions. If decisions are required which must be made by a meeting of the members, the meeting must be adjourned.

(6) Voting at general meetings

(a) Any decision other than one falling within clause 10(4) (Decisions that must be taken in a particular way) shall be taken by a simple majority of votes cast at the meeting (including proxy and postal votes). Every voting member has one vote unless otherwise provided in the rights of a particular class of membership under

this constitution.

(b) A resolution put to the vote of a meeting shall be decided on a show of hands, unless (before or on the declaration of the result of the show of hands) a poll is duly demanded. A poll may be demanded by the chair or by at least 10% of the voting members present in person or by proxy at the meeting.

(c) A poll demanded on the election of a person to chair the meeting or on a question of adjournment must be taken immediately. A poll on any other matter shall be taken, and the result of the poll shall be announced, in such manner as the chair of the meeting shall decide, provided that the poll must be taken, and the result of the poll announced, within 30 days of the demand for the poll.

(d) A poll may be taken:

(i) at the meeting at which it was demanded; or

(ii) at some other time and place specified by the chair; or

(iii) through the use of postal or electronic communications.

(e) In the event of an equality of votes, whether on a show of hands or on a poll, the chair of the meeting shall have a second, or casting vote.

(f) Any objection to the qualification of any voter must be raised at the meeting at which the vote is cast and the decision of the chair of the meeting shall be final.

(7) Adjournment of meetings

The chair may with the consent of a meeting at which a quorum is present (and shall if so directed by the meeting) adjourn the meeting to another time and/or place. No business may be transacted at an adjourned meeting except business which could properly have been transacted at the original meeting.

(8) Proxy voting

(a) Any voting member of HIS may appoint another person as a proxy to exercise all or any of that member's rights to attend, speak and vote at a general meeting of HIS. Proxies must be appointed by a notice in writing (a "**proxy notice**") which:

(i) states the name and address of the member appointing the proxy;

(ii) identifies the person appointed to be that member's proxy and the general meeting in relation to which that person is appointed;

(iii) is signed by or on behalf of the member appointing the proxy, or is authenticated in such manner as HIS may determine; and

(iv) is delivered to HIS in accordance with the constitution and any instructions contained in the notice of the general meeting to which they relate.

(b) HIS may require proxy notices to be delivered in a particular form and may specify different forms for different purposes.

(c) Proxy notices may (but do not have to) specify how the proxy appointed under them is to vote (or that the proxy is to abstain from voting) on one or more resolutions.

(d) Unless a proxy notice indicates otherwise, it must be treated as:

(i) allowing the person appointed under it as a proxy discretion as to how to vote on any ancillary or procedural resolutions put to the meeting; and

(ii) appointing that person as a proxy in relation to any adjournment of the general meeting to which it relates as well as the meeting itself.

(e) A member who is entitled to attend, speak or vote (either on a show of hands or on a poll) at a general meeting remains so entitled in respect of that meeting or any adjournment of it, even though a valid proxy notice has been delivered to HIS by or on behalf of that member.

(f) An appointment under a proxy notice may be revoked by delivering to HIS a notice in writing given by or on behalf of the member by whom or on whose behalf the proxy notice was given.

(g) A notice revoking a proxy appointment only takes effect if it is delivered before the start of the meeting or adjourned meeting to which it relates.

(h) If a proxy notice is not signed or authenticated by the member appointing the proxy, it must be accompanied by written evidence that the person who signed or authenticated it on that member's behalf had authority to do so.

(9) Postal Voting

(a) HIS may, if the charity trustees so decide, allow the voting members to vote by post or electronic mail ("**email**") to elect charity trustees or to make a decision on any matter that is being decided at a general meeting of the members.

(b) The charity trustees must appoint at least two persons independent of HIS to serve as scrutineers to supervise the conduct of the postal/email ballot and the counting of votes.

(c) If postal and/or email voting is to be allowed on a matter, HIS must send to voting members of HIS not less than 21 days before the deadline for receipt of votes cast in this way:

(i) a notice by email, if the member has agreed to receive notices in this way under clause 22 (Use of electronic communication), including an explanation of the purpose of the vote and the voting procedure to be followed by the member, and a voting form capable of being returned by email or post to HIS, containing details of the resolution being put to a vote, or of the candidates for election, as applicable;

(ii) a notice by post to all other voting members, including a written explanation of the purpose of the postal vote and the voting procedure to be followed by the member; and a postal voting form containing details of the resolution being put to a vote, or of the candidates for election, as applicable.

(d) The voting procedure must require all forms returned by post to be in an envelope with the member's name and signature, and nothing else, on the outside, inside another envelope addressed to 'The Scrutineers for the Healthcare Infection Society', at HIS's principal office or such other postal address as is specified in the voting procedure.

(e) The voting procedure for votes cast by email must require the member's name to be at the top of the email, and the email must be authenticated in the manner specified in the voting procedure.

(f) Email votes must be returned to an email address used only for this purpose and must be accessed only by a scrutineer.

(g) The voting procedure must specify the closing date and time for receipt of votes, and must state that any votes received after the closing date or not complying with the voting procedure will be invalid and not be counted.

(h) The scrutineers must make a list of names of members casting valid votes, and a separate list of members casting votes which were invalid. These lists must be provided to a charity trustee or other person overseeing admission to, and voting at, the general meeting. A member who has cast a valid postal or email vote must not vote at the meeting, and must not be counted in the quorum for any part of the meeting on which he, she or it has already cast a valid vote. A voting member who has cast an invalid vote by post or email is allowed to vote at the meeting and counts towards the quorum.

(i) For postal votes, the scrutineers must retain the internal envelopes (with the member's name and signature). For email votes, the scrutineers must cut off and retain any part of

the email that includes the member's name. In each case, a scrutineer must record on this evidence of the member's name that the vote has been counted, or if the vote has been declared invalid, the reason for such declaration.

(j) Votes cast by post or email must be counted by all the scrutineers before the meeting at which the vote is to be taken. The scrutineers must provide to the person chairing the meeting written confirmation of the number of valid votes received by post and email and the number of votes received which were invalid.

(k) The scrutineers must not disclose the result of the postal/email ballot until after votes taken by hand or by poll at the meeting, or by poll after the meeting, have been counted. Only at this point shall the scrutineers declare the result of the valid votes received, and these votes shall be included in the declaration of the result of the vote.

(l) Following the final declaration of the result of the vote, the scrutineers must provide to a charity trustee or other authorised person bundles containing the evidence of members submitting valid postal votes; evidence of members submitting valid email votes; evidence of invalid votes; the valid votes; and the invalid votes.

(l) Any dispute about the conduct of a postal or email ballot must be referred initially to a panel set up by the charity trustees, to consist of two trustees and two persons independent of HIS. If the dispute cannot be satisfactorily resolved by the panel, it must be referred to the Electoral Reform Society.

(10) Participation in general meetings by electronic means

(a) A general meeting may be held by suitable electronic means agreed by the charity trustees, in which each participant may communicate with all the other participants.

(b) Any charity member participating at a general meeting by suitable electronic means agreed by the charity trustees, in which a participant or participants may communicate with all the other participants, shall qualify as being present at the meeting.

(c) Meetings held by electronic means must comply with rules for general meetings, including chairing and the taking of minutes.

