Review of Healthcare Associated Infection Prevention and Control Services Provided by the NPHS to NHS Trusts in Wales
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Executive Summary

Background

In 1993/4 the UK prevalence of hospital acquired infection was 9%. In 2004 the Welsh Assembly Government published Healthcare Associated Infections – A Strategy for Hospitals in Wales to guide development of infection prevention and control within secondary care and thereby limit this burden of disease. The National Public Health Service for Wales (NPHS) provides laboratory services and support to infection control teams for seven Trusts throughout Wales. In addition it runs and staffs the national Welsh Healthcare Associated Infection Programme (WHAIP) which coordinates and supports hospital infectious disease surveillance programmes in Wales. This review forms part of a series of NPHS organisational reviews. Its aim was to assess how far the Welsh Strategy had been implemented within NHS Trusts supported by NPHS and to ensure current NPHS resources were being used effectively to support healthcare associated infection (HCAI) programmes in those Trusts.

Review Process

Information was sought from three main sources in NPHS supported Trusts:

1. questionnaires to infection control teams;
2. on site meetings with Executive Board representatives and infection control teams;
3. focus meetings with Consultant microbiologists and WHAIP team members;
   and from
4. wider stakeholder views through circulation and incorporation of comments on the draft report.

Where relevant, national benchmarking standards were compared. A SWOT analysis was used to highlight future service areas which the NPHS, through its national professional and resource teams, could address within the Trusts it supports.

This review was carried out from an NPHS service provider perspective. However information gathered has supported a much wider review of the management of healthcare associated infection throughout Wales currently being undertaken by the Wales Audit Office.

Healthcare organisations in Wales, including NPHS supported Trusts (NPHSS Trusts), have made huge strides in tackling healthcare associated infections in the last two years. This pace of positive change has inevitably led to dynamic changes in management and organisational structure within NPHSS Trusts, often within the time span of this project. It is therefore inevitable, but fortunate, that some initial findings are already historic at the time of reporting and where appropriate these have been highlighted. A major beneficial finding since this review was undertaken is that a repeat of the two previous surveys that have assessed the prevalence of HCAIs in UK hospitals has demonstrated that prevalence rates in Welsh hospitals are now significantly lower than they were in 1993/94 and compare favourably with other UK countries.
Findings

NPHS was generally found to be providing quality, expert services which were highly appreciated by the partner Trusts. Potential problems of dual organisational accountability were not evident in practice in the majority of Trusts with which NPHS works, and services were described as ‘seamless’. There was general consensus that manpower resources within both the infection control teams and WHAIP team were low. Identified current service delivery requirements included the need for new SLAs and defined accountabilities between NPHS and NPHSS Trusts, and greater clarity of time prioritisation for NPHS consultants to support infection control teams. Clerical assistance was urgently needed in some locations. NPHS resources, available nationally throughout Wales, could be more effectively promoted and utilised to provide additional services requested by Trust partners. These included policy guidance on screening, nosocomial outbreak management and infection control staffing standards.

Although clinician involvement at directorate level was being implemented rapidly in NPHSS Trusts, the onus of data collection continued to fall to infection control teams. Problems also persisted in relation to low dataset completeness in areas of clinical surveillance.

NPHSS Trusts welcomed the potential for wider support, through expert communication and other specialist NPHS resource teams, in relation to training and education, public information on HCAI issues, rationalisation of the regulatory and risk management framework and incorporation of infection control within the commissioning process.

Recommendations

A number of important recommendations arise from this work:

1. Development of new SLAs which more clearly delineate management and accountability responsibilities for HCAIPC, both within NPHS and the Trusts it supports, would help to ensure continued seamless service provision.

2. NPHS should promote its own existing national resource capabilities to support HCAIPC in NPHSS Trusts. Particular areas for development include national HCAIPC guidelines, training packages, standardised data collection and analysis methods, antibiotic monitoring and treatment policies, and quality standards.

3. NPHS could facilitate work between Trust partners and local commissioners to ensure HCAIPC is embedded in every individual patient’s care in line with current strategy. Risk management, professional accountability, clinical governance and the contracting process are all mechanisms which could be explored to assist clinical carers improve still further their responsibility for effective audit and infection reduction.

4. Development of a new research agenda could improve the availability and use of an evidence base relevant to NPHS, WHAIP and partner Trusts. Themes should include economic analysis and promotion of cost-effective measures, effective screening and antibiotic policies, appropriate and efficient HCAIPC staff configuration and improved feedback and adverse event reporting.

5. A national Infection Control Forum to encourage professional liaison between all HCAIPC professionals, and to act as a focus for wider engagement with WAG and standard setting bodies has already been established during this project. There is visible improvement in
communication and dissemination of HCAIPC policy and in the availability of interprofessional support.

The NPHS has addressed these recommendations in a new service framework *Service Framework for the Delivery of Healthcare Associated Infection Prevention and Control Services to NHS Trusts in Wales*, which seeks to progress those areas which fall within the remit and resources of local and national NPHS teams.

**Acknowledgements**

The NPHS would like to thank all who participated in the review including Consultant microbiologists, IC nurses, laboratory and clerical staff and WHAIP team members. The time commitment of Trust Executive Teams was particularly appreciated.
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AHP</td>
<td>Allied Health Professional</td>
</tr>
<tr>
<td>BMS</td>
<td>Biomedical Scientist</td>
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<tr>
<td>CAI</td>
<td>Community Acquired Infection</td>
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<tr>
<td>CAT</td>
<td>Carmarthenshire NHS Trust</td>
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<tr>
<td>CCCD</td>
<td>Committee for the Control of Communicable Disease</td>
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<tr>
<td>CCDC</td>
<td>Consultant(s) in Communicable Disease Control</td>
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<tr>
<td>CDSC</td>
<td>Communicable Disease Surveillance Centre</td>
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<tr>
<td>CDT</td>
<td>Conwy &amp; Denbighshire NHS Trust</td>
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<tr>
<td>CHC</td>
<td>Community Health Council(s)</td>
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<tr>
<td>CJD</td>
<td>Creutzfeld Jacob Disease</td>
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<tr>
<td>CMWT</td>
<td>Ceredigion and Mid Wales NHS Trust</td>
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<tr>
<td>CPA</td>
<td>Clinical Pathology Accreditation</td>
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<tr>
<td>CPD</td>
<td>Continuing Professional Development</td>
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<tr>
<td>CRU</td>
<td>Cryptosporidium Reference Unit</td>
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<tr>
<td>CVC</td>
<td>Central Venous Catheter</td>
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<tr>
<td>CVT</td>
<td>Cardiff and Vale NHS Trust</td>
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<tr>
<td>GMC</td>
<td>General Medical Council</td>
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<tr>
<td>HAI</td>
<td>Hospital Acquired Infection</td>
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<tr>
<td>HCAI</td>
<td>Healthcare Associated Infection</td>
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<tr>
<td>HCAIIPC</td>
<td>Healthcare Associate Infection Prevention and Control</td>
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<tr>
<td>HIAT</td>
<td>Health Information Analysis Team</td>
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<td>HPU</td>
<td>Health Protection Unit</td>
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<tr>
<td>IC</td>
<td>Infection Control</td>
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<td>ICC</td>
<td>Infection Control Committee</td>
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<tr>
<td>ICD</td>
<td>Infection Control Director</td>
</tr>
<tr>
<td>ICDS</td>
<td>Infection and Communicable Disease Service</td>
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<tr>
<td>ICT</td>
<td>Infection Control Team(s)</td>
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<tr>
<td>IHI</td>
<td>Institute for Healthcare Improvement</td>
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<tr>
<td>IPC</td>
<td>Infection Prevention and Control</td>
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<tr>
<td>KMT</td>
<td>Knowledge Management Team</td>
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<tr>
<td>LHB</td>
<td>Local Health Board(s)</td>
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<tr>
<td>MRSA</td>
<td>Meticillin Resistant <em>Staphylococcus aureus</em></td>
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<td>NAO</td>
<td>National Audit Office</td>
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<tr>
<td>NPHS</td>
<td>National Public Health Service</td>
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<tr>
<td>NPHSS Trust</td>
<td>National Public Health Service supported Trust (one of seven Welsh Trusts for which NPHS provides laboratory services).</td>
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<tr>
<td>NRIC</td>
<td>National Resource for Infection Control</td>
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<tr>
<td>NWWT</td>
<td>North West Wales NHS Trust</td>
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<tr>
<td>PGME</td>
<td>Postgraduate Medical Education</td>
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<tr>
<td>PMETB</td>
<td>Postgraduate Medical Education Training Board</td>
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<tr>
<td>SLA</td>
<td>Service Level Agreement</td>
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<tr>
<td>SOP</td>
<td>Standard Operating Procedure</td>
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<tr>
<td>SSI</td>
<td>Surgical Site Infection</td>
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<tr>
<td>SWOT</td>
<td>Strengths Weaknesses Opportunities Threats</td>
</tr>
<tr>
<td>SWT</td>
<td>Swansea NHS Trust</td>
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<tr>
<td>UHW</td>
<td>University Hospital of Wales</td>
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<tr>
<td>VT</td>
<td>Velindre NHS Trust</td>
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<tr>
<td>WAG</td>
<td>Welsh Assembly Government</td>
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<tr>
<td>WHAIP</td>
<td>Welsh Healthcare Associated Infection Programme</td>
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<tr>
<td>WHAISG</td>
<td>Welsh Healthcare Associated Infection Sub Group</td>
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<tr>
<td>WRP</td>
<td>Welsh Risk Pool</td>
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1 Introduction

Every year around 9% of hospital admissions have resulted in a new hospital acquired infection\(^1\). Modern healthcare organisations provide increasingly technically advanced and invasive interventions to an older and frailer population, utilising shorter lengths of stay and higher bed occupancy. All these factors contribute to ensuring that healthcare infections will remain an ongoing and significant public health problem – not only in terms of quality of life but also in economic healthcare sustainability. Nevertheless in 2000 it was estimated that at least 15% of infections, could have been avoided and at a cost saving of £150 million to the UK as a whole\(^2\). In Scotland, a closer comparator for Wales, HCAIs were found to be a major factor in 457 deaths each year and 1,372 infections. The Scottish health service spends more than £186 million per annum on dealing with the consequences of HCAI\(^3\) and there is increasing evidence that quite basic measures to control infection are still not fully supported at operational level in hospitals around the UK\(^4\,5\,6\). Wales is no exception.

