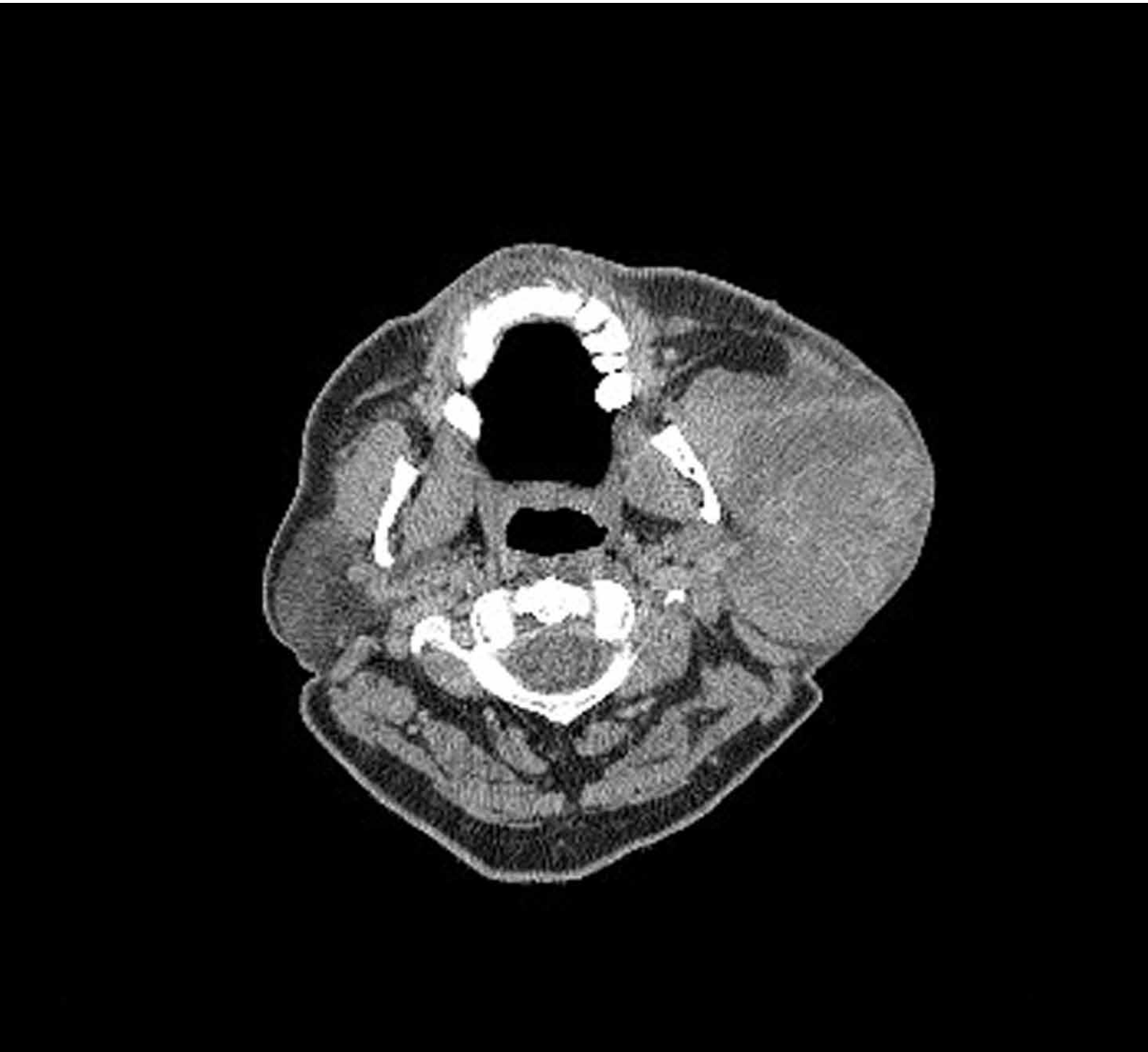
National Head and Neck Cancer Audit 2014



Tenth Annual Report

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The Healthcare Quality Improvement Partnership (HQIP)
The National Audit of Head and Neck Cancer is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Programme (NCA). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the NCA Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands.