12. Charity trustees

(1) Functions and duties of charity trustees

The charity trustees shall manage the affairs of HIS and may for that purpose exercise all the powers of HIS. It is the duty of each charity

trustee:

(a) to exercise his or her powers and to perform his or her functions as a trustee of HIS in the way he or she decides in good faith would be most likely to further the purposes of HIS; and

(b) to exercise, in the performance of those functions, such care and skill as is reasonable in the circumstances having regard in particular to:

(i) any special knowledge or experience that he or she has or holds himself or herself out as having; and

(ii) if he or she acts as a charity trustee of HIS in the course of a business or profession, to any special knowledge or experience that it is reasonable to expect of a person acting in the course of that kind of business or profession.

(2) Eligibility for trusteeship

(a)Every charity trustee must be a natural person.

(b) No one may be appointed as a charity trustee:

- if he or she is under the age of 16 years; or
- if he or she would automatically cease to hold office under the provisions of clause 15(e).

(c) No one is entitled to act as a charity trustee whether on appointment or on any re-appointment until he or she has expressly acknowledged, in whatever way the charity trustees decide, his or her acceptance of the office of charity trustee.

(d) At least one of the trustees of HIS must be 18 years of age or over. If there is no trustee aged at least 18 years, the remaining trustee or trustees may act only to call a meeting of the charity trustees or appoint a new charity trustee.

(e) There must be at least 75% of charity trustees (rounded up to the nearest whole number), excluding the president and lay trustee, who are medically qualified microbiologists or infectious disease physicians.

(f) Every charity trustee must be a member of HIS, with the exception of the lay trustee.

(3) Number of charity trustees

(a) There must be at least six charity trustees. If the number falls below this minimum, the remaining trustees may act only to call a meeting of the charity trustees or appoint a new charity trustee.

(b) The maximum number of charity trustees is 13, included in which should be a maximum of seven elected trustees. The charity trustees may not appoint any charity trustee if as a result the number of charity trustees would exceed the maximum

13. Appointment of charity trustees

(1) Elected charity trustees

(a) Subject to any earlier retirement dates expressed to apply to those persons appointed as the first charity trustees under clause 12(4) above, each elected charity trustee shall retire at the third annual general meeting following his/her appointment. However, if more than two are due to retire in the same year, the charity trustees can agree to extend the term of any retiring elected charity trustee for a maximum of one year.

(b) The vacancies arising when an elected charity trustee retires at the end of his or her term may be filled by the decision of the members at the annual general meeting; any vacancies not filled at the annual general meeting may be filled as provided in sub-clause (c) of this clause;

(c) The members or charity trustees may at any time decide to appoint a new charity trustee, whether in place of a charity trustee who has retired or been removed in accordance with clause 15 (Retirement and removal of charity trustees), or as an additional charity trustee, provided that the limit specified in clause 12(3) on the number of charity trustees would not as a result be exceeded;

(d) A person so appointed by the members of HIS shall retire in accordance with the provisions of sub-clause (a) of this sub-clause (1). A person so appointed by the charity trustees shall retire at the conclusion of the annual general meeting next following the date of his appointment.

(2) Ex officio charity trustees

The president, chairman, secretary, treasurer and editor in chief of the JHI for the time being ("**the office holders**") shall each automatically, by virtue of holding that office ("**ex officio**"), be a charity trustee. The president, chairman, secretary and treasurer shall be known as officers. Subject to any earlier retirement dates expressed to apply to those persons appointed as the first charity trustees under clause 12 (4) above:

(a) an ex officio charity trustee who holds office as president shall retire at the fourth annual general meeting following his/her appointment;

(b) an ex officio charity trustee who holds office as chairman, secretary or treasurer shall retire at the third annual general meeting following his/her appointment; and

(c) an ex officio charity trustee who holds office as editor in chief of the JHI shall be appointed for a term of 3 years or until such time

as he or she ceases to hold office as editor in chief, whichever is shorter.

If unwilling to act as a charity trustee, the office holder may:

(a) before accepting appointment as a charity trustee, give notice in writing to the trustees of his or her unwillingness to act in that capacity; or

(b) after accepting appointment as a charity trustee, resign under the provisions contained in clause 15 (Retirement and removal of charity trustees).

The office of ex officio charity trustee will then remain vacant until the office holder ceases to hold office.

14. Information for new charity trustees

The charity trustees will make available to each new charity trustee, on or before his or her first appointment:

(a) a copy of this constitution and any amendments made to it; and

(b) a copy of HIS's latest trustees' annual report and statement of accounts.

15. Retirement and removal of charity trustees

A charity trustee ceases to hold office if he or she:

(a) retires by notifying HIS in writing (but only if enough charity trustees will remain in office when the notice of resignation takes effect to form a quorum for meetings);

(b) is absent without the permission of the charity trustees from all their meetings held within a period of 12 months and the trustees resolve that his or her office be vacated;

(c) dies;

(d) in the written opinion, given to HIS, of a registered medical practitioner treating that person, has become physically or mentally incapable of acting as a director and may remain so for more than three months;

(e) is disqualified from acting as a charity trustee by virtue of section 178-180 of the Charities Act 2011 (or any statutory re-enactment or modification of that provision); or

(f) ceases to be a member of HIS.

16. Reappointment of charity trustees

(a) Any person who retires as a charity trustee by virtue of the expiry of the term of his or her appointment or by giving notice to

HIS is only eligible for reappointment under the following terms.
(b) Ex officio charity trustees who hold office as chairman, treasurer or secretary are eligible for reappointment as ex officio charity trustees by virtue of holding the same office but only for one further term and so, if reappointed, shall retire at the third annual general meeting following his/her reappointment. Except for reappointment in accordance with this clause 16(b), such persons shall not be eligible to be an ex officio charity trustee again by virtue of holding any office held previously.
(c) Ex officio charity trustees who hold office as president shall not be eligible at any time for reappointment as an ex officio charity trustee by virtue of holding that office.
(d) Ex officio charity trustees who hold office as editor in chief are eligible for reappointment as ex officio charity trustee by virtue of holding the same office, for two further terms of 2 years each
(e) or until such time as he or she ceases to hold office as editor in chief, whichever is shorter. Except for reappointment in accordance with this clause 16(d), he or she shall not be eligible to be an ex officio charity trustee again by virtue of holding the office of editor in chief.
(f) Elected charity trustees may be re-elected after an interval of no less than one year or can have their term extended under clause 13(1)(a).
(g) A nominated charity trustee is not eligible for reappointment.

17. Taking of decisions by charity trustees

Any decision may be taken either:

- at a meeting of the charity trustees; or
- by resolution in writing or electronic form agreed by all of the charity trustees, which may comprise either a single document or several documents containing the text of the resolution in like form to each of which one or more charity trustees has signified their agreement.

18. Delegation by charity trustees

(1) The charity trustees may delegate any of their powers or functions to a committee or committees, such as the International Conference Organising Committee, and, if they do, they must determine the terms and conditions on which the delegation is made. The charity trustees may at any time alter those terms and conditions, or revoke the delegation.

(2) This power is in addition to the power of delegation in the General Regulations and any other power of delegation available to the charity trustees, but is subject to the following requirements:

(a) a committee may consist of two or more persons, but at least one member of each committee must be a charity trustee;

(b) the acts and proceedings of any committee must be brought to the attention of the charity trustees as a whole as soon as is reasonably practicable; and

(c) the charity trustees shall from time to time review the arrangements which they have made for the delegation of their powers.

19. Meetings and proceedings of charity trustees

(1) Calling meetings

(a) Any charity trustee may call a meeting of the charity trustees.

(b) Subject to that, the charity trustees shall decide how their meetings are to be called, and what notice is required.