To meet the challenge of reducing healthcare associated infection (HCAI), strategic, national and local level initiatives have all been established in Wales. The National Public Health Service (NPHS), through its Infection and Communicable Disease Service (ICDS), plays a significant role in this programme. ICDS provides not only centralised HCAI surveillance, epidemiological, and professional infection control expertise, but also consultant led microbiology and virology public health laboratory services within seven Welsh NHS Trusts, and community based Health Protection Units (HPU) under the leadership of local Consultants in Communicable Disease Control (CCDC). This unique presence, both within and outside the hospital environment, gives the NPHS as an organisation exciting opportunities to provide increasingly effective and efficient linked services to tackle the problem of HCAI throughout Wales. This review sought to evaluate the current NPHS HCAI service provision and to provide a new, and improved, service framework for delivery of HCAI prevention and control services, for the benefit of partner organisations, healthcare professionals and patients alike. It focused mainly on the support NPHS provides to the seven Trusts in which laboratory services are also provided.

2 Background

2.1 Defining Healthcare Associated Infection

HCAIs may be acquired from care in any setting within the healthcare system – this can be from care in the home, in primary care, in nursing homes or in acute hospitals\(^5\).

There is a distinction between those acquired in hospital (hospital acquired infections (HAI)), which are generally defined as occurring >48 hours after admission, and those acquired in the community (community acquired infections (CAI)), which are present on admission. Although there is growing recognition of the contribution of CAI to the overall burden of disease subsequently acquired in hospital, this document focuses on the strategies and activities in place to limit the occurrence of infection that can occur as a result of secondary care contact.
2.2 Early HCAI Surveillance

The National Audit Office reported in 2000 on its survey of HCAI management in hospitals in England that reducing the occurrence of hospital acquired infections did not appear to be a major priority for the National Health Service\(^2\). This was followed by further criticism of the handling of HCAIs by trusts in England from the Committee of Public Accounts. The report from this group recommended mandatory reporting systems throughout the UK. In Wales, mandatory reporting of *Staphylococcus aureus* bacteraemias was begun in April 2001, providing national information on both meticillin sensitive and resistant strains. An informal, but effective system had already been in place in Wales for some 10 years. This was coordinated through the Public Health Laboratory Service Communicable Disease Surveillance Centre from 1996 by the forerunner of the Welsh Healthcare Associated Infection Programme Team (WHAIP)\(^7\).

In April 2003, with the establishment of the National Public Health Service for Wales, management accountability of the WHAIP team transferred to the ICDS within the NPHS. The Programme’s main roles are:

- To develop and administer national surveillance programmes for HCAI in Wales ensuring that the data contributed and analysed are subsequently fed back and effectively used by Infection Control Teams and Trusts in Wales
- To support the implementation of the HCAI strategy for hospitals in Wales and the strategy for managing HCAI in the community
- To develop an evidence base for control of HCAIs in Wales, to identify preventable aspects and to provide advice and support to the NHS in Wales and the Welsh Assembly Government on all aspects of infection control.

2.3 Welsh Strategy

A subgroup of the Committee for the Control of Communicable Disease (CCCD), the Welsh Healthcare Associated Infection Sub-group (WHAISG) was formally established by the Chief Medical Officer for Wales in December 2001 and provides advice to the Welsh Assembly in relation to HCAI. In response to the National Audit Office document *The Management and Control of Hospital Acquired Infection in Acute NHS Trusts in England*\(^2\), and in development of the strategic direction for the NHS in Wales\(^8\), the Welsh Assembly Government (WAG) published *Healthcare Associated Infections – A Strategy for Hospitals in Wales*\(^9\) in July 2004. This document establishes clearly and pragmatically the arrangements for improving, maintaining and monitoring infection control structures and processes across Wales, using defined performance indicators and agreed national standards on cleanliness\(^10\) and risk management\(^11\).

In summary the strategic objectives are that:

- All staff will understand infection and infection control practices
- Patients will be treated in environments which minimise infective risk
- Trust Infection Control plans will be adequately resourced
- Trusts will adopt comprehensive surveillance and audit programmes to monitor their own infection control programmes
- Reduction in infection rates will form part of the overall Trust management within areas of clinical governance, risk management, performance management and the Balanced Scorecard
- Trusts will develop adequate systems for their own data recording, analysis, sharing and access and to access other information needed for management of infection.

The strategic objectives rely on:
- Adoption of up to date, evidence-based standards
- Infection control forming a core component of the management agenda with clearly delineated staff accountabilities
- Availability of specialist epidemiological support to Trust Infection Control Teams (ICTs) both during routine surveillance and when outbreaks or clusters of infection occur
- Working towards comparability of data between Trusts
- Setting realistic targets and monitoring progress against them and
- Effective training schemes, at all levels including pre- and post-registration, undergraduate and postgraduate and in-service CPD.

The cornerstone of current Welsh HCAI Strategy is that infection control plans must be adopted at directorate level, with locally prioritised disease reduction targets supported by all healthcare staff each acknowledging their own individual professional responsibility. One of the principal aims of NPHS ICDS is to support this strategy and the professionals who implement it.

3 Current ICDS Service Overview

The ICDS integrates microbiology, communicable disease epidemiology and health protection services in Wales within a single national public health organisation which also includes LHB Public Health Directors, an environmental team and a range of other specialists in public health. The NPHS has a responsibility, defined in Service Level Agreements (SLA) with both the Welsh Assembly Government and individual NHS Trusts, to support infection prevention and control activities in NHS Trust hospitals. The spectrum of services offered by the NPHS provides it with a unique opportunity to make available to NHS Trusts high quality, consistent, specialist support in this area. This support encompasses operational, developmental, strategic and communications aspects of infection control. This integrated service model can be summarised as in Figure 1.

Component expert ‘units’ of the NPHS are therefore linked across Wales. Those particularly relevant to HCAI are:
- NPHS laboratories
- Infection Control Leads/Directors
- CDSC
- WHAIP
- Local HPUs/CCDCs
- Knowledge Information and Health Information Analysis (HIAT) Teams
4 Purpose of the Review

4.1 Aim

The overall aim of the review was to ensure that the NPHS was utilising its current resources effectively to support:

1. HCAI programmes
2. The implementation of the Welsh Assembly Government’s Strategy for HCAI in Hospitals in Wales

with particular regard to:
- Expectations of stakeholders
- Standards of service provision
- Consistency of approach of NPHS services across Wales
- Utilisation of potential organisational synergies
- Clarity of accountabilities within multi-agency IPC provision
- Operational sustainability

4.2 Objectives

Precise objectives were therefore defined as follows:

1. To identify key requirements of stakeholders including NHS Trusts, WAG, LHBs, WAG Regional Offices, Community Health Councils, Welsh Risk Pool
2. To identify what relevant services were currently provided by the ICDS and what work was undertaken by local NPHSS Trusts (including consideration of hospital outbreak management)

3. To assess progress with NPHSS Trust implementation of WAG strategy and assess the NPHS contribution to strategic objectives

4. To assess current staffing resources devoted to IPC, by both the ICDS and NPHSS Trusts (to include reference to consultant job plans)

5. To identify the roles, training and accountabilities of ICDS and NPHSS Trust staff engaged in IPC.

6. To determine the reporting lines and lines of accountability of ICTs and IC Committees within NPHSS Trusts and to assess their relative effectiveness

7. To identify any relevant standards currently being employed, including Welsh Risk Pool standards

8. To describe current approaches to audit/surveillance, data collection, collation, interpretation and dissemination

9. To identify any relevant R&D activity within the ICDS and NPHSS Trusts

10. To identify the strengths and weaknesses of the current NPHS services, including areas where existing standards or stakeholder requirements are not being met.

5 Methodology

5.1 Project Structure

A formal project structure was adopted at the outset and included an internal project executive team, an operational team which included two external consultants, and a project reference group with representation from relevant professional groups including Director of Nursing, Infection Control Doctor, Infection Control Nurse, Trust Chief Executive and Trust Medical Director.

5.2 Methodology Overview

The review itself was carried out in four main stages:

1. Development and circulation of a questionnaire to all IC Teams in NPHSS Trusts to gather baseline information and seek areas for further discussion

2. Visits to all NPHSS Trust Executive and Infection Control Teams (see 5.7 below)

3. Meetings with other relevant personnel including WHAIP team and individual microbiology consultants

4. The final report was submitted to the Project Reference Group for approval and to NPHS Microbiologists for comment prior to publication.
5.3 Questionnaire

The operational team sought to evaluate implementation of the WAG HCAI strategy (2004) in Trusts currently serviced by NPHS in a similar way to the NAO assessment of the implementation of recommendations from the 2000 English report to control HCAI. To maximise comparability and utility a shortform questionnaire was developed based on that used by the National Audit Office (Part 2) and reported in Improving Patient Care by reducing the risk of hospital acquired infection: A progress report (2004). Some existing questions were adjusted or omitted for three reasons:

1. to ensure relevance to the NPHS/Welsh healthcare environment;
2. to reduce unnecessary questionnaire length and increase user compliance
3. to enable more productive topic exploration at face to face interview.

An initial questionnaire was piloted successfully with the IC Team at a single NPHSS Trust in December 2005 and further copies were subsequently distributed to all relevant Trust IC Teams. A 100% response rate was achieved. Data were collated and descriptive analysis performed on Excel SP1 2001. Due to the small sample size (n=7) further statistical analysis was inappropriate.

5.4 Trust Visits

The operational team, consisting of up to three internal NPHS members and two external consultants, visited most IC Teams and Executive members on site throughout Wales between December 2005 and June 2006. A similar format was followed at each meeting, utilising a semi structured interview process based on a pre-circulated agenda and lasting on average two hours. Participants were encouraged to add their own locally important topics for discussion at the start of each meeting and notes were taken by a single member of the Project Team and checked for accuracy with the relevant teams. The findings reported here are comments generalised across all seven Trusts but different discussion topics and differing representation at meetings means not all comments are applicable to all NPHSS Trusts.

5.5 Additional Meetings

An invitation to meet with, or to provide written comments to, the Project Team was offered to all NPHS employees (based at NPHSS Trusts) who had not been present when the Team was on site. The meeting with the WHAIP Team took place at NPHS South East Regional Offices and followed the same format as site visits with the IC Teams and Trust Executives in 5.4 above.