Health and Social Care Information Centre (HSCIC) is the trusted source of authoritative data and information relating to health and care. HSCIC's information, data and systems play a fundamental role in driving better care, better services and better outcomes for patients. HSCIC managed the publication of this Annual Report.

The British Association of Head and Neck Oncologists (BAHNO) is a multidisciplinary society for healthcare professionals involved in the study and treatment of head and neck cancer. The association serves as a forum for the discussion and sharing of knowledge between the various clinical and research specialities involved in the management of patients with head and neck cancer. The Association has also had a role in the production of national clinical standards and assisted in the production of clinical guidelines.

National Head and Neck Cancer Audit 2014

Key findings for England and Wales for the audit period November 2013 to October 2014

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Acknowledgments

The National Head and Neck Cancer Audit is commissioned by the Healthcare Quality Improvement Partnership (HQIP)[1] as part of the National Clinical Audit Programme (NCA). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the NCA Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands.

The Audit has been developed in partnership with BAHNO[2] (British Association of Head and Neck Oncologists) and managed by the Health and Social Care Information Centre (HSCIC)[3].

The project wishes to acknowledge the following, which have supported the Audit and provided guidance during the data collection period from 1 November 2013 to 31 October 2014 and during the compilation of this report:

The National Head and Neck Cancer Audit Project Team, chaired by Richard Wight and Graham Putnam with project management from Julie Michalowski and support from Anne Cerchione, James Thatcher and Anna Duggan.

Sandeep Berry, Consultant Otolaryngologist Head and Neck Surgeon, Lead Cancer Clinician Cwm Taf University Health Board and Member of the head and neck cancer subgroup of the Cancer National Specialist Advisory Group (NSAG), Wales for the contribution from Wales to the Audit.

The following groups have supported the Audit: the Expert Panel, the Head and Neck Clinical Reference Group (now co-terminus with the National Cancer Intelligence Network (NCIN)[4] Head and Neck Site Specific Clinical Reference Group (SSCRG)[5]. See Appendix 3 to view the Clinical Reference Group membership.

The analysis for this report was undertaken by Arthur Yelland, Senior Information Analyst, and Claire Meace, Higher Information Analyst, from the HSCIC.

Thanks are due to the following clinicians for their contribution to the Tenth Annual Report Expert Panel: Richard Wight (Chair), Graham Putnam (Vice Chair); ENT surgery: Mark Watson and Stuart Winter; Oral and Maxillofacial surgery: Cyrus Kerawala and Ceri Hughes; Dietetics: Rachael Donnelly and Pippa Lowe; Speech and Language Therapy: Joanne Patterson and Anne Hurren. Details of the Expert Panel members can be found in Appendix 6.

Thanks are also due to Max Robinson, Senior Lecturer in Oral Pathology, and Simon Rodgers, Consultant Oral and Maxillofacial surgeon, for commentary to support writing of elements of the report.

Finally, thanks go to all those organisations that have participated in the Audit since its inception and for the individual contributions of clinicians, managers and administrative staff, whose significant efforts have made the Audit what it is. Thanks must also go to all those patients whose data contributes to bringing about improvements in the provision of care and outcomes for all those similarly afflicted by head and neck cancer.

Foreword

This is another very informative and considered report from the Audit team and they are to be congratulated on the breadth and depth of the content. In addition, the team is only as good as the participating treatment MDTs, they have played a huge part in the success of this Audit and the participation rates indicate the strength of support for this National Audit.

Highlights for me are primarily from a patient perspective. We want patient experience to rate as highly as other outcome measures, and the introduction of the Patient Concerns Inventory is very welcome. It is sad to see that only one in ten patients have an active assessment of needs, however I recognise this is just the start. I hope the trajectory for this will improve over coming years. Our patients need to know what to expect and we should have plans in place to meet their needs. Commissioners, who are charged with ensuring patients outcomes improve, should use this information to inform their plans.