(2) Chairing of meetings

The chairman (referred to in clause 13(2)) will chair trustee meetings. If the chair cannot attend, the meeting will be chaired by one of the other officers. If none of the officers are present, the charity trustees present may appoint one of their number to chair that meeting.

(3) Procedure at meetings

(a) No decision shall be taken at a meeting unless a quorum is present at the time when the decision is taken. The quorum is four charity trustees, or the number nearest to one third of the total number of charity trustees, whichever is greater, or such larger number as the charity trustees may decide from time to time. A charity trustee shall not be counted in the quorum present when any decision is made about a matter upon which he or she is not entitled to vote.

(b) Questions arising at a meeting shall be decided by a majority of those eligible to vote.

(c) In the case of an equality of votes, the chair shall have a second or casting vote.

(4) Participation in meetings by electronic means

(d) A meeting may be held by suitable electronic means agreed by the charity trustees, in which each participant may communicate with all the other participants.

(e) Any charity trustee participating at a meeting by suitable electronic means agreed by the charity trustees, in which a

participant or participants may communicate with all the other participants, shall qualify as being present at the meeting.

(f) Meetings held by electronic means must comply with rules for meetings, including chairing and the taking of minutes.

20. Saving provisions

(1) Subject to sub-clause (2) of this clause, all decisions of the charity trustees, or of a committee of charity trustees, shall be valid notwithstanding the participation in any vote of a charity trustee:

- who was disqualified from holding office;
- who had previously retired or who had been obliged by the constitution to vacate office;
- who was not entitled to vote on the matter, whether by reason of conflict of interest or otherwise;

if, without the vote of that charity trustee and that charity trustee being counted in the quorum, the decision has been made by a majority of the charity trustees at a quorate meeting.

(2) Sub-clause (1) of this clause does not permit a charity trustee to keep any benefit that may be conferred upon him or her by a resolution of the charity trustees or of a committee of charity trustees if, but for clause (1), the resolution would have been void, or if the charity trustee has not complied with clause 7 (Conflicts of interest).

21. Execution of documents

(1) HIS shall execute documents either by signature or by affixing its seal (if it has one).

(2) A document is validly executed by signature if it is signed by at least two of the charity trustees.

(3) If HIS has a seal:

(a) it must comply with the provisions of the General Regulations; and

(b) it must only be used by the authority of the charity trustees or of a committee of charity trustees duly authorised by the charity trustees. The charity trustees may determine who shall sign any document to which the seal is affixed and unless otherwise determined it shall be signed by two charity trustees.

22. Use of electronic communications

(1) General

HIS will comply with the requirements of the Communications Provisions in the General Regulations and in particular:

(a) the requirement to provide within 21 days to any member on request a hard copy of any document or information sent to the member otherwise than in hard copy form;

(b) any requirements to provide information to the Commission in a particular form or manner.

(2) To HIS

Any member or charity trustee of HIS may communicate electronically with HIS to an address specified by HIS for the purpose, so long as the communication is authenticated in a manner which is satisfactory to HIS.

(3) By HIS

(a) Any member or charity trustee of HIS, by providing HIS with his or her email address or similar, is taken to have agreed to receive communications from HIS in electronic form at that address, unless the member has indicated to HIS his or her unwillingness to receive such communications in that form.

(b) The charity trustees may, subject to compliance with any legal requirements, by means of publication on its website:

(i) provide the members with the notice referred to in clause 11(3) (Notice of general meetings);

(ii) give charity trustees notice of their meetings in accordance with clause 19(1) (Calling meetings); and

(iii) submit any proposal to the members or charity trustees for decision by written resolution or postal vote in accordance with HIS's powers under clause 10 (Members' decisions), 10(3) (Decisions taken by resolution in writing), or 11(9) (Postal voting).

(c) The charity trustees must:

(i) take reasonable steps to ensure that members and charity trustees are promptly notified of the publication of any such notice or proposal;

(ii) send any such notice or proposal in hard copy form to any member or charity trustee who has not consented to receive communications in electronic form.

23. Keeping of Registers

HIS must comply with its obligations under the General Regulations in relation to the keeping of, and provision of access to, registers of its members and charity trustees.

24. Minutes

The charity trustees must keep minutes of all:

(1) appointments of officers made by the charity trustees;

(2) proceedings at general meetings of HIS;

(3) meetings of the charity trustees and committees of charity trustees including:

- the names of the trustees present at the meeting;
- the decisions made at the meetings; and
- where appropriate the reasons for the decisions;

(4) decisions made by the charity trustees otherwise than in meetings.

25. Accounting records, accounts, annual reports and returns, register maintenance

(1) The charity trustees must comply with the requirements of the Charities Act 2011 with regard to the keeping of accounting records, to the preparation and scrutiny of statements of accounts, and to the preparation of annual reports and returns. The statements of accounts, reports and returns must be sent to the Commission, regardless of the income of HIS, within 10 months of the financial year end.

(2) The charity trustees must comply with their obligation to inform the Commission within 28 days of any change in the particulars of HIS entered on the Central Register of Charities.

26. Rules

The charity trustees may from time to time make such reasonable and proper rules or bye laws as they may deem necessary or expedient for the proper conduct and management of HIS, but such rules or bye laws must not be inconsistent with any provision of this constitution. Copies of any such rules or bye laws currently in force must be made available to any member of HIS on request.

The rules may regulate the following matters but are not restricted to them:

(a) the admission of members and the rights and privileges of such members and their subscription and other fees or payments;

(b) the conduct of members in relation to one another and to HIS's employees;

(c) the setting aside of the whole or any part or parts of HIS's premises at any particular time or times or for any particular purpose or purposes;

(d) the procedure at general meetings and meetings of the

charity trustees in so far as such procedure is not regulated by the Constitution;
(e) the keeping and authenticating of records; and
(f) generally, all such matters as are commonly the subject matter of the rules of a charitable organisation.

HIS in general meeting has the power to alter, add to or repeal the rules.

The charity trustees must adopt such means as they think sufficient to bring the rules to the notice of members of HIS.

The rules shall be binding on all members of HIS. No rule shall be inconsistent with, or shall affect or repeal anything contained in this Constitution.

27. Disputes
If a dispute arises between members of HIS about the validity or propriety of anything done by the members under this constitution, and the dispute cannot be resolved by agreement, the parties to the dispute must first try in good faith to settle the dispute by mediation before resorting to litigation.

28. Amendment of constitution
As provided by clauses 224-227 of the Charities Act 2011:
(1) This constitution can only be amended:
(a) by resolution agreed in writing by all members of HIS; or
(b) by a resolution passed by a 75% majority of votes cast at a general meeting of the members of HIS.
(2) Any alteration of clause 3 (Objects), clause 29 (Voluntary winding up or dissolution), this clause, or of any provision where the alteration would provide authorisation for any benefit to be obtained by charity trustees or members of HIS or persons connected with them, requires the prior written consent of the Charity Commission.
(3) No amendment that is inconsistent with the provisions of the Charities Act 2011 or the General Regulations shall be valid.
(4) A copy of any resolution altering the constitution, together with a copy of HIS's constitution as amended, must be sent to the Commission within 15 days from the date on which the resolution is passed. The amendment does not take effect until it has been recorded in the Register of Charities.

29. Voluntary winding up or dissolution

(1) As provided by the Dissolution Regulations, HIS may be dissolved by resolution of its members. Any decision by the members to wind up or dissolve HIS can only be made:

(a) at a general meeting of the members of HIS called in accordance with clause 11 (Meetings of members), of which not less than 21 days' notice has been given to those eligible to attend and vote:

(i) by a resolution passed by a 75% majority of those voting, or

(ii) by a resolution passed by decision taken without a vote and without any expression of dissent in response to the question put to the general meeting; or

(b) by a resolution agreed in writing by all members of HIS.