5.6 Further Information

The draft document was circulated to obtain further information from the wider stakeholder group. Recommendations arising from the main themes collated by the Project Team from all sources of information form the final part of this document. Those included as stakeholders were:

- WAG
- Regional offices
- LHBs
- HPUs/CCDCs
- Community Health Councils
5.7 Scope of the Review

Included in the review were the seven Trusts to whom NPHS services are currently provided:

- Cardiff and Vale NHS Trust
- Carmarthenshire NHS Trust
- Ceredigion and Mid Wales NHS Trust
- Conwy & Denbighshire NHS Trust
- North West Wales NHS Trust
- Velindre NHS Trust
- Swansea NHS Trust

together with all components of the NPHS ICDS which impact directly on ICP service delivery, namely:

- Laboratory services
- Welsh Healthcare Associated Infection Programme Team
- Health Protection Teams

The following Trusts receive no ICDS infection control service but do work in partnership with the WHAIP team. Although not formally included, all these Trusts were informed of the review prior to its commencement:

- Bro Morgannwg NHS Trust
- Gwent NHS Trust
- North East Wales NHS Trust
- North Glamorgan NHS Trust
- Pembrokeshire NHS Trust
- Pontypridd and Rhondda NHS Trust

The purpose of the review was to assess organisational functionality. Primary HCAI data has therefore not been included.

5.8 Timescales

The project commenced in November 2005. Due to prioritisation of the national ICDS response to two major outbreaks (South Wales *Esch. coli* and North Wales *Cryptosporidium sp.*), meetings in all Trusts could not be completed until June 2006. Comments from the draft document were fed back into the main report before publication.
6 Review Findings

The following findings draw on information derived from all sources listed in 5.2 to 5.7 above, supplemented where appropriate by reference to local, national or international benchmarks and standards. Any unreferenced Welsh data has been drawn from the project questionnaire. There is no previous NPHS evaluation with which to make robust longitudinal comparisons.

This review was carried out from an NPHS service provider perspective. However information gathered has supported a much wider review of the management of healthcare associated infection throughout Wales currently being undertaken by the Wales Audit Office. Readers should refer to this (future) publication for an overarching view of HCAI issues in all Welsh NHS Trusts (see www.wao.gov.uk/whatwedo/1387.asp).

Health care organisations in Wales have made huge strides in tackling healthcare associated infections in the last two years. This pace of positive change has inevitably led to dynamic changes in management and organisational structure within NPHS supported Trusts (NPHSS Trusts), often within the time span of this project. It is therefore inevitable, but fortunate, that some initial findings are already historic at the time of reporting and where appropriate these have been highlighted.

6.1 Current NPHS Service Provision for Trusts

Within the seven Trusts reviewed, NPHS provides local and specialist microbiology laboratory services, community IC liaison to local HPUs, links to national reference units and support to HCAI surveillance through the WHAIP team based at CDSC. Microbiologists and virologists employed by the NPHS importantly provide local support, training and leadership for the IC nurses who are themselves employees of the local Trust. These differing units are considered separately below.

6.1.1 Microbiology Laboratory Services

Six Trusts have locally sited NPHS laboratories with one additional Trust receiving services through its neighbouring NPHS laboratory. All laboratories are organisationally led by a Director, who is a consultant microbiologist. The Director and other consultant colleagues are supported by a laboratory manager and administrator.

Laboratories are situated at:

- Aberystwyth (A)
- Bangor (B)
- Cardiff (University Hospital of Wales (UHW) and Llandough
- Carmarthenshire (Carmarthen (C) and Llanelli)
- Rhyl (R)
- Swansea (S)

and provide the focus for local infection services that span: laboratory diagnostics; support for clinical management of infection, including infection prevention and control; assistance to
regional and national surveillance programmes and support to Health Protection Units (HPU) in relation to outbreaks and community infection control. Beyond these generic functions ICDS laboratories have all-Wales and UK specialist and reference facilities as follows (see 6.1.4 below):

- Food, water and environmental microbiology (B,UHW,C,R)
- Giardia and Cyclospora (A,S)
- Welsh Infectious Diseases Molecular Diagnostics Unit (UHW,S)
- Welsh Virology Unit (UHW)
- Wales and South West England Centre for Mycobacteriology (UHW)
- National Anaerobe Reference Unit (C)
- National Cryptosporidium Reference Unit (S)
- National Toxoplasma Reference Unit (S)

Both Executive and IC team representatives felt operational consistency should be assured in all NPHS laboratories across Wales.

6.1.2 Infection Control Team Leadership

In all NPHS-provided Trusts, the IC Team comprises a consultant microbiologist (who may or may not be the Laboratory Director) employed by the NPHS. He/she usually leads a team of one or more IC nurses, who are Trust employees although this is not the only possible model. Whilst historically the consultant microbiologist has been the identified lead for infection control, in some organisations consideration may be given to the Lead role responsibilities being fulfilled by a Nurse Consultant or Lead Nurse for infection control whilst working collaboratively with the consultant microbiologist.

Although a potentially problematic arrangement, this dual Team accountability generally serves to ‘weld’ the two organisations together by providing functional linkage to wider skills and expertise (see 6.2.4 below). Deputisation for the IC lead in many NPHSS Trusts currently falls to other NPHS microbiology consultants and where present usually works well. There is good rapport and information flow between most laboratories and IC Teams, in part due to the fact that all consultants see their basic roles as being part of HCAI service provision.

6.1.3 Health Protection Units

NPHS provides four HPUs across Wales, strategically located in the regional health service areas, and each staffed by a lead Consultant in Communicable Disease Control (CCDC) and a team of public health nurses and administrative staff. Both Executive and IC Teams at NPHSS Trusts reported little contact with local HPUs, except in those areas intimately involved with recent major regional outbreaks. In these Trusts the immediate access to relevant epidemiological expertise and NPHS communications capability was warmly appreciated and the value of such a contribution clearly recognised.

Despite low levels of liaison currently, it was accepted that the issue of community acquired infection, and the relevance of new WAG policy in relation to community providers, was increasingly important and would broaden the value of having direct NPHS organisational linkage to community professionals, such as the local CCDC.
6.1.4 National Reference Units/Specialist Services

The NPHS hosts the UK Cryptosporidium Reference Unit (CRU) at Swansea and its valuable and groundbreaking work was recognised in relation to the recent Cryptosporidium outbreak. Access to specialist units such as the enteric pathogens laboratory is similarly available to all NHS Trusts through their local laboratories. NPHSS executives generally did not feel fully informed of this service through ‘their’ NPHS laboratories.

At the start of this review two consultant virologists who were NPHS employees, worked in Wales. Through input to national projects and standards development work, and through professional liaison, they effectively provided an all Wales virology service including to non-NPHS colleagues. This has derived historically, and continues to work effectively, due to their work increasingly being carried out through virtual media, rather than individual physical presence. Virology services are sparsely resourced in Wales with 1.5 WTE consultants, working from the South East Region. This system relies heavily on the ability of local microbiologists to retain generic virology skills, and on a willingness and recognition of the appropriate time point at which to request external support in managing individual patients or outbreaks.

6.1.5 WHAIP

The WHAIP team (see 2.2 & 2.3 above) is located within the regional Communicable Disease and Surveillance Centre (CDSC), reflecting historic origins when a single researcher commenced MRSA surveillance in 1996 supported by a 0.5WTE nurse and managed by the Director of CDSC. Since 30/01/06, a new national Director for WHAIP has been appointed to provide strategic, proactive and visible leadership to the expanded HCAI surveillance programme in Wales (see 6.5.1), and in recognition that a wider portfolio is required to tackle the HCAI agenda effectively. This service, though NPHS based, is a national service provided to all Trusts. The present Director also provides 2 sessions as IC lead to Velindre Trust for NPHS alone. In addition to the Director, the WHAIP team now includes two senior scientists, an analyst/programmer and an administrative assistant working from CDSC, together with a dedicated IC Nurse jointly based in Cardiff and Rhyl, and from February 2007 a newly recruited Nurse Consultant based in Cardiff.

As well as responsibility for national surveillance collation and reporting, wider team work has included assisting Trusts in setting HCAI targets, epidemiological support for outbreak assistance, data tool development, and HCAI education and training. There is strong team representation on WHAISG which has been instrumental in developing centrally directed HCAI work, including mandatory publication of Trust specific HCAI data, development of the CAI strategy, launch of a professional e-learning programme, input to the national Welsh IC strategy and a drive for public education on data validity and comparability.

Trusts tended to use WHAIP resources more appropriately the higher up the Trust agenda IC was positioned. There is a need to develop fuller understanding of the WHAIP resource and this requires careful prioritisation around and within the increasing mandatory surveillance agenda to ensure appropriate resources are available.
Summary Box 1 – Service Provision

- NPHS provides consultant led microbiology laboratories in six Welsh Trusts, and currently professional leadership to IC Teams in seven, although Lead role responsibilities may be filled by a Nurse Consultant or Lead Nurse (Trust employee).
- NPHS could better promote with Trust staff its unique external resource structure, having multiple linked national and local expert centres able to support the HCAI agenda.
- Most NPHS services are highly regarded by NPHSS Trusts and other stakeholders.
- The WHAIP team is hosted by NPHS but is available to all IC teams in Wales.
- The recent appointment of a new Nurse Consultant is a positive step to ensuring the WHAIP team is more appropriately resourced and better able to assist Trusts with the Welsh HCAI programme.
- NPHS could improve their support to Trusts by promoting epidemiological training and expertise in order to utilise existing surveillance data more effectively.
- The potential value of NPHS organisational linkage to CCDC/HPUs in dealing with the CAI interface is widely recognised.

6.2 Staffing Resources and Accountabilities

Trusts supported by NPHS frequently sought guidance on IC staffing numbers but there are currently no uniformly agreed ratios for consultant or nurse sessional commitment to numbers of inpatient beds. As in all healthcare environments this partly reflects the difficulties of differentiating high risk case mix populations, such as those in intensive care and dialysis units, some of which are particularly relevant to Trusts in Wales. For example, units admitting sick and immunocompromised patients transferred from other institutions are at considerable risk of HCAI, whereas infections in units with a high throughput of day case patients may remain unmonitored or recorded in the community alone. Provision of care over widespread geographical sites can also increase the need for higher staffing ratios. Direct comparisons can therefore not always be helpful. However, as with the WHAIP team (6.1.5) there was a perceived need to grasp greater understanding of the resource needed by NPHSS Trusts to ensure the rapidly increasing mandatory surveillance agenda could be supported effectively and robustly by the IC Teams.

6.2.1 Infection Control Doctors

English acute Trusts have, on average, 3.5 consultant sessions designated for infection control despite Royal College of Pathologists’ recommendations in 2000 that 5 to 6 sessions is an appropriate time commitment (equivalent to one WTE IC doctor per 1000 beds). Based on this ratio, the observed and expected numbers of IC Consultant sessions by NPHSS Trusts in Wales can be seen in Figure 2 below. Although this simplistic representation cannot acknowledge general contributions from consultant colleagues, professional or geographical isolation, or the differentiated experience of both doctor and nurse resource within the IC Team, there is a clear shortfall in IC Consultant support throughout Wales and most notably in the South West.
Greater clarity over the amount of consultant time which should be devoted to Infection Control activities would assist IC management and prioritisation. Many Executive Teams were conscious of the increasing burden being placed on consultant time, in part due to the growing demands of WAG strategy development. The balance of service delivery between IC and general microbiology demands was generally felt to be appropriate, but the high quantity of work limited both professional and organisational development. Where consultant input to IC was high, there was a perceived relationship between increased professional activity for ‘fire-fighting’ and bureaucracy rather than planned, proactive infection control measures addressing IC issues ‘upstream’.