I am equally saddened by the lack of progress in terms of the ideal patent pathway and the preoperative access to SALT, dietetic and dental assessment. This area has been stubborn to move but is so important for patients, as quality of life after treatment is determined by the planning before and during treatment, these areas of support are crucial. More must be done to influence local support services in order to improve the lives of our patients before and after treatment.

I want to finish on variation, and why this persists despite the evidence presented here. There are parts of the country where outcomes are good, services are timely and the experience of care is positive. We need to understand what underpins variation and tackle it head on. The parts of the country where they have good outcomes need to help those that have less good outcomes. This will mean networking and collaboration using patient outcomes as the basis of discussion. Clinical networks have a role in not only helping health economies internally, but also being able to reach out across NHS England to facilitate change.

Sean Duffy
National Clinical Director for Cancer
NHS England

1.0 Executive Summary

This is the tenth Annual Report from the National Head and Neck Cancer Audit. It describes a group of cancers (larynx, oral cavity, oropharynx, hypopharynx, nasopharynx, major salivary gland, nose and sinuses and cancer of the bones of the jaw) that have many common features but also important differences in biological behaviour. They are treated by a variety of treatment modalities depending on the site and stage of the tumour. Whilst the majority of patients are referred for assessment from general medical practitioners (GPs), a smaller cohort is referred by general dental practitioners (dentists).

The diverse nature of the disease increases the importance of a multi-disciplinary team (MDT) approach and this has been considered in the report. Cancer networks/Strategic Clinical Networks (SCNs) also play a vital role in the delivery of good care.

Audit aims

The aim of the Audit is to improve quality of care to those patients with head and neck cancer by raising standards of care to match those of the best performing teams. The Audit focuses on evidence of delivery of appropriate primary treatment, including adjuvant therapy, in the management of head and neck cancer by a multi-professional team, and delivery of care to agreed standards. Also to assess in more detail, care provided by specialist nurses, dieticians and speech and language therapists.

Commissioning of the Audit

The Audit was commissioned by the Healthcare Quality Improvement partnership (HQIP) and funded by NHS England and the Welsh Government. The professional body overseeing the Audit was the British Association of Head and Neck Oncologists (BAHNO).

Audience for the report

The report is intended for patients with head and neck cancer as well as their carers, head and neck professionals, secondary care organisations and commissioners.

Report production

The report was produced by the National Head and Neck Cancer Audit Project Team under the auspices of the HSCIC. Analysis was performed by the HSCIC and interpretation of data was facilitated by an Expert Panel of head and neck professionals.

Audit collection period

Data was collected on new diagnoses of head and neck cancer in England and Wales between 1 November 2013 and 31 October 2014.

Quality standards used

Measures for cancer outcomes have been drawn from the National Institute for Health and Care Excellence (NICE) published guidance on head and neck cancer. Supporting measures provide recommendations on good practice in MDTs, referral, diagnosis and assessment, treatment services, post-treatment follow-up care, prevention, and palliative care.

In Wales, National Standards for Head and Neck Cancer Services define core aspects of service that should be provided for cancer patients.

Head and Neck Clinical Lines of Enquiry (CLEs) introduced in the 2011/12 National Cancer Peer Review have been used throughout the report. BAHNO standards produced in 2009 are applied within the report.

Core findings of the National Head and Neck Cancer Audit are:

Organisational variation

Consecutive reports have noted a pattern of consistent variation between MDTs and networks/SCNs. There needs to be a concerted effort to distribute best practice between the best and less well performing organisations to reduce avoidable variation to a minimum.

Mortality

Mortality during the year was 11.5 per cent. There is both variation between anatomic tumour sites, but also variation in mortality between networks/SCNs. Overall head and neck surgery is safe with a 1.7 per cent peri-operative mortality rate (death within 30 days of surgery) and a 2.7 per cent mortality rate within 90 days of surgery being carried out. For those undergoing non-surgical treatments (radiotherapy, chemotherapy and chemoradiotherapy) the 30 and 90 day mortalities were 2.3 per cent and 5.2 per cent respectively. Despite the complex nature of head and neck cancer treatments, they remain safe.