(2) Subject to the payment of all HIS's debts:

(a) Any resolution for the winding up of HIS, or for the dissolution of HIS without winding up, may contain a provision directing how any remaining assets of HIS shall be applied.

(b) If the resolution does not contain such a provision, the charity trustees must decide how any remaining assets of HIS shall be applied.

(c) In either case the remaining assets must be applied for charitable purposes the same as or similar to those of HIS.

(3) HIS must observe the requirements of the Dissolution Regulations in applying to the Commission for HIS to be removed from the Register of Charities, and in particular:

(a) the charity trustees must send with their application to the Commission:

(i) a copy of the resolution passed by the members of HIS;

(ii) a declaration by the charity trustees that any debts and other liabilities of HIS have been settled or otherwise provided for in full; and

(iii) a statement by the charity trustees setting out the way in which any property of HIS has been or is to be applied prior to its dissolution in accordance with this constitution;

(b) the charity trustees must ensure that a copy of the application is sent within seven days to every member and employee of HIS, and to any charity trustee of HIS who was not privy to the application.

(4) If HIS is to be wound up or dissolved in any other circumstances, the provisions of the Dissolution Regulations must be followed.

30. Interpretation

In this constitution:

"**connected person**" means:

(a) a child, parent, grandchild, grandparent, brother or sister of the charity trustee;

(b) the spouse or civil partner of the charity trustee or of any person falling within sub-clause (a) above;

(c) a person carrying on business in partnership with the charity trustee or with any person falling within sub- clause (a) or (b) above;

(d) an institution which is controlled:

(i) by the charity trustee or any connected person falling within sub-clause (a), (b), or (c) above; or

(ii) by two or more persons falling within sub-clause (d)(i), when taken together

(e) a body corporate in which:

(i) the charity trustee or any connected person falling within sub-clauses (a) to (c) has a substantial interest; or

(ii) two or more persons falling within sub-clause (e)(i) who, when taken together, have a substantial interest.

Section 118 of the Charities Act 2011 apply for the purposes of interpreting the terms used in this constitution.

"**General Regulations**" means the Charitable Incorporated Organisations (General) Regulations 2012.

"**Dissolution Regulations**" means the Charitable Incorporated Organisations (Insolvency and Dissolution) Regulations 2012.

The "**Communications Provisions**" means the Communications Provisions in Part 10, Chapter 4 of the General Regulations.

"**Charity Trustee**" means a charity trustee of HIS.

A "**Poll**" means a counted vote or ballot, usually (but not necessarily) in writing.

Appendix 2: Past Officers and Chairs

Presidents

1980 – 1984	EJL Lowbury
1984 – 1988	MT Parker
1988 – 1994	GAJ Ayliffe
1994 – 1998	DCE Speller
1998 – 2002	SWB Newsom
2002 – 2006	AM Emmerson
2006 – 2010	GL Ridgway
2010 – 2014	TRF Rogers
2014 – 2018	GL French
2018 – present	H Humpreys

Chairs

1980 – 1983	GAJ Ayliffe
1984 – 1987	DC Shanson
1987 – 1990	MW Casewell
1990 – 1993	AM Emmerson
1993 – 1996	RH George
1996 – 1998	TRF Rogers
1999 – 2001	GL French
2001 – 2007	RC Spencer
2007 – 2011	AP Fraise
2011 – 2015	T Boswell
2015 – Present	E Ridgway

Secretaries

1980 – 1983	DC Shanson
1983 – 1986	MC Kelsey
1986 – 1989	AJ Howard
1989 – 1992	RC Spencer
1992 – 1993	D McGhie
1993 – 1996	F Falkiner
1996 – 1999	M Wilcox
1999 – 2005	M Greig

2005 – 2006	J Richards
2006 – 2009	A Eastaway
2009 – 2015	C Fry
2015 – Present	P Jenks

Scientific Secretaries

1980 – 1982	MW Casewell
1982 – 1984	RH George
1984 – 1987	TRF Rogers
1987 – 1990	PJ Wilkinson
1990 – 1993	S Mehtar
1993 – 1997	GM Scott
1997 – 2003	J Richards
2003 – 2005	ETM Smyth
2005 – 2011	T Boswell

Treasurers

1980 – 1984	PD Meers
1984 – 1988	SWB Newsom
1988 – 1999	MC Kelsey
1999 – 2005	AP Fraise
2005 – 2008	M Greig
2008 – 2014	WA Telfer Brunton
2014 – 2017	A Colville
2017 – 2020	R Cunningham
2020 - Present	C Settle

Editors-in-Chief of the Journal of Hospital Infection

1980 – 1985	GAJ Ayliffe
1985 – 1988	PJ Sanderson
1989 – 1993	TRF Rogers
1993 – 1998	GL French
1998 – 2005	SP Barrett
2005 – 2010	S Dancer
2010 – 2015	J Child
2015 – Present	J Gray

Lead Editors Infection Prevention in Practice

2019 – Present	J Gray
	N Mahida
	G Winzor
Editor-in-Chief 2020 onwards	G Winzor

Honorary Archivists

1989 – 1992	PJ Sanderson
2018 – Present	RC Spencer

HIS Council 2020

In addition to Officers and the Editor-in-Chief:

Ordinary Council Members
Karren Staniforth
Gemma Wheldon
Andrea Parsons (Lay member)
Jyothi Rao
Co-opted members
Claire Haill

Committee Chairs
James Price (Professional Development Committee)
Peter Wilson (Guidelines Committee)
Joanna Walker (Trainee Committee)
Emma Boldock (Research Committee)

Appendix 3: HIS Grants and grant holders

Travelling Scholarship			
Established specifically to enable young HIS members to undertake a study visit to a chosen institution			
Year	**Amount**	**Grant holder details**	**Purpose**
1987	£1,000	RG Feldman, University College Hospital	Visit to Transplant Units at Omaha, Pittsburgh and the Mayo Clinic
1987	£1,000	A Harvey, King's College London	Visit to Transplant Units at Omaha, Pittsburgh and the Mayo Clinic
1988	£1,000	WR Gransden, St. Thomas' Hospital, London	Visit to the LDS Hospital, Utah, USA to investigate the role of computers in infection control
1988	£1,000	S Dealler, St. James's Hospital, Leeds	To study the rapid screening of colonies from *Listeria* selective agar
1991	£1,500	MH Wilcox, Sheffield	Visit to work with G Peters in Germany on coagulase-negative *S. aureus*
1992	£1,500	Roland Korner, Bristol	Study the development of a new endotracheal-tube and its effect on the incidence of hospital-acquired respiratory infections in ventilated neonates
1993	£1,500	Selma Erbaydar, Turkey	Visit BD Cookson from the Division of Hospital Infections of Public Health Laboratory, UK, to gain insight into the functioning of a governmental body
1993	£ 1,500	N Woodford	Unknown