Consultants welcomed a move to clearer prioritisation of IC strategies by NPHSS Trusts, which allowed them to manage their own and staff time to better support IC Teams. Areas which could be addressed in the future included:

- Regular process failure (eg failure of managers to implement existing guidelines; failure of ward staff to complete observation forms)
- Increasingly high patient throughput and patients making multiple transfers within hospital
- The need for significant capital investment in some units to improve physical risk conditions
- Lack of follow through on problems recurrently identified at audit
- Containment of widespread norovirus infection

Trust representatives felt clearer delineation of IC consultant sessional availability might particularly assist in the following areas:

- Current policy implementation
- Models of clinical activity (to allow more visible clinical engagement)
- Available time resource in the event of emergency/outbreak
- Available time resource for preventative and proactive IC activity.
In line with *Designed for Life* and workforce modernisation requirements, discussions were ongoing at most NPHSS Trusts to try and develop innovative on call arrangements which continued to support quality professional input, whilst allowing for individual factors such as consultant travel time and geographical location. NPHS’ willingness to engage in recent new appointments of consultant staff provided positive feedback to Trusts that the central organisation management team understood the local resource demands of individual Trusts.

NPHS staff were regarded as high calibre individuals. A number of national and international microbiology experts were among NPHS employees providing reference and expert services (see 6.1.1).

Other potential areas for development in some NPHSS Trusts related to increased clinical engagement by medical microbiologists. Current working practices of most microbiologists include significant laboratory supervision together with management of specialist advice requests. These may tend to focus the microbiologists’ time on the laboratory and on responding to recurrent low level requests for specialist engagement. New systems which might contribute to more efficient management of the day-to-day drain on consultant time and therefore enhance IC support were explored including:

- potentially re-skilling other staff in specific areas
- development of microbiology triage systems whereby more junior staff could access basic appropriate information without using consultant time inappropriately
- centralised national microbiology dial-in helpline numbers
- laminated microbiology algorithm cards for junior staff (the ‘Leicester System’).

Some of these proposed solutions had additional potential to promote national consistency and improved junior doctor training in managing infectious disease within NPHSS Trusts (see also 6.6 below).

### 6.2.2 Infection Control Nurses

**Figure 3 - Number of Inpatient Beds per WTE Infection Control Nurse in post.**

![Inpatient Beds Chart](chart.png)
Although American guidelines recommend one nurse to 100 beds\textsuperscript{12}, 250 beds is the commonest standard used in the UK. There is wide variation between NPHSS Trusts with only two meeting this level (see Figure 3 above). Excluding Trusts where ratios may be distorted through high day case input, the average provision in NPHSS Trusts is one IC nurse per 397 beds, a significantly poorer ratio than the average English provision in 2003 (1:347). If all current posts were filled the ratio would remain at 1:377.

In some NPHSS Trusts IC nurses carry additional clinical support service responsibility which can diminish the total time available for IC. One existing WTE post remained vacant at the time of the survey (November 2005). Staff resource limitation sometimes impinged on the ability of ICN to undertake proactive IC work, such as leadership for campaigns (Clean Your Hands) and to carry out IC audit.

6.2.3 Scientist and Clerical staff

Scientist and BMS complements were found to be roughly proportional to the size of the units served. Although laboratories have historically tended to work separately from each other there has been excellent joint service response to the demands of community or nosocomial outbreak situations, even though a formalised structure for staff ‘sharing’ or overtime commitment may be absent.

Figure 4 - WTE Clerical IC Staff Provision across NPHS linked Trusts

Sessional provision of clerical IC staff across NPHSS Trusts in Wales is shown in Figure 4 above. Three IC Teams had a full time clerical assistant. In those without defined administrative personnel, highly skilled and expensive consultant level expertise tended to be used for data entry and other less skilled areas or work. In these NPHSS Trusts increased clerical staff could be a productive mechanism to release expert consultant level input to HCAIPC.
6.2.4 Accountabilities

The Welsh HCAI Strategy promotes clear lines of management accountability for all staff to ensure effective HCAIPC. In NPHSS Trusts there are two distinct management streams: (1) NPHS staff working in Trusts and (2) Trust staff employees working to the HCAI strategy.

**NPHS Staff**

The potential problem of IC Team members being managed by two different organisations, the Trust on the one hand and NPHS on the other, was an issue in only one of seven Trusts. In others the system was frequently described as ‘seamless’. Generally individual NPHS consultants were clear about their own performance management, through work contracts, professional appraisal and existing standards, managed directly through the NPHS laboratory Director for NPHS. For the NPHS consultants nominated as HCAIPC leads, shared professional accountability was recognised in most cases through the Medical Director. In all cases these consultants were valued members of the Trust.

Many Executive members recognised similar organisational models existing in other contracted services and felt this hybrid management structure to be positive, providing a safer national basis for IPC risk management. In some NPHSS Trusts the wider advantages of this integrated working approach had been successfully tested recently when the local HPU and Trust community nurses had dealt jointly with a meningitis outbreak. In the event of a statutory investigation in relation to IC, Velindre Trust, through its hosting role to the NPHS, could potentially be a party to its own prosecution. Even this unique position was deemed suitably differentiated to prevent any problems in relation to accountability.

Despite these excellent practical working relationships, existing SLAs with NPHSS Trusts were considered extremely poor with written accountabilities not clearly defined and a new SLA to include both accountability and service criteria was a priority requirement for all NPHSS Trusts.

The need to explore the potential for closer working relationships between Trusts in light of new working directives and training requirements was generally accepted. However it was also acknowledged that the essential requirement for safe and effective working practice may, in some areas, be dependent on local familiarity with distinct geographical areas, personnel and/or local Trust operating procedures. Close working relationships had already been established successfully in some parts of Wales.

**Trust Staff**

ICNs were more conscious of working for ‘two bosses’ – usually line managed by the Director/Lead for IPC (NPHS) but reporting professionally to the Director of Nursing. Whilst organisational risk management process varied many NPHSS Trusts highlighted the problems of ensuring individual professional accountability, particularly amongst doctors who most frequently flouted basic hygiene rules. Trusts with high junior doctor turnover were considered to be at particular risk. Suggested mechanisms outside the NPHS for improving compliance include formal assessment through the RITA process for junior doctors and inclusion of IC in job specifications for consultants (see 6.4, 6.6.4). Currently poor clinician performance in IPC was generally managed through the relevant Trust clinical governance agenda, working through the Clinical Director and the Director for Postgraduate Medical Education.
Summary Box 2 – Staffing resources and accountabilities

- NPHS consultant microbiology staff are welcomed by Trusts as an expert resource
- Lines of accountability generally presented no operational problems and NPHS staff provided a seamless professional service
- There was scope for greater clinical engagement by consultant medical microbiologists in some NPHSS Trusts.
- There is further scope to examine the priorities within job plans for NPHS medical microbiologists and a need to review overall resource in relation to the required IC outputs.
- There was considerable variability in the provision of clerical support for IC in NPHSS Trusts across Wales. Clarification of the required clerical support for IC would ensure the release of more time for IC team expertise to be effectively used.
- NPHSS Trusts would welcome guidance on appropriate staffing numbers and development of new, detailed SLAs.
- Further opportunities exist to enhance mutual professional support, on call arrangements and time prioritisation for consultant medical microbiologists.

6.3 Progress with Implementation of WAG HCAI Strategy

6.3.1 Overview

All seven IC Teams in Wales reported general increased awareness of the IPC programme within their respective Trusts and positive management changes. Immediately after the new Strategy was introduced there was a dearth of objective outcome evidence of infection reduction in Welsh Trusts. However many individual initiatives are now in process providing early and very encouraging reports of real impact on HCAI. High bed occupancy, a factor associated with increased risk of HCAI, has continued to run in excess of 80% in many NPHSS Trusts in the two years since the Welsh HCAI Strategy was published, and management have had to continue to develop IPC services against this unfavourable background. Some specific areas of WAG strategy implementation are reviewed below.

6.3.2 Trust and Directorate Development

All Trusts had submitted a HCAI action plan to WAG via their Regional Office by the end of 2005. In addition directorate (or service division) leads had been appointed for HCAI in all NPHSS Trusts. In slightly fewer (four) had IC Teams been fully involved with Directorates in addressing their individual HCAI priorities, a process which had been fully completed in two. The majority (five) of the seven NPHSS had at least partially incorporated identified priority IC topics within the overall Trust Action Plan. Some prioritisation was Executive led; others prioritised from divisional level upwards.

Lack of ownership of IPC by clinicians has been a recurrent problem in the UK, noted particularly in the NAO report of 2000. Historically this had also occurred in NPHSS Trusts, generally arising in one of two ways: either token interest by senior management resulting in cascade indifference to IC throughout the directorates, or more frequently, significant higher level engagement which was not translated at directorate level. Doctors were not only the least ‘engageable’ group but had also been the worst offenders in breaking IC policy guidance e.g. hand washing. Even though IC
had been included within the job plans of clinical leads in some Trusts, this aspect of their work was frequently delegated to nurses or managers. Directors themselves rarely attended ICC meetings and many were reported to view IC as an additional, unresourced workload.

Since the WAG strategy launch Executive Teams, and clinical leads, in many NPHSS Trusts have gone to considerable lengths to counteract this problem with tangible outcomes. In one, for example, the Medical Director wrote individually to each doctor enclosing the Trust hand washing policy. In another, new doctors received their own hand gel dispenser. In one Trust the daily activity and ward meetings are used to more closely link ICC with directorate work plans. The main change agents for IC within directorates remain the Directorate nurses and improvements continue in many NPHSS Trusts through greater delineation of the clinical roles in relation to IC.

Other suggestions offered at NPHSS Trust meetings for future improvements included:

- Appointment of Nurse Consultants\(^1\) or lead Infection Control Nurses working full time in infection control, responsible for translating the Trust’s strategic aims into actions. Both Nurse Consultant and Lead Nurse roles for infection control have been successfully developed within the UK. The post holders work directly with, and are supported by the Medical Microbiologists/Infection Control Doctors.
- Improved sharing, reporting and presentation of data (see 6.5.5, 6.5.7 below)
- Raising the profile of IC as a priority development area including development of career progression pathways
- Using clear objective surveillance evidence to clarify the basis for potentially unpopular clinical decisions
- Agreeing standards against which to provide services eg minimum standards for patients undergoing routine elective surgery.
- Using secondary IC issues, such as risk management and litigation problems, to engage clinicians more fully.
- Exploring the potential for greater clinical visibility of microbiology consultants on the wards.