Survival

For the first time the Audit has looked at crude four year survival (this reflects deaths from any cause, not just from cancer). Four year survival ranged from over 60 per cent in larynx to only 33.3 per cent in hypopharynx. The influence of stage at presentation was also significant with early stage larynx cancer showing a 75.1 per cent four year survival and late stage 44.7 per cent, similar figures were seen in oral cavity. In oropharynx the difference between early and late stage was less, 73.8 per cent for early stage compared to 58.5 per cent for late stage. These figures help inform patients about their disease and potential outcomes.

Cumulative case numbers

The Head and Neck Cancer Audit database contains a vast amount of information on more than 54,000 head and neck cancer cases, with 7,700 cases of cancer of the glottic larynx, and more than 7,500 cases of oral tongue cancer. This is an important research resource, which should be used to answer questions related to the cancers where evidence pertaining to treatment is lacking.

Assurance of elements of care

The ideal patient pathway contains six key elements of care that patients should expect to receive from diagnosis to treatment. Along the ideal patient pathway, mean scores improved slightly from 3.2 to 3.3 aspects of care. Whilst it is welcome that there has been a small rise in the number of patients receiving three or more aspects of the pathway, there remains concern from the Expert Panel that only 7.6 per cent of patients had assurance for all six contributory elements of care.

Assurance of support to head and neck cancer patients from clinical nurse specialists prior to treatment fell by 1.8 per cent to 62.9 per cent, and the breaking of bad news rose by 1.3 per cent to 49.6 per cent. However there remains wide variation between networks/SCNs.

Pre-treatment speech and swallowing assessment occurred in 28.8 per cent of patients, a rise of 2.1 per cent, but again there was wide variation between networks/SCNs, with one submitting less than five per cent assurance.

Commissioners and providers should reflect on their local findings and develop actions to improve performance in this area.

Patient concerns inventory

The Patient Concerns Inventory (PCI) is a tool that helps patients more effectively voice concerns during their follow up, with the aim of better holistic care. For the first time the Audit has collected information on the use of this tool and in future better understanding of the actual responses may help direct appropriate support for patients and their carers. In this data period only a small percentage of patients completed the PCI, but by publicising it more widely we would hope to see greater uptake in future.

Human Papilloma Virus (HPV)

Human papilloma virus is a recognised cause of oropharyngeal cancer (OPSCC). HPV status (the presence of markers within tumour cells indicating previous HPV infection) is a strong prognostic indicator.

HPV status of OPSCC can be accurately defined using a combination of p16 immunohistochemistry and high risk HPV DNA *in situ* hybridisation with p16 immunohistochemistry.

The presence of HPV in cancer cells is also considered to be a strong prognostic marker and a good surrogate marker of oncogenic (cancer causing) HPV infection.

The Audit, for the first time, has looked at the use of HPV testing and the results showed that 51.6 per cent of the cases of OPSCC had a recorded HPV test status, with 78.9 per cent having confirmation that a HPV test was performed. The majority of patients tested had p16 Immunohistochemistry (80.5 per cent) with 19.5 per cent having both p16 Immunohistochemistry with high risk HPV *in situ* hybridisation. Of the tests carried out, 71.8 per cent of p16 immunohistochemistry were positive and 77.1 per cent of the p16 Immunohistochemistry with high risk HPV *in situ* hybridisation were positive. These findings match the smaller UK based studies and confirm the high frequency of previous HPV infection in oropharynx cancer patients.

Despite clinical consensus over the importance of HPV status, there remains significant work to ensure that all appropriate OPSCC patients are screened.

Future work to look at these cohorts of patients may help inform the debate about the management of HPV positive patients and help define appropriate targeted treatment protocols.

Treatment times to radiotherapy

Waiting times for radiotherapy treatment, defined as the time from diagnosis to the start of radiotherapy, have declined by one day to 41 days in this report, however access to radiotherapy services remains a problem, and the upper quartile value is 54 days, meaning that a quarter of patients are waiting 54 days or more from diagnosis to start their treatment. The longest median waits were seen in North Wales at 68 days and South Wales 49 days.