Major Research Grant			
Established to support larger projects for a duration of up to three years			
Year	**Amount**	**Grant holder details**	**Study title**
1997	£39,970	DWG Brown, JS Cheesebrough, PN Hoffman and J Green, Central Public Health Laboratory, London and Royal Preston Hospital, Lancashire	Investigation of patterns of environmental contamination with SRSV on hospital wards and the evaluation of decontamination procedures
1998	£36,000	J Brazier, Cardiff Public Health Laboratory	Investigation of the potential clonality, characteristics and environmental survival of *C. difficile* PCR ribotype 1
1999	£36,299	A Beswick, Sheffield	Development and application of advanced measurement and modelling techniques to identify and mitigate the risks of hospital-acquired infection
2001	£60,350	Mark H Wilcox, University of Leeds and the General Infirmary	Comparative epidemiology of antibiotic-associated diarrhoea in hospitalised patients caused by *C. difficile*, *C. perfingens* and *S. aureus*
2002	£59,915	Kathy Bamford, Imperial College, London	Multi-locus sequence typing and PFGE to identify and treat epidemic and multi/glycopeptide-resistant coagulase-negative Staphylococci causing neonatal bacteraemia
2003	Unknown	Two awarded	Unknown
2004	Unknown	J Ogara	Unknown
2005	£60,000	Jean-Yves Maillard, Welsh School of Pharmacy	Surveillance of antiseptic susceptibility profile of *Staphyloccocus aureus* ITU isolates including MRSA
2006	Unknown	Dietrich Mack, The University of Wales, Swansea	Quorum-sensing accessory gene regulator (*agr*)-specificity groups in *Staphylococcus epidermidis* strains isolated from prosthetic hip and knee joint and catheter infections

2007	£34,780	Peter Griffiths, Kings College London	Somebody else's problem: a study to identify and determine the significance of attributional bias in the control and prevention of MRSA in healthcare settings
2007	£27,623	Jacqueline Randle, Nottingham University	Involving patients and visitors in reducing *C. difficile* cross-transmission via the use of technologies
2008	£60,000	BV Jones, University of Brighton	Elucidation of mechanisms required for the pathogenesis of *Proteus mirabilis* in the catheterised urinary tract through large scale random transposon mutagenesis
2009	£76,620	Thomas Smith, University of Sheffield	Molecular microbial ecology of hospital ward environments: a new tool to understand the role of the environment in HAIs
2009	£57,729	David Tétard, Northumbria University	Synthesis and study of iron(iii) strong chelator as antimicrobial supplements to inhibit the growth of pathogenic bacteria on hospital equipment and hard surfaces
2010	£71,766	John Edmunds, London School of Hygiene and Tropical Medicine	Modelling the population-level and cost-effectiveness of *C. difficile* vaccination as part of an integrated healthcare-associated infection prevention and control (IPC) strategy
2011	£97,101	Eoghan O'Neill, Beaumont Hospital, Dublin	Investigation of novel therapeutics to prevent and treat intravascular catheter infections caused by Staphylococci using a combination of in vitro and animal models
2012	£45,639	Edward Cartwright, University of Cambridge	Improving the detection of MRSA transmission events: a comparison of automated patient location data plus antimicrobial susceptibility patterns compared to whole genome sequencing
2013	£96,285	Jimmy Walker, Public Health England	Impact of tap design on *P. aeruginosa* biofilm formation and presence of other waterborne nosocomial pathogens
2014	£92,999	Prof Jean-Yves Maillard, Cardiff University	Effect of commonly used antimicrobial biocides in healthcare

2015	£81,783	Michael Prentice, University College Cork	Real-time Monitoring of Biological Airborne Particles in the Hospital Environment (ReM-BAPHE)
2016	£138,768	Caroline Chilton, University of Leeds	Development of a rapid, cost effective algorithm to improve detection of intestinal carbapenemase-producing *Enterobacteriaceae*
2017	£32,000	Ginny Moore, Public Health England	*Mycobacterium chimaera* contamination of heater-cooler units: a hybrid product of water and engineering
2017	£95,488	Nicola Irwin, Queen's University Belfast	Combating device-associated, healthcare-associated infections with innovative, anti-biofouling, anti-blocking and non-resistance-promoting technologies
2018	£65,965	Heather Loveday, University of West London	Preventing non-ventilator hospital-acquired pneumonia: the PRHAPs Study
2019	£95,012	Lena Ciric, University College London	Developing hospital surface sampling protocols for better IPC

Small Research Grant			
Established to support minor projects, for example those undertaking prevalence surveys or funding special interest groups			
Year	**Amount**	**Grant holder details**	**Study title**
1997	£5,764	S Lacey	High efficiency masks and MRSA transmission
1997	£5,000	JY Maillard	*Ex-vivo* test of microbial survival on human skin
1997	£4,980	KE Orr	Survival of enterococci in hospital laundries
1997	£5,000	KJ Towner	RAPD-ALFA and bacterial transmission in ITU
1998	£5,000	MH Wilcox	The effectiveness of detergent versus hypochlorite-based ward cleaning for the removal of environmental *C. difficile*
1999	£4,823	Scottish MRSA Reference Lab, Glasgow	Evaluation of MLST (multi-locus sequence typing) for epidemiological studies for MRSA
1999	£4,984	Southmead Hospital, Bristol	A study of the susceptibility of vancomycin-resistant and hetero-resistant *S. aureus* to hand disinfectants
1999	£3,961	Bristol Royal Infirmary	A study of the epidemiology of *P. aeruginosa* infections in cystic fibrosis patients using a novel molecular typing method
1999	£4,829	University of Wales, Cardiff	Diagnosis of fungal infection by ultrasound enhanced latex agglutination tests (USELAT) a feasibility study
2000	£3,716	University Hospital, PHLS, Nottingham	Molecular epidemiology of yeasts in patients on haematology/bone marrow transplant unit
2000	£5,000	Scunthorpe General Hospital, Scunthorpe	A randomised prospective placebo-controlled group study of the use of yeast prophylaxis for *C. difficile*-associated diarrhoea in patients 65 years and over admitted to the adult medical wards of a district general hospital

2000	£4,950	General Infirmary, Leeds	Comparative molecular epidemiological analysis of *Mycobacterium tuberculosis* isolates for 1998 from the northern region of England
2001	£3,716	W Oliver, City Hospital, Nottingham	Molecular epidemiology of yeasts in patients on haematology/bone marrow transplant unit
2001	£5,000	P Cowling, Scunthorpe General Hospital	A randomised prospective placebo-controlled group study of the use of yeast prophylaxis for *C. difficile*-associated diarrhoea in patients 65 years and over admitted to the adult medical wards of a district general hospital
2001	£4,950	TA Collyns, Leeds Teaching Hospitals	Comparative molecular epidemiological analysis *Mycobacterium tuberculosis* isolates for 1998 from northern region of England
2001	£4,973	Christine Perry, Bristol Royal Infirmary	The impact of nursing workload on infection control practices and infection rates
2002	£3,600	Huw Maddock, Hope Hospital, Manchester	What factors affect how regularly handwashing facilities are used?
2002	£5,000	Fidelma Fitzpatrick, Beaumont Hospital	Does a relationship exist between the clinical severity of staphylococcal infections and the capacity to form biofilm?
2002	£5,000	Mark Griffiths, Imperial College, London	Non-invasive diagnosis of ventilator-associated pneumonia using exhaled breath condensate
2002	£1,323	Benny Cherian, Royal London Hospital, London	Evaluation of nitric oxide as a sporicidal and bactericidal agent
2003	Unknown	Ian Beales	Unknown
2004	Unknown	S Michie	Unknown
2004	Unknown	J-Y Maillard	Unknown
2005	Unknown	E Sheridan, Barts and The London Hospital	An analysis of space/time clustering of nosocomial infections in intensive care to identify key areas for infection control intervention