In most NPHSS Trusts senior management was supportive to IC Teams in both policy development and external communications, although in many the IC Teams could benefit from greater direct influence in the design of IPC reorganisation within Trusts. Prioritisation of IPC within NPHSS Trusts seemed to some extent to be reflected in the reporting mechanisms and line management - in some, ICC reported direct to the Executive Team and/or Board, in others the links were less direct. This therefore represents a further potential practical opportunity for Trusts to visibly prioritise IPC practices.

### 6.3.3 Infection Control Committees

All Trusts now have an Infection Control Committee (ICC) to oversee internal HCAI strategy. Membership, chairmanship and effectiveness all vary. Amongst the seven Trusts, four were chaired by NPHS consultant microbiologists, one by the Trust Director of Nursing, one by the Trust Medical Director and one by a consultant physician.

\(^1\) May not apply at Swansea NHS Trust
Membership and meeting schedules varied with most meetings convened on a quarterly basis. Some were composed with very broad membership and included representation from occupational health, estates and catering. Differing reporting mechanisms offered different benefits. Those reporting directly through the Clinical Governance and Risk Management Committees (see 6.4 below) to the Trust Board were more readily able to influence central policy direction. Others, which were more distantly positioned from the Board structure, offered opportunities to raise the perceived priority of the IPC agenda peripherally within the Trust through management structural alignment. In some cases both mechanisms worked synergistically.

6.3.4 Use of the IC Team

There was some variation in the breadth of engagement with IC Teams in promoting environments and policies to support good HCAI control. Several NPHSS Trusts were notably good at ensuring consultation in almost all areas. Figure 5 shows that this is the norm in more traditional areas of disinfection and sterilisation equipment, and theatre ventilation. As was found in English Trusts in 2004, there is still scope for greater collaboration over bed management, catering, laundry and cleaning service contracts and, particularly with LHBs, in developing routine consultation in wider areas of IPC impact.

Figure 5: Frequency with which IC Teams are consulted on specific HCAI domains

6.3.5 Use of Link Nurses

Five NPHSS Trusts routinely used link nurses within their HCAI programme. This provision was well developed in some hospitals where existing staff took on voluntary roles. In others link
nurses were used in the community but not in the main acute hospital, or were a relatively new HCAI prevention component. In the three acute Trusts where an indicative bed ratio could be calculated, one link nurse was available for between 14 and 28 inpatient beds. Link nurses are considered effective only if there is widespread Trust coverage. In comparison to English Trusts, where on average there are 54 link nurses per Trust, this current complement in some NPHSS units may be operationally insufficient to impact on clinical outcomes and could benefit from review. Although the evidence base for improved HCAI outcomes though use of link nurses is imprecise there may be additional opportunities to improve local impact by increasing their direct authority within NPHSS Trusts.

6.3.6 Changes to the Management of HCAI

Six IC Teams, and seven Executive Teams, reported recent changes in management introduced expressly for the control of HCAI. The majority of these were positive and predominantly in relation to hand hygiene and environmental audit (see Fig.6). Considerable efforts made in relation to training in almost all NPHSS Trusts were sometimes hampered by poor trainee attendance (due to alternative urgent clinical demands), or reductions in staff trainer availability perceived to result from discontinuity of pump primed funding. Low attendance occurred despite the best efforts by many providers to ensure ring fenced attendance time.

High level or novel management change had taken place in several NPHSS Trusts and examples included:

- a new appointment at Nursing Director level to raise the profile of IC throughout the NPHSS Trust
- changes to the structure and process of the ICC to ensure its visibility and formal, direct quarterly reporting to the Executive Team
- Appointment of a non-executive clinician for IC to the Trust Board and
- Regular meetings of the IC lead and Trust CE with the CHC representative

Figure 6: Number of Trusts reporting positive/negative changes in HCAI managed areas since July 2004
6.3.7 Changes to Antibiotic Policies

All Trusts had a written antibiotic policy, with the majority specifying policy on prophylactic use. Although the programmes were generally led by microbiologists, antibiotic policy in six of the seven Trusts was developed jointly between microbiologists, clinicians and pharmacists although there remained further opportunity for this collaborative work to be extended to developing a more consistent approach to compliance monitoring. In the majority of NPHSS Trusts this latter task fell to pharmacists alone, and in some there was no formal monitoring programme. In all NPHSS Trusts antibiotic polices were up to date, having been reviewed within the last three years.

There appeared to be further scope to diminish anomalous antibiotic practice which was reported to occur across Wales, both geographically and vertically within clinical groups. Although high level antibiotic prescribing policy changes were made junior staff were frequently reported to continue with separate prescribing agenda. Another potential improvement area was surgical audit, which in some NPHSS Trusts continued to be carried out independently of any antibiotic review. Executive Team members were keen to develop national guidance and promote the use of evidence based prophylactic prescribing practices to better target economic resources.

6.3.8 Resource considerations and R&D

Despite the potential significant resource savings through HCAI prevention, both in terms of lower treatment costs and prevented litigation cases, economic argument was not being used effectively in NPHSS Trusts in Wales to support HCAI change through relevant business case development. One team had carried out an economic evaluation in relation to HCAI but of four Teams presenting business cases to secure additional IPC resources none had been ‘reasonably’ successful.

An inconsistent picture of real (non-inflationary) changes in resources for IC Teams emerged from the questionnaire. Two IC Teams felt there had been consistent upward resourcing over the two
years since 2004 while the majority felt resource had been lost. In several NPHSS Trusts new temporary staff had been employed to support surveillance using non-recurrent pump priming from the Public Health budget. Where it had not proved possible for surveillance responsibility to fully migrate to the clinical directorate within this initially funded year, subsequent loss of posts was generally perceived as a resource loss.

The three main areas highlighted as resource issues within NPHSS Trusts were:
- central under-resourcing of the increasing surveillance agenda imposed by WAG
- requirement for increased consultant resource
- administrative/secretarial support for IC
- opportunities for consistent prioritisation of low cost ICP measures alongside high cost capital major investment eg handbasin availability in multi million surgical theatre development (see also Fig 5 above).

Although several NPHSS Trusts felt the commissioning route was a desirable channel for improving Trust IPC, the operational contracting process in Wales was currently too immature to attempt to resource improved HCAI service quality through this route in the foreseeable future. NPHS was considered well-placed to usefully facilitate engagement of LHBs on the costs and commissioning of IPC compliant services, including National Cleaning Standards.

Most NPHSS Trusts audited some or all of their activity. To further enhance this important work collaborative primary research opportunities could be developed, combined with economic analysis, to address pragmatic service-orientated research questions. NPHS was again considered well placed to facilitate this development.

### 6.3.9 Local Considerations

All NPHSS Trust Teams, both IC and Executive, had local issues which they felt impinged on their ability to deliver IPC effectively or in the way their management, and its outcomes, would be perceived by the public. These included:
- the way infection rates were presented
- the proportion of high risk patients such as transfers
- high bed occupancy levels
- geographically widespread physical facilities
- the poor availability of isolation cubicles and negative pressure facilities
- delayed discharge to care homes

Whilst welcoming the potential for support in implementing strategy through national NPHS guidance, NPHSS Trusts were keen to ensure that individual problem areas for each Trust were not detrimentally overlooked.

<table>
<thead>
<tr>
<th>Summary Box 3 – Implementation of WAG HCAI Hospital Strategy</th>
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<tbody>
<tr>
<td>Many Trusts are working hard to implement the Welsh Strategy, producing significant changes in management structure and Trust policy</td>
</tr>
<tr>
<td>The long lead time needed to produce strong cultural change has meant that positive outcomes in infection reduction are only just becoming evident in the clinical setting.</td>
</tr>
</tbody>
</table>
- Where local strategy implementation has occurred early positive action tends to be in the areas of hand hygiene and environmental audit.

- Clinicians within directorates are now starting to embrace IC responsibility and relating outcomes to their individual patient groups with subsequent improvements in the appropriate use of IC staff and of data feedback.

- Where management change has been less effective IC responsibility has tended to be delegated downwards to staff members lacking sufficient authority or seniority to effect change.

- Advice is often sought from IC Teams on traditional areas such as disinfection and bed management but there are still opportunities to improve IC through consultation on the wider issues of catering, laundering or LHB commissioning.

- Improvements have been made in all Trusts in collaborative development of antibiotic policies and this work could now be expanded to include antibiotic monitoring programmes.

- The commissioning process in LHBs is not yet developed sufficiently to use integrated commissioning as a tool for developing quality HCAI surveillance systems.

- NPHSS Trusts recognised the potential for the use of economic argument to support HCAI change in Wales through relevant business case development, with NPHS well placed to facilitate such activity.

- Suggestions to improve HCAI Strategy effectiveness and uptake include appointment of strategic Nurse Consultants\(^2\), development of IC career pathways, agreement of minimum standards for elective surgery and increasing the clinical presence of IC leads.

### 6.4 Standards and Risk Management

#### 6.4.1 Current standards

The regulatory and policy environments in which HCAI strategy is currently operational in Wales are summarised in Table 1 below.

<table>
<thead>
<tr>
<th>STANDARDS MANAGEMENT TOOLS REGULATORY MECHANISM</th>
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\(^2\) See 6.3.2 p 25 above
Many participants felt that standards could be developed more meaningfully using clearly delineated practical and enforceable measures, e.g. use of colour coded theatre gowns. This reflects the current English move towards use of the Health Act to enforce hospital codes of practice.\textsuperscript{13}

### 6.4.2 Risk Assessment and Divisional Performance Management

IPC had been incorporated into the wider risk management and clinical governance programmes of all seven Trusts. Some Welsh Risk Pool (WRP) scores (Standard 14) were understandably identical to objectives in the Welsh HCAI standards, and were reduplicated again in local and strategic implementation plans. For 2004/5, Trust WRP scores ranged between 86% and 98% although many felt this reflected a paper exercise rather than real risk criteria. Recent changes to WRP Standard 14 to include critical incident reporting have not been universally endorsed by all professionals. SAFF targets for 2007/8 now include a requirement to reduce HCAI in line with targets agreed with the WHAIP. Several consultants felt development of additional standards, analogous to the use of Clinical Pathology Accreditation (CPA) for laboratories, would improve quality and diminish disparity of service provision across Wales.

### 6.4.3 Documentation

The hard work of IC Teams in NPHSS Trusts was often affected adversely by the need to produce similar audit documents for different assessments by different bodies at different times of the year. Some use traffic light systems, others weighted review. One single transferable document, which could be used to satisfy the requirements of different bodies, would maximise efficiency of the regulatory process and release time resource for specialist IC work.

Several IC and Executive teams would welcome assistance in streamlining this process further to ensure unified data warehousing and formatting, inspection methodology, data release (to both CEs and regulators) and calendar coordination of centrally produced data and reports. A possible route for this would be through the recently established Wales Health Concordat.\textsuperscript{14} If successful this would greatly enhance the clarity and comparability of data and substantially decrease the administration for all NPHSS Trust IC Teams.
6.4.4 Risk management

Several potential mechanisms for risk management and audit were suggested or were already in use:

- Clinical governance review
- Death certificates including an infective cause routinely referred for review
- UK Global Trigger tool for adverse events pilot
- Monthly sample case notes review including microbiology
- Use of IR 1 forms
- Professional review e.g. through GMC

The main divisional performance management in many Trusts was through the annual clinical governance review. In one Trust clinical accountability for IPC had also been fully embedded in the new balanced scorecard.

Executive representatives and IC Consultants both voiced the need for (1) formal enforcement of IPC through a process similar to Health and Safety legislation and (2) inclusion of professional responsibility for IPC within job plans. It was felt the vulnerability of Trusts to poor organisational risk assessment and public criticism could be alleviated if consistent IPC adverse events were reported nationally. NPHS could champion such a move.

6.4.5 Litigation

IC litigation activity and interest appeared lower to date in Welsh than in English Trusts, including NPHS supported Trusts. This was felt to be due in part to proactive central government approaches in allowing local flexibility for Trusts to set their own IPC targets and to prior positive engagement with the media. Nevertheless NPHSS Trusts felt they may be at risk where there was inconsistency in patient management (e.g. screening policies between hospitals and laboratories, variation in proactivity of treatment of MRSA positive patients) and a lack of robust national IC guidance which Trusts could follow was an area to which NPHS could positively contribute.

6.4.6 Development of National Policies and Guidance

Although a UK national resource, NRIC\textsuperscript{15}, has been established to provide useful documentation for IC Teams, it has generally not been adopted as a central resource for local policy derivation in Wales. Whilst many NPHSS Trust teams, both IC and management, wanted access to useable policies there was anxiety that they would:

1. not be updated robustly or regularly
2. lack reality of clinical IC provision
3. be too rigid for application in Wales locally given the very different catchment areas, case-mix, and environmental IC risk

NPHS was perceived as having sufficient expertise and understanding of local issues to ensure a supply of relevant evidence based documents to local IC Teams. The significant diminution in workload to individual IC Teams resulting from centralisation had the potential to release more local consultant and nurse sessions, in particular benefiting organisations with wide and/or diverse geographical catchment areas. Generic national guidance to NPHSS Trusts on wider issues was also requested, for example on CJD, pandemic flu.
Domains requested for guidance and policies to be used by all NPHSS Trusts included:

- Screening policies (including coverage of the potential dual management criteria if high risk patient screening was recommended)
- Nosocomial outbreak identification and management (see 6.5.8)
- Antibiotic prophylaxis and treatment
- IC staffing guidance
- Management of the interface between CAI and HCAI
- National Training Standards for IPC
- National Commissioning Standards for IPC
- National Minimum Standards for Elective Surgery IPC
- Standard Operating Procedures (SOPs) for NHS Managers

### Summary Box 4 – Standards and Risk Management

- All NPHSS Trusts had incorporated IPC into their wider risk management and clinical governance programmes and in some within the organisations’ Balanced Scorecard
- Welsh Risk Pool Standards for IPC ranged between 86% and 98%
- The regulatory and policy environment for IPC in all NHS Trusts in Wales is complex and would benefit from simplification and unification of both process and documentation, possibly through the Wales Health Concordat
- Development of a consistent national IPC adverse reporting mechanism was considered a necessity. Some advocated a mechanism similar to that used by the HSE or CPA
- Formal encouragement of individual clinicians to adopt IPC best practice remained difficult through existing professional accountability channels – specified IPC job plans for consultants and IPC competency training assessments for junior doctors were felt necessary to conclusively alter long-standing cultural attitudes
- The lack of robust uniform IPC guidance was felt to leave organisations at risk - Evidence based documents for NPHSS Trust use would be a welcome practical tool for risk management of HCAI – topics requested include guidance on screening, IC training standards, IC staffing standards, management of nosocomial outbreaks, national commissioning standards for IPC, national minimum standards for elective surgery

## 6.5 Surveillance and Use of Information

### 6.5.1 Current Surveillance

At the time of the questionnaire survey the mandatory HCAI surveillance programme in Wales included:
- *Staphylococcus aureus* bacteraemia surveillance, including MRSA
- Orthopaedic surgical site infection (SSI) surveillance
- Outbreak surveillance
- *Clostridium difficile* surveillance
These mandatory schemes are reflected in the 100% uptake reported by NPHSS Trusts at November 2005 (See Figure 7 above). In some Trusts additional surveillance schemes were in operation, representing future mandatory schemes under development (eg Caesarean section site infection, mandatory from January 2006) or locally specific schemes (eg Central Venous Catheter (CVC) surveillance). NPHS support for surveillance in all areas was considered excellent, including for the subsequent prevalence study of all HCAIs in February and May 2006.

6.5.2 Data collection

In general clinicians within directorates take responsibility for data collection as part of their professional remit. In a few NPHSS Trusts the IC Team, including consultant microbiologists personally, continued to shoulder an unreasonable burden in relation to obtaining and entering surveillance data. This diminished the time available to provide specialist analysis and feedback and therefore have the greatest impact on disease outcomes.

There is some evidence that surveillance programmes introduced more recently have been more successful in engaging clinicians. The increasing number of surveillance programmes may be engendering a workplace ‘norm’. This is particularly so with caesarean section surveillance where NPHSS Trusts have been very successful in obtaining very robust and complete datasets through direct midwife supervision. The table below (Table 2) highlights the personnel who were collecting individual data streams at the time of the survey (November 2005) where this was specified by Trusts.
Table 2 – Differing personnel responsible for surveillance data collection in NPHSS Trusts across Wales

<table>
<thead>
<tr>
<th>Surveillance type</th>
<th>Personnel responsible IN NPHSS Trusts across Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>General (all those unspecified)</td>
<td>IC Team alone (1 Trust)</td>
</tr>
<tr>
<td></td>
<td>ICNs/Senior ICNs</td>
</tr>
<tr>
<td></td>
<td>Different individuals for each programme</td>
</tr>
<tr>
<td></td>
<td>Consultant microbiologist</td>
</tr>
<tr>
<td>C difficile</td>
<td>Consultant microbiologist</td>
</tr>
<tr>
<td>Caesarian Section</td>
<td>Clinicians overseen by midwives or Midwives alone</td>
</tr>
<tr>
<td>Orthopaedic SSI</td>
<td>Clinicians overseen by specialist nurse</td>
</tr>
<tr>
<td></td>
<td>ICN with directorate staff</td>
</tr>
<tr>
<td></td>
<td>Clinicians alone</td>
</tr>
<tr>
<td>Bacteraemia</td>
<td>Consultant microbiologist</td>
</tr>
<tr>
<td>ITU</td>
<td>Clinicians overseen by other/ICN</td>
</tr>
<tr>
<td></td>
<td>Directorate staff</td>
</tr>
</tbody>
</table>

6.5.3 Data completeness

Despite increasing effort in all NPHSS Trusts there are still opportunities to improve completeness of data. Some Trusts favoured the introduction of the ‘Belfast’ approach where junior doctors are required to complete surveillance fields prior to patient discharge. Based on knowledge of considerable variation in positivity rates of samples across Wales consistency of national data cannot yet be assured even though considerable advances continue to be made.

6.5.4 Feedback

All NPHSS Trusts fed surveillance data back to both medical and nursing staff routinely. Sometimes there was further scope to ensure the information reached those most likely to influence practice at the ‘coal face’. Most impact seemed to be gained when Trusts presented low level data graphically to clinicians within their own clinical environments and with a direct organisational remit. This prevented the loss of impact in clinical practice which sometimes happened when information was relayed to directorate representatives at ICC meeting or through minutes.

Some NPHSS Trusts had developed a variety of preferred successful methodologies for presenting data suitable to local needs. These included:
- site- rather than microbiologically-specific denominator data
- standardised reporting formats including outcome measures eg overall bed days lost.
- benchmarking against UK tertiary referrals for renal, cardiac, burns and plastics.

In some cases data feedback caused a defensive stance by clinicians, and IC Teams were concerned that swab rates could be adversely affected. In smaller Trusts it was difficult to demonstrate any statistically significant beneficial outcomes due to lack of statistical power, thereby weakening the impact feedback could have in changing clinician behaviour. The availability of an NPHS system to combine similar data with other local Trusts for feedback
purposes, within a nationally standardised audit and reporting process, was considered of potential assistance in solving these problems.

6.5.5 Interpretation and dissemination

As noted above the perception of effective local HCAI management was influenced by issues of:

- timely reporting
- incomparability of data, particularly between Trusts
- consistency of use of definitions
- degree to which other Trusts were testing their patients.

The onset of publication of mandatory Trust based MRSA bacteraemia reporting in 2006 had heightened awareness of the lack of local epidemiological skills at all levels, including at the Executive, IC Team and clinical interface. In some NPHSS Trusts the WHAIP IC nurse was able to support this role. In others the existing expertise had been lost when individual staff members had left, and NPHS was recognised as a potential resource for renewing and generating relevant expertise.

Bacteraemia data currently received from WHAIP was considered thorough and reliable. The need for timely dissemination of this data was voiced not only in the Trusts, but by the relatively short staffed central WHAIP team who recognised their own ability to provide rapid results was diminishing with an ever increasing agenda. Delays made Trust Executives vulnerable to outside criticism and/or potential litigation. In addition to direct use in improving clinical practice, the main requirement for senior management was for easily interpreted information to disseminate to regulatory bodies at specified times (see 6.4.3) and for Board feedback. Presentation of graphical trend data and possible use of concurrent antibiotic resistance information were likely to enhance managerial prioritisation of interventions.

6.5.6 Data hardware and software

By April 2006, three NPHSS Trusts had full manual or electronic systems with which IC Teams could identify patients who had been readmitted, and one further Trust could do so in one of two major acute hospitals within its organisation. At two hospitals (since April 2006) this facility had been used proactively to identify high risk patients who had been readmitted due to infection.

The original software product used for data collection In Control was developed by the WHAIP team and a new data collection tool Datastore is now in use throughout NPHS laboratories. All NPHSS Trusts had plentiful hardware to track patients; a few were hampered in their attempts through difficulties in software incompatibility which meant microbiology results could not be retrieved routinely on the wards or in GP surgeries.