2005	Unknown	M Llewellyn, University of Sussex	Invasive *S. aureus* infection: clinical outcomes and microbial epidemiology
2005	Unknown	G Phillips, Ninewells Hospital	Using compliance loggers to monitor the use of alcohol-based personal hand gels at Ninewells
2005	Unknown	A Adedeji, Birmingham Children's Hospital	MRSA in children presenting to hospitals in Birmingham: what might 'community-associated' MRSA be?
2005	Unknown	D Wareham, Queen Mary, University of London	Action of commercial alcohol handrubs on the growth and secretion of extracellular proteins from the *A. baumannii* OXA-23 outbreak strain
2006	Unknown	F Sundram, Royal Surrey County Hospital	*C. difficile* ribotypes 027 and 106: risk factors and clinical outcomes
2006	Unknown	K Stephenson, University of Leeds	Spore formation and the responses of clinically significant *C. difficile* strains to exposure to hospital decontamination and disinfection agents
2006	Unknown	R Brady, University of Edinburgh	Technological growth: contamination of surgeon's possessions with bacteria known to cause noscomial infection
2007	Unknown	P O'Neill, Nottingham University	Mathematical and statistical modelling of multiply antibiotic-resistant pathogens in hospital settings
2007	Unknown	R Brady, University of Edinburgh	Not to be sniffed at: nasal MRSA colonisation in contemporary NHS doctors
2007	Unknown	A Galloway, Newcastle upon Tyne NHS Trust	Investigation of the value of monitoring serum galactomannan and (1,3)-ß D glucan in the early diagnosis of invasive fungal infection in immunocompromised patients during building work
2008	£4,492	L Parker, University Hospital Aintree	Use of probiotic yoghurt to prevent diarrhoea in critical care: a randomised double-blind placebo-controlled trial
2008	£4,879.92	J Van-Tam, University of Nottingham	What is the association between specific infection control interventions and the incidence of HCAI?

2008	£4,754	J Tanner, De Montfort University	Patients' preferences for handwashing interventions
2008	£5,000	M Pallen, University of Birmingham	Translational genomics: next-generation genome sequencing as a tool to study the biology and epidemiology of *A. baumannii* in an English teaching hospital
2009	£5,000	Sue Lang, Glasgow Caledonian University	Mapping the dynamic transmission of *S. aureus* in near patient areas of acute care wards
2009	£3,200	Stephen Winchester, Kings College Hospital	A questionnaire-based study of healthcare workers perceptions concerning occupational exposure to blood borne viruses and the possible barriers involved in reporting incidents
2009	£4,800	Steve Green, Southampton General Hospital	Longitudinal study of the molecular epidemiology and virulence of extended spectrum 13-lactamase-producing *E. coli*
2009	£5,000	Ginny Moore, University College London Hospitals	Effect of disposable glove type upon the cross-transmission of MRSA
2010	£4,800	Elaine Cloutman-Green, Great Ormond Street Hospital	Development of Adenovirus detection and typing systems to investigate the contribution of environmental contamination, cleaning and human behaviour in cross-transmission
2010	£5,000	Ashley McEwan, Manchester Royal Infirmary	Multi-locus variable number tandem repeat analysis (MLVA) for real-time investigation of *S. aureus* transmission in the hospital setting
2010	£5,000	Katherine Cartwright, Leicester Royal Infirmary	Why are there an increasing number of *Klebsiella pneumoniae* bloodstream infections in Leicestershire? A combined case-control/molecular biological investigation
2011	£4,400	Eamonn Trainor, Royal Liverpool University Hospital	Norovirus shedding and infectivity in hospitalised adult patients with acute gastroenteritis – a pilot study at the Royal Liverpool University Hospital
2011	£10,000	Shanom Ali, UCLH Environmental Research Laboratory	The in-use assessment of electrolysed-oxidizing water and chemically-generated hypochlorous acid

2011	£6,507	Eftihia Yiannakis, Nottingham University Hospitals NHS Trust	Decontamination of the healthcare environment following outbreaks of Norovirus: chlorine-based cleaning versus hydrogen peroxide misting
2012	£9,928	Andrew Conway Morris, University of Edinburgh	Pan-bacterial PCR for rapid diagnosis of ventilator-associated pneumonia
2012	£9,284	Cariad Evans, Sheffield Teaching Hospitals NHS Foundation Trust	The molecular epidemiology of RSV and Parainfluenza 3 in a bone marrow transplant unit: clinical, infection control and cost implications of nosocomial transmission
2012	£10,000	Micheál Mac Aogáin, Trinity College Dublin	Molecular epidemiology and transcriptome sequencing of Irish *C. difficile* isolates to investigate gene expression patterns associated with disease severity
2012	£9,919	Alice M Turner, University of Birmingham	Use of early mobilisation to reduce incidence of hospital-acquired pneumonia in medical inpatients
2013	£9,521	Monika Muzslay, University College London Hospitals	ESBL-producing Gram-negative organisms in the healthcare environment as a source of genetic material for resistance in human infections
2013	£2,500	Nikunj Mahida, Nottingham University Hospitals	Investigating the effect of clinical anaesthetic practice on bacterial contamination of intravenous fluids and drugs
2013	Unknown	R Atkinson, University of Manchester	Evaluating the treatment of surgical site infection in patients undergoing surgery for spinal metastases
2014	£9,900	Mathew Upton, Plymouth University	Investigating the role of healthcare workers in MRSA outbreaks using genome sequence analysis
2014	£10,000	Edward Feil, University of Bath	The development of a next-generation sequencing approach for inferring colonisation and transmission dynamics of multiple *Staphylococcus* spp. recovered from a burns unit
2014	£9,500	Katie Hardy, Public Health Laboratory Birmingham	Investigating and defining reduced susceptibility to antiseptics amongst *S. aureus* isolates.

2015	£10,000	Ed Moran, Heart of England NHS Foundation Trust	The impact of community antibiotic treatment
2015	£10,000	Peter Hawkey, University of Birmingham	The molecular epidemiology of CTX-M antibiotic resistance genes and the faecal microbiome of humans acquiring ESBL-producing *Enterobacteriaceae*
2016	£10,000	Shanom Ali, University College London Hospital	Discovery of compounds with the potential to disrupt biofilm formation on medical devices and surfaces colonised with antimicrobial-resistant bacteria
2016	£9,951	Jean-Yves Maillard, Cardiff University	Seeking dry surface biofilm in healthcare environments: is this a reservoir for multi-drug resistant pathogens?
2016	£10,000	Matthew Scarborough, Oxford University Hospitals	Reducing implant infection in orthopaedics (RIIi0) pilot study
2017	£9,760	Katie Hardy, Public Health Laboratory, Birmingham	Attack of the clones? Implementation of whole genome sequencing to determine spread of vancomycin-resistant *Enterococcus faecium* in a high-risk healthcare setting
2017	£10,000	Beatriz Duran Jimenez, University Hospital of South Manchester	Randomised Double-Blind Placebo-Controlled Trial of Probiotic in the treatment of faecal carriage carbapenemase-bearing *Klebsiella pneumoniae*
2018	£10,000	Felicity Fitzgerald, UCL Great Ormond Street and Institute of Child Health, London	Reducing mortality from neonatal sepsis: a pilot mixed-methods approach in Zimbabwe
2018	£10,000	Damien Mack, Royal Free Hospital, London	Evaluation of the Accelerate Pheno System for the rapid identification and antimicrobial susceptibility testing of Gram-negative bacteria from positive blood cultures and impact on time to targeted antimicrobial therapy
2020	£9,990	Sarah Forbes	Transcriptomic analysis of biocide adaptation in uropathogenic *E. coli* CFT073