6.5.7 Role of NPHS in Wider Dissemination of Information

The ongoing NPHS development of (i) improved website information and (ii) new advice on interpretation of Trust specific surveillance information now available to the public were both viewed positively, particularly in light of recent generalised criticism from the public. Many NPHSS Trusts wanted the NPHS to widen this sphere of operation and use central expert communication resource in the provision of simple surveillance messages and broader education programmes to CHCs, schools’ education policies, universities etc. NPHSS Trusts where existing
relations with the press had been utilised were particularly appreciative. It was felt this ability of the NPHS to provide clear, effective IPC messages and data interpretation could also be usefully used in engaging and promoting LHBs in a full commissioning role with regard to IPC and National Cleaning Standards (see 6.3.8).

Amongst the seven NPHSS Trusts some had particular needs and concerns about data collection and analysis, many of which applied to Welsh Trusts more widely:

- The need to develop an analysis tool for local interventional research outcomes which was compatible with mandatory surveillance programmes.
- The need for solutions to the problem of case mix in direct inter-Trust reporting comparison, in particular day versus longer stay patients, or ambulatory throughput.
- The lack of age specific (>65 years) bed day denominator data preventing direct benchmarking against English Trusts for rates of *Clostridium difficile*.
- The need for new databases in relation to the ongoing development of CAI standards – a potential area in which NPHS could establish a core patient database to prevent reduplication of effort, monitor spread between accepting healthcare facilities and improve surveillance follow up post discharge.

6.5.8 Identification and Management of Outbreaks

All Trusts participated in mandatory outbreak reporting. The importance of rapid and continuous information exchange for effective management in such circumstances was highlighted both by microbiology colleagues and executive teams. This facility was noticeably more advanced in some NPHSS Trusts than others and appeared to work best where regular microbiology consultant liaison with IC colleagues and executive members occurred, whether formally or informally. The method of communication appeared less important than the clarity of lines of responsibility and implementation. For example in one, outbreak management relied heavily on regular email communication, but teams worked closely with bed managers, stepping up to twice daily meetings in high risk situations. Despite these arrangements it is likely that substantial underascertainment of clusters and outbreaks of HAI still remain in some Trusts, in part due to lack of central guidance and agreed definitions.

In many Trusts IC Teams make recommendations for outbreak management, the implementation of which becomes the responsibility of managers. Any dissociation of the IC Team structure can impede effective surveillance, communication and management of outbreaks. Clarification of the line of authority of junior (management) staff to carry out ward closures or similar activities within Trusts for IC reasons without the knowledge of the IC team was requested by IPC personnel.

As with other policies many representatives felt consistency in defining, identifying, communicating, managing and reviewing outbreaks was essential for clinical governance.

In general Trusts wanted NPHS to provide specific outbreak guidance or action on:

- Defining nosocomial outbreaks including case definitions – the evolution of an incident to an outbreak
- Reconfiguration of wards
- Reconfiguration of patient services.
- Benchmarking of outbreaks
- Surge capacity during outbreaks, both Trust and Community based
- Rapid community and organisational outbreak information dissemination
- Setting national standards for nosocomial outbreak management

**Summary Box 5 – Surveillance and Use of Information**

- All Trusts served by the NPHS were participating in surveillance of *S. aureus, C. difficile*, orthopaedic surgical site infections and outbreak surveillance at November 2005.
- Trusts appeared to be successfully changing the culture in relation to surveillance programmes with newer programmes being accepted more readily by clinicians.
- Good completeness of data from caesarean section wound infection surveillance has been achieved. This is felt to be due to direct involvement of midwives in data collection.
- Although Trusts have successfully transferred much of the IC responsibility to clinical directorates, IC teams continue to absorb a significant burden of data collection
- The level of resource, both financial and human, is felt to be limiting the ability of NPHSS Trusts to maximise the impact of new surveillance programmes.
- All Trusts have developed systems to feed back data routinely to medical and nursing staff, but penetration to the ‘coalface’ can be variable.
- Graphically presented low-level data is the most effective for engaging clinicians.
- A combination of factors (e.g., small denominator base, variability of specialist unit makeup, incomplete data etc.) make benchmarking and demonstration of improved outcomes difficult and may threaten apparently poorly performing Trusts and clinicians.
- The NPHS, through both local personnel and central press resources, were considered highly effective in communicating IC messages and in engaging with the public. NPHSS Trusts would welcome an expansion of this role, in both media and the wider public.
- NPHSS Trusts would welcome national guidance on nosocomial outbreak management.
- Community outbreaks impinge on NPHSS Trust activity and laboratory capability – early warning through NPHS ICDS would be welcomed.

### 6.6 Training and Professional Development

#### 6.6.1 Training Others

All seven IC Teams, utilising both medical and nursing skills, provided training through established programmes. Basic IC Training was a mandatory process for all employees within the majority of Trusts. There has been a significant positive increase in training provision overall, but in some cases the numbers attending each session have decreased with an overall loss of ICN time and lower numbers of trained nurses. The hours spent by individual ICNs in providing training varied considerably across Wales, ranging from two to 20 hours per week. IC Teams providing the most training hours were not those with the greatest manpower, and this affected the ability of small units to tackle other areas of IC.
Some NPHSS Trusts had made significant strides in engaging link nurses and in developing cascade training. These changes alone demonstrated considerable resilience and long term strategic vision with link nurse programmes taking up to three years to develop. Overall it was felt the effectiveness of the workforce could be improved further because expert IC advice, which should have been used at a higher level, was all too frequently spent on basic staff training.

In some Trusts IC education had been extended proactively to patients’ relatives (eg Glow and Tell).

### 6.6.2 Methods of Training Provision

Where possible differential provision of training, in terms of timing, duration and content, was being used to maximise uptake. Examples included whole day study sessions for community nurses, compared to 2 hours ‘off ward’ teaching sessions for short staffed specialties. A number of very successful recurrent internal and external training programmes existed including links with medical students, pre-registration nurses and radiotherapy students through their universities, and with nursing, physiotherapy, auxiliary and dental staff through NPHSS Trusts in both North and South Wales. In some Trusts training and audit were delivered as linked educational modules.

Staff shortages in Trusts were a significant barrier to effective training and differentially affected some professional groups. Geographical barriers of providing training (and audit) to national divisions across the whole of Wales provided specific challenges to some NPHSS Trusts.

### 6.6.3 E-Learning

All Trusts recognised the potential benefits of the new WAG E-learning programme, released in summer 2006 including:

- Standardised tuition package
- Out of hours availability
- Wide geographical availability

Successful piloting and wide availability of computer terminals was opening up IC education to much wider relevant groups in NPHSS Trusts, including cleaning staff.

### 6.6.4 Professional and Service Development

NPHSS Trusts were generally sympathetic to ICNs updating their own professional learning. A number of additional initiatives were suggested for future professional development of all Welsh ICNs and other healthcare workers. These were recognised to be outside the current NPHS remit but could contribute to national efforts to tackle HCAI in Wales or the UK and included:

- **National Infection Control Forum for professional development and information sharing of all IC staff**: At the time of this survey no joint doctor/nurse fora were in existence. The existing IC nurse forum tended to support sharing of initiatives and policy development in the South, whilst microbiologists usually attended their own specialist professional meetings which were rarely tailored for IC issues. A new joint forum has been established within the timescale of this review and has successfully met twice to date.

- **National Passport Training Scheme to include IC**: Mandatory training on various topics is provided by individual NPHSS and other Trusts. New employees were occasionally prevented from working whilst awaiting appropriate training, an issue particularly relevant
to Trusts with significant locum turnover. Development of a national Welsh employee training scheme, standardised centrally and endorsed locally would ensure staff could transfer between posts efficiently without the need for further training, thereby releasing IC and other staff for other work. Such a scheme would promote evidence based IC and could help raise standards across Wales. If developed in combination with nursing banks locum cover training too would become standardised. The new E-learning package was recognised to be positively contributing to such an initiative.

- **Liaison with Professional training and regulatory bodies** (eg PMETB, GMC) to ensure IC training was built into junior doctor training schemes as a formally assessed competency and into GMC professional standards.
- **Broader IC training**: to wider organisational groups such as the Welsh Ambulance Trust and General Practitioners to promote common standards and understanding.

### Summary Box 6 – Training and Professional Development

- IC Teams provide significant amounts of IC training to a wide group of recipients including medical and nursing students, Allied Health Professionals (AHPs), other staff groups (eg cleaners) and patients.
- Training provision has increased with the introduction of the HCAI strategy, but despite NPHSS Trust efforts to prioritise training the numbers completing have dropped in some Trusts.
- ICNs were generally able to attend CPD sessions themselves.
- There was scope to restructure basic training in order to utilise expert advice at a higher, appropriate level.
- All Trusts recognised the potential benefits of the new E-learning IC package including standardised tuition and availability over widespread geographical locations.
- Strong support was given for NPHS to champion the following for national development:
  1. National IC Joint Forum for Microbiologists and IC Nurses
  2. National Passport Training Scheme
  3. Liaison with professional bodies to ensure incorporation of IC into professional standards and training competencies
  4. Broader IC training and public engagement

### 7 SWOT Analysis

Table 3 summarises a SWOT analysis of the combined HPAIPC service provided by both NPHSS Trusts and NPHS drawing on the findings of the review. The interview process generated many suggestions for ‘ideal’ service development and engagement in areas well outside Welsh service delivery including healthcare worker training, UK professional standards setting, research and horizon scanning. Full engagement in these wider areas would not be possible within current NPHS human and financial resource restraints.
Table 3 - SWOT Analysis of combined NPHS/TRUST IPC Programme