Graham Ayliffe Fellowship			
Aims to enable specialty trainees and Infection Control Nurses to pursue their specialist area			
Year	**Amount**	**Grant holder details**	**Project purpose**
2014	£50,000	Eftihia Yiannakis, Nottingham University Hospitals NHS Trust	Environmental contamination by respiratory pathogens, infection control and guideline development
2015	£60,000	Damian Mawer, Leeds Teaching Hospitals	Audit and practical IPC training/ experience
2015	£53,356	Nikunj Mahida, Nottingham University Hospitals NHS Trust	Develop the skills and competencies to work as an assistant editor for the Journal of Hospital Infection
2016	£65,600	Emma Wiley, University College Hospital London	Develop specialism in infection control with the aim to become a Consultant Microbiologist and Infection Control Doctor
2017	£63,000	Bozena Poller, Northern General Hospital	Design and establish a UK PPE Model and National PPE Simulation Program
2019	£63,000	Chris Lynch, Northern General Hospital, Sheffield	Trainee HIS journals editor and theatre aspects of infection control
2019	£63,000	Katie Prescott, Nottingham University Hospitals NHS Trust	Trainee HIS journals editor and MSSA audits in infection prevention and control
2020	£62,502	Razan Saman	Strategies to prevent transmission of extended spectrum beta-lactamase *Enterobacterales*

Mike Emmerson Young Investigator Award			
Designed to provide small amounts of funding for early-career researchers			
Year	**Amount**	**Grant holder details**	**Study title**
2009	£1,721	Katherine Bowers, University College Hospital, London	The impact of hospitalisation on oral health – an observational study
2010	£10,000	Samford Wong, Stoke Mandeville Hospital, Aylesbury	Do probiotics prevent antibiotic-associated diarrhoea in patients with spinal cord injuries: a randomised controlled trial
2011	£2,400	Simon Friar, Health Protection Agency Public Health Laboratory	Molecular investigation of multi-drug resistant *Enterobacter* isolates, and screening of MDR coliforms for common resistance gene markers
2013	£10,000	Vassiliki Dimou, Health Protection Agency	Molecular epidemiology of carbapenem-resistant *Enterobacteriaceae* in a tertiary-care hospital
2015	£9,000	Elaine Cloutman-Green, Great Ormond Street Hospital	Investigation of cross-transmission by *Enterobacteriaceae*
Public Engagement Grant			
Aims to provide support for events which promote awareness of IPC to members of public			
Year	**Amount**	**Grant holder details**	**Event purpose**
2018	£1,000	Elaine Cloutman-Green, Great Ormond Street Hospital	*Nosocomial: A Microbiology Play*. A play in which audiences could participate in the lab experience
2018	£75.30	Gayti Morris, Sheffield Teaching Hospitals NHS Trust	*Let's Get Buggy*: Interactive session for Key Stage 1 Children at Hallam Primary School, Sheffield
Other awards			
1995		Patricia Blakemore	Training of an infection control nurse at the North Middlesex Hospital
2006		Barts group	BMA award for examining *Acinetobacter*

Appendix 4: Publications arising from HIS-funded research and fellowships

2013

Van Kleef E, Robotham JV, Jit M, Deeny SR, Edmunds WJ. Modelling the transmission of healthcare associated infections: a systematic review. *BMC Infect Dis* 2013; 13(294).

2014

Van Kleef E, Green N, Goldenberg SD, Robotham JV, Cookson B, Jit M, *et al.* Excess length of stay and mortality due to *Clostridium difficile* infection: a multi-state modelling approach. *J Hosp Infect* 2014; 88(4):213-7.

Stolbrink M, McGowan L, Saman H, Nguyen T, Knightly R, Sharpe J, *et al.* The Early Mobility Bundle: a simple enhancement of therapy which may reduce incidence of hospital-acquired pneumonia and length of hospital stay. *J Hosp Infect* 2014; 88(1):34-9.

Van Kleef E, Gasparrini A, Guy R, Cookson B, Hope R, Jit M, *et al.* Nosocomial transmission of *C. difficile* in English hospitals from patients with symptomatic infection. *PLOS One* 2014; 16(9):e99860.

Holling N, Dedi C, Jones CE, Hawthorne JA, Hanlon GW, Salvage JP, *et al.* Evaluation of environmental scanning electron microscopy for analysis of *Proteus mirabilis* crystalline biofilms in situ on urinary catheters. *FEMS Microbiol Lett* 2014; 355(1):20-7.

Holling N, Lednor D, Tsang S, Bissell A, Campbell L, Nzakizwanayo J, *et al.* Elucidating the genetic basis of crystalline biofilm formation in *Proteus mirabilis*. *Infect Immun* 2014; 82(4):1616-26.

2015

Hogan S, Stevens NT, Humphreys H, O'Gara JP, O'Neill E. Current and future approaches to the prevention and treatment of staphylococcal medical device-related infections. *Curr Pharmacol Res* 2015; 21(1):100-13.

Workman DG, Tsatsanis A, Lewis FW, Boyle JP, Mousadoust M, Hettiarachchi NT, *et al.* Protection from neurodegeneration in the 6-hydroxydopamine (6-OHDA) model of Parkinson's with novel

1-hydroxypyridin-2-one metal chelators. *Metallomics* 2015; 7:867-76.

2016

van Kleef E, Deeny SR, Jit M, Cookson B, Goldenberg SD, Edmunds WJ, *et al.* The projected effectiveness of *Clostridium difficile* vaccination as part of an integrated infection control strategy. *Vaccine* 2016; 34(46):5562-5570.

Harrison EM, Ludden C, Brodrick HJ, Blane B, Brennan G, Morris D, *et al.* Transmission of methicillin-resistant *Staphylococcus aureus* in long-term care facilities and their related healthcare networks. *Genome Med* 2016; 8(102).

Mahida N, Boswell T. Control of carbapenemase-producing organsims: complexities of 'real-life' and what is the best method of terminal room disinfection? *J Hosp Infect* 2016; 94(2):254-255.

Hogan S, Zapotoczna M, Stevens NT, Humphreys H, O'Gara JP, O'Neill E. Eradication of *Staphylococcus aureus* catheter-related biofilm infections using ML:8 and citrox. *Antimicrob Agents Chemother* 2016; 60(10):5968-75.

Mahida N, Boswell T. Non-slip socks: a potential reservoir for transmitting multidrug-resistant organisms in hospitals? *J Hosp Infect* 2016; 94(3):273-275.

Joseph A, Mahida N. Antimicrobial stewardship in secondary care: what are we trying to achieve *J Hosp Infect* 2016; 93(2):392-4.

Mahida N, Clarke M, Jabeen F. Management of an influenza A outbreak on an acute internal medicine ward. *J Hosp Infect* 2016; 94(2):154-5.

Toleman MS, Reuter S, Coll F, Harrison EM, Peacock SJ. Local persistence of novel MRSA lineage after hospital ward outbreak, Cambridge, UK, 2011-2013. *Emerg Infect Dis* 2016; 22(19):1658-9.

Wesgate R, Rauwel G, Criquelion J, Maillard JY. Impact of standard test protocols on sporicidal efficacy. *J Hosp Infect* 2016; 93(1):256-62.

Toleman MS, Reuter S, Coll F, Harrison EM, Blane B, Brown NM, *et al.* Systematic surveillance detects multiple silent introductions and

household transmission of Methicillin-Resistant *Staphylococcus aureus* USA300 in the East of England. *J Infect Dis* 2016; 214(3):447-53.

Beal A, Mahida N, Staniforth K, Vaughan N, Clarke M, Boswell T. First UK trial of Xenex PX-UV, an automated ultraviolet room decontamination device in a clinical haematology and bone marrow transplantation unit. *J Hosp Infect* 2016; 93(1):164-8.

Workman DG, Hunter M , Dover LG, Tétard D. Synthesis of novel Iron(III) chelators based on triaza macrocycle backbone and 1-hydroxy-2(H)-pyridin-2-one coordinating groups and their evaluation as antimicrobial agents. *J Inorgan Biochem* 2016; 160:49-58.

Hogan S, Zapotoczna M, Stevens NT, Humphreys H, O'Gara JP, O'Neill E. *In vitro* approach for identification of the most effective agents for antimicrobial lock therapy in the treatment of intravascular catheter-related infections caused by *Staphylococcus aureus*. *Antimicrob Agents Chemother* 2016; 60:2923-31.

Reuter S, Török ME, Holden MT, Reynolds R, Raven KE, Blane B, *et al.* Building a genomic framework for prospective MRSA surveillance in the United Kingdom and the Republic of Ireland. *Genome Res* 2016; 26:263-70.

Yiannakis EP, Boswell TC. Systematic review of outbreaks of *Pneumocystis jirovecii* pneumonia: evidence that *P. jirovecii* is a transmissible organism and the implications for healthcare infection control. *J Hosp Infect* 2016; 93(1):1-8.

2017

Toleman MS, Watkins ER, Williams T, Blane B, Sadler B, Harrison EM, *et al.* Investigation of a cluster of sequence type 22 Methicillin-Resistant *Staphylococcus aureus* Transmission in a Community Setting. *Clin Infect Dis* 2017; 65(12):2069-2077.

Coll F, Harrison EM, Toleman MS, Reuter S, Raven KE, Blane B, *et al.* Longitudinal genomic surveillance of MRSA in the UK reveals transmission patterns in hospitals and the community. *Sci Transl Med* 2017; 25(9):413.

Hutchins CF, Moore G, Thompson KA, Webb J, Walker JT. Contamination

of hospital tap water: the survival and persistence of *Pseudomonas aeruginosa* on conventional and 'antimicrobial' outlet fittings. *J Hosp Infect* 2017; 97(2):156-161.

Hogan S, Zapotoczna M, Stevens NT, Humphreys H, O'Gara JP, O'Neill E. Potential use of targeted enzymatic agents in the treatment of *Staphylococcus aureus* biofilm-related infections. *J Hosp Infect* 2017; 96(2):177-182.

Zapotoczna M, Forde É, Hogan S, Humphreys H, O'Gara JP, Fitzgerald-Hughes D, *et al.* Eradication of *Staphylococcus aureus* Biofilm Infections Using Synthetic Antimicrobial Peptides. *J Infect Dis* 2017; 215(6):975-983.

2018

Poller B, Tunbridge A, Hall S, Beadsworth M, Jacobs M, Peters E, *et al.* High Consequence Infectious Diseases Project Working Group. A unified personal protective equipment ensemble for clinical response to possible high consequence infectious diseases: A consensus document on behalf of the HCID programme. *J Infect* 2018; 77(6):496-502.

Bevan ER, McNally A, Thomas CM, Piddock LJV, Hawkey PM. Acquisition and Loss of CTX-M-Producing and Non-Producing Escherichia coli in the Fecal Microbiome of Travelers to South Asia. *mBio* 2018; 9(6):02408-18.

Kümin M, Harper CM, Reed M, Bremner S, Perry N, Scarborough M. Reducing Implant Infection in Orthopaedics (RIIiO): a pilot study for a randomised controlled trial comparing the influence of forced air versus resistive fabric warming technologies on postoperative infection rates following orthopaedic implant surgery in adults. *Trials* 2018; 19(1):640.

Ledwoch K, Dancer SJ, Otter JA, Kerr K, Roposte D, Rushton L, *et al.* Beware biofilm! Dry biofilms containing bacterial pathogens on multiple healthcare surfaces; a multi-centre study. *J Hosp Infect* 2018; 100(3):47-56.

Wesgate R, Robertson A, Barrell M, Maillard JY. Impact of test protocols and material binding on antimicrobial wipes efficacy. *J Hosp Infect* 2018; 103(1):e25-e32.

Poller B, Hall S, Bailey C, Gregory S, Clark R, Roberts P, *et al.* 'VIOLET':

a fluorescence-based simulation exercise for training healthcare workers in the use of personal protective equipment. *J Hosp Infect* 2018; 99(2):229-235.

Hall S, Poller B, Bailey C, Gregory S, Clark R, Roberts P, *et al.* Use of ultraviolet-fluorescence-based simulation in evaluation of personal protective equipment worn for first assessment and care of a patient with suspected high-consequence infectious disease. *J Hosp Infect* 2018; 99(2):218-228.

2019

Mawer D, Byrne F, Drake S, Brown C, Prescott A, Warne B, *et al.* Cross-sectional study of the prevalence, causes and management of hospital-onset diarrhoea. *J Hosp Infect* 2019; 103(2):200-209.

2020

Chimhini G, Chimhuya S, Madzudzo L, Heys M, Crehan C *et al.* Auditing use of antibiotics in Zimbabwean neonates. *Infect Prev Pract* 2020; 2(2).

Herbeć A, Chimhini G, Rosenberg-Pacareu J, Sithole K, Rickli F, *et al.* Barriers and facilitators to infection prevention and control in a neonatal unit in Zimbabwe – a theory-driven qualitative study to inform design of a behaviour change intervention. *J Hosp Infect* 2020; 106(4):804-811.

Appendix 5: Published HIS Guidelines, guidance and updates

1985

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Appendix 6: Table of abbreviations

AGM	Annual General Meeting
AIDS	Acquired immune deficiency syndrome
BIA	British Infection Association
BSAC	British Society for Antimicrobial Chemotherapy
BSE	Bovine spongiform encephalopathy
BSG	British Society of Gastroenterology
CCDC	Consultants for Communicable Disease Control
CICE	Combined Infection Certificate Examination
CJD	Creutzfeldt-Jakob disease
CPD	Continuing professional development
CSC	Central Sterilising Club
DIPC	Director of Infection Prevention and Control
DipHIC	Diploma in Hospital Infection Control
DoH	Department of Health
ECDC	European Centre for Disease Prevention and Control
FIS	Federation of Infection Societies
HAI	Hospital-acquired infection
HCAI	Healthcare-associated infection
HIS	Healthcare Infection Society
HIV	Human immunodeficiency virus
HPA	Health Protection Agency
ICC	Infection Control Committee
ICD	Infection Control Doctor
ICI	Imperial Chemical Industries
ICN	Infection Control Nurse
ICNA	Infection Control Nurses Association
IPC	Infection prevention and control
IPIP	Infection Prevention in Practice
JHI	Journal of Hospital Infection

LSHTM	London School of Hygiene and Tropical Medicine
MLST	Multi-locus sequence typing
MRG	Major Research Grant
MRSA	Meticillin-resistant *Staphylococcus aureus*
MS	Microbiology Society
OA	Open access
PHLS	Public Health Laboratory Service
RCOG	Royal College of Obstetricians and Gynaecologists
SIGN	Scottish Intercollegiate Guidelines Network
SRG	Small Research Grants
TSE	Transmissible Spongiform Encephalopathy
WHO	World Health Organization