<table>
<thead>
<tr>
<th>SERVICE PROVISION</th>
<th>STAFFING RESOURCE/ACCOUNTABILITIES</th>
<th>HCAI STRATEGY IMPLEMENTATION</th>
<th>STANDARDS &amp; RISK MANAGEMENT</th>
<th>SURVEILLANCE &amp; INFORMATION USE</th>
<th>TRAINING &amp; PROF. DEVELOPMENT</th>
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<tbody>
<tr>
<td>STRENGTHS</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Expert NPHS staff/IPC leads recognised by Trusts and other stakeholders</td>
<td>Seamless service integration in most NPHSS Trusts</td>
<td>Clinician/Directorate implementation model accepted</td>
<td>IPC incorporated into Clinical Governance Framework</td>
<td>All Trusts collect minimum four mandatory datasets</td>
<td>IC Teams provides between 2&amp;20 hrs training to multidisciplinary participants</td>
</tr>
<tr>
<td>WHAIP service to all Trusts providing support to surveillance programme</td>
<td>Lines of accountability produce no operational problem</td>
<td>Major changes in management structure have taken place</td>
<td>Welsh Risk Pool Standards between 86% and 98%</td>
<td>All Trusts have feedback mechanisms for surveillance</td>
<td>ICNs allowed good CPD access</td>
</tr>
<tr>
<td>National specialist + reference network available</td>
<td>Strong positive public image where laboratories have previously worked on local outbreaks</td>
<td>All Trusts now have ICs - majority led by NPHS staff; some with broad membership</td>
<td>Some Trusts beginning adverse reporting system use</td>
<td>SomeTrusts begining reporting system use</td>
<td>New E-learning package well received &amp; useful</td>
</tr>
<tr>
<td>Easy links to local CCDCs and HPUs</td>
<td>Development of link nurse cascades</td>
<td>Positive changes in IPC in NHS Professional Management structural change</td>
<td>Trusts support increased regulation/management of professional IPC responsibility through audit/job descriptions etc</td>
<td>NPHS recognised expert at providing clear IPC data messages to public and profs.</td>
<td>NPHS considered good champion for developing training/promoting additional training package</td>
</tr>
<tr>
<td>National specialist Public Health resources available</td>
<td>All trusts have developed antibiotic policies collaboratively</td>
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<td></td>
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</tr>
<tr>
<td>WEAKNESSES</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>SLAs between NPHS &amp; NPHSS Trusts are unclear/outdated Much of consultant IPC input is ‘firefighting’ rather than proactive prevention</td>
<td>Recommended numbers of doctors and nurses providing IPC in Trusts are below national guidance Scope for greater consultant visibility in clinical areas</td>
<td>May be insufficient numbers of link nurses in small Welsh Trusts to be effective Management structural change has sometimes resulted in delegation rather than participations</td>
<td>Complex, externally imposed multiple risk assessment process with uncoordinated reporting</td>
<td>Heavy load on IC Team from excess data collection Some software incompatibilities</td>
<td>Inappropriate high level IC expertise sometimes being used inefficiently for basic training</td>
</tr>
<tr>
<td>Specialist and reference IPC expertise understimulated</td>
<td>Some professionals could benefit from greater access to professional groups Clinical support in some NPHSS Trusts is low resulting in poor use of consultant time and potential for clinical governance transgression</td>
<td>Some Trusts have ineffective IPC implementations</td>
<td>National guidance to easily assess organisation standards/implement process is not available</td>
<td>WHAIP feedback taking longer with increased agenda-since advent of mandatory public reporting</td>
<td>Mandatory training process can delay job start of clinical staff</td>
</tr>
<tr>
<td>Under use of expert specialist national resource</td>
<td>Recommended numbers of doctors and nurses providing IPC in Trusts are below national guidance</td>
<td>Complex, externally imposed multiple risk assessment process with uncoordinated reporting</td>
<td>National guidance to easily assess organisation standards/implement process is not available</td>
<td>Heavy load on IC Team from excess data collection Some software incompatibilities</td>
<td>Additional training provision by NPHSS Trusts since HCAI strategy may not be resulting in increased numbers of trained personnel</td>
</tr>
<tr>
<td>Expanding WHAIP programme outstripping team HR Differential specimen processing times between local NPHS labs</td>
<td>Development of link nurse cascades</td>
<td>Development of link nurse cascades</td>
<td>Difficult to use current regulatory professional system to address professional issues of IPC amongst doctors in NPHSS Trusts</td>
<td>WHAIP feedback taking longer with increased agenda-since advent of mandatory public reporting</td>
<td>Training attendance difficulties increasing and can be job specific</td>
</tr>
<tr>
<td>Differential sample acceptance and process between labs. Lack of clear screening guidance</td>
<td>Differential sample acceptance and process between labs. Lack of clear screening guidance</td>
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<tr>
<td>NPHS central resource underused</td>
<td>NPHS central resource underused</td>
<td>NPHS central resource underused</td>
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### Opportunities

<table>
<thead>
<tr>
<th>SERVICE PROVISION</th>
<th>STAFFING RESOURCE/ACCOUNTABILITIES</th>
<th>HCAI STRATEGY IMPLEMENTATION</th>
<th>STANDARDS &amp; RISK MANAGEMENT</th>
<th>SURVEILLANCE &amp; INFORMATION USE</th>
<th>TRAINING &amp; PROF. DEVELOPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential for increased liaison with HPUs to address CAI/HCAI interface</td>
<td>Nationally agreed IPC lead job description with clear allotment of IC expectations</td>
<td>Champion new approaches to IPC integration eg Strategic Nurse Consultant appointments, development of IPC career pathways</td>
<td>Champion systematisation through Wales Health Concordat</td>
<td>WHAIP capability exists to combine data for useful benchmarking</td>
<td>National IC Forum. Develop nationally accredited transportable HCW Training Passport</td>
</tr>
<tr>
<td>Nationally agreed NPHS lab process times, audit and sample acceptance</td>
<td>Support NPHSS Trust service redesign in exploring greater clinical consultant visibility</td>
<td>Support R&amp;D/economic analysis through use of central NPHS research and Knowledge Management Teams</td>
<td>Develop national IPC guidance on e.g. elective surgery, IC training standards, national commissioning standards</td>
<td>Opportunities for wider engagement of NPHS with CHCs, Ambulance Trusts, public</td>
<td>Support PMETB and GMC/Royal Colleges inclusion of IPC competency assessments.</td>
</tr>
<tr>
<td>Development of national HCAI screening criteria and other guidance (see standards/risk management)</td>
<td>Draw on Pharmaceutical PH Team for HCAI/CAI antibiotic policy collaboration</td>
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</table>

### Threats

<table>
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<tr>
<th>SERVICE PROVISION</th>
<th>STAFFING RESOURCE/ACCOUNTABILITIES</th>
<th>HCAI STRATEGY IMPLEMENTATION</th>
<th>STANDARDS &amp; RISK MANAGEMENT</th>
<th>SURVEILLANCE &amp; INFORMATION USE</th>
<th>TRAINING &amp; PROF. DEVELOPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent increase in mandatory surveillance without parallel funding could worsen staff ratios and delay timely results</td>
<td>Consultant time already overcommitted</td>
<td>Trusts with high locum turnover are adversely affected</td>
<td>NPHS staff/time resource currently insufficient for all roles</td>
<td>NPHS staff/time resource currently insufficient for all roles</td>
<td>Current multiplicity of training providers may jeopardise nationally acceptable training product</td>
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<td></td>
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<td>Doctors may be defensive about high infection rates with resultant decrease in swab rates.</td>
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<tr>
<td></td>
<td></td>
<td>Rising litigation.</td>
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8 Stakeholder Requirements

In general Trusts were extremely satisfied with the services provided through NPHS HPAIPC personnel. The review team were welcomed in nearly all NPHSS Trusts by the highest levels of management, reflecting not only the national importance of the HCAI agenda, but the Executive teams’ willingness to engage in discussions of what was seen to be an ever increasingly important healthcare agenda for local providers.

Good progress had been made in all Trusts in implementation of the Welsh HCAI Strategy but there was still some scope for more consistent engagement of clinicians within NPHSS Trusts, and with external partners. WHAIP was providing excellent focus and support for the expanding mandatory surveillance programme but effective future provision was felt to be dependent on increased staffing and infection control expertise. Executive teams generally had excellent relationships with the local consultant microbiologists. The ability of NPHSS Trusts to access national NPHS resource and expertise was particularly valued, both in relation to HCAI but also to community outbreaks which impacted on both patients and staff within their hospital. This aspect had been tested in two major outbreaks in the six months preceding the review. Where agenda items had been requested they tended to relate to provision of information on national IPC issues and the secondary care interface – e.g. pandemic flu preparedness, training, WAG resource – rather than defined NPHS service responsibilities.

Analysis of the review revealed some gaps in NPHS service provision from the stakeholder perspective. These have been detailed within the SWOT analysis in Table 3. Two main groups of requirements were shown: (1) improvements to current services and (2) future role expansion drawing on NPHS resource teams nationally. These can therefore be summarised as:

**Current service requirements**

- Development of new SLAs between Trusts and NPHS, including documented accountability lines.
- Clarity of NPHS Consultant sessional input to IPC.
- Development of closer working relationships between Trusts in relation to new working directives and training requirements to improve service quality.
- A national Infection Control Forum.
- Improvements in clerical support to IPC teams where none currently exists.
- Increased epidemiological support to Trusts to support appropriate briefing and data interpretation of surveillance feedback to Trust Boards.
- Expansion of the WHAIP team to ensure continued timely quality data returns.
- Continued development of surveillance feedback methods sensitive to local Trusts and of current website improvements.
- Early notification to Trusts of outbreaks outside their organisations.
- Advice on HCAIPC staffing requirements, nosocomial outbreak management and screening policies.
- Assurance of uniformity of laboratory process times and sample screening across all NPHS laboratories.
- Proactive and early participation of IPC teams in advising on decontamination, facility and service design and training and professional practice within Trusts.
Future service developments

- Initiation of an all Wales HCAI network to encourage multi-disciplinary professional liaison.
- Further development of surge contingency plans
- Support to the commissioning process to ensure HAIPC measures are included within all patient contracts.
- Assistance to IPC teams in production of policies and business cases especially with economic data.
- Wider NPHS representation in training and professional development arenas to inform HCAIPC competency based education and assessment.
- Development of national service guidelines, standards and audit tools in relation to IPC staffing, screening, outbreak management and training.
- Assistance with development of advice on the identification and management of clusters and outbreaks of HAI.
- Development of better links with LHBs and Primary Care in relation to HAI in the community. Progression towards unified surveillance schemes and integrated management algorithms.
- Support for rationalisation of the regulatory framework for HCAIPC in Wales, including representation to the Wales Health Concordat.
- Broad development of HCAIPC information and education to wider professional groups and the public utilising expert central communication resources.
- Support engagement between WAG, Trusts and local HPUs in developing and implementing strategies for CAI.
- Pharmaceutical Public Health support for development of antibiotic monitoring policies.
- Provision of horizon scanning services to Trusts in relation to HCAIPC.
- Support to IPC teams in developing and implementing a research agenda and economic analyses to maximise efficiency of IPC resource use.

9 Recommendations

The findings of the review as detailed above form the recommendations for service development. Where these fall within current resources they have been taken forward by NPHS within its organisational review process in the form of a new HCAI Service Framework (Service Framework for the Delivery of Health Associated Infection Prevention and Control Services to NHS Trusts in Wales). Other areas will be considered in future NPHS, ICDS and WHAIP work programmes.
References