There remains a significant challenge to deliver timely radiotherapy services for all patients. Similar issues were seen in the figures for adjuvant radiotherapy. The complex nature of radiotherapy provision requires high level review to try to improve the current access times.

Discussion at MDT

Discussion at an MDT is a key point in the patient pathway, where the professionals involved in the delivery of care together produce a viable care plan. The expected standard is that all patients should have their case discussed in this environment.

MDT discussion has improved in both Wales and England and now stands at 97.0 per cent of patients confirmed as discussed at a MDT, with the Welsh figure now standing at 99.6 per cent. The figure for England has improved this year from 94.6 to 96.8 per cent. 256 patients (3.0 per cent) did not have their cases recorded as discussed at a MDT.

Where in any MDT a large number of patients are recorded as not having their care discussed at MDT commissioners should investigate the functional arrangements for the delivery of head and neck cancer care.

Use of supporting data sets

It is disappointing that we have been unable, within the time frame of publication, to supplement audit data with RTDS (Radiotherapy Data Set), SACT (Systemic Anti-Cancer Treatment data set) or HES (Hospital Episode Statistics), as this reduces the quantity of treatment information and undermines the principle of using supporting datasets to supplement audit information. Future audits should ensure that these linkages are re-established.

Casemix adjusted mortality

Casemix adjusted mortality ratios provide a more meaningful way to compare outcomes between cancer networks/SCNs. Using a logistic regression model the Audit, for the first time, has calculated a standardised mortality ratio for larynx, oral cavity and oropharynx cancer, with 99.8 per cent confidence intervals, meaning that the results are highly unlikely to have occurred by chance. This allows networks/SCNs to be scored as to whether the mortality rate falls outside expected levels.

In the comparison period no cancer network/SCN fell outside the expected range in its crude casemix adjusted outcome. This work is an important first step in providing casemix adjustment for a wider range of outcomes.

Use of the Audit report

We would encourage cancer networks/SCNs, providers and commissioners to extract their own performance from the multiple analyses. Each group should develop their own action plan to improve care offered to patients. In addition we have made many recommendations for improvement that are more generic.

Ten year perspective

This, the tenth Annual Report, is perhaps an appropriate time to pause and reflect on what has been achieved in ten years of national audit and also what still needs to be done to further improve the delivery of care to patients with head and neck cancer. Near universal contribution to the Audit, and recognition that patient care data is an important assessment tool, are now taken for granted, and the transparency of the Audit and provider organisation level reporting have helped to focus and target improvements. The audit process has shown that there may be a lag in uptake, as MDTs adjust their processes to effectively contribute.

For non-medical professionals the absence of supporting resource and established process has meant that ambitions for a wider range of outcome recording have had to be cut back to improve contribution levels. Implementation of the reduced data sets in these areas is now bearing fruit. It is recommended that organisations recognise the importance of supporting all staff in clinical audit.

We believe that national audit provides an important tool in promoting standards of care for patients with head and neck cancer and has now become an accepted part of the routine workload of a head and neck MDT.

Key messages – ten years of the Audit

1. The Audit reports on treatment and outcomes from eight anatomical sub-sites across all provider organisations in England and Wales. Over ten years of audit, the cumulative effort of head and neck professionals has achieved consistent universal submission of all cases of head and neck cancer.

2. There is now a database containing data on over 54,000 head and neck cancer cases, the largest database in England and Wales, which can be used for further quality improvement studies and research.

3. Access to pathways of care for diagnostics and surgery are in line with national targets, but waiting times for radiotherapy have not improved over the ten years of audit to bring them in line with these national waiting time initiatives.

4. Most patients had, and continue to have, their care discussed and planned at a multi-disciplinary meeting

5. The Audit has progressed to reporting four year crude survival and has developed a risk adjustment model. However the original goal to report disease free survival has not been attained due to a failure to collect and submit patient disease status to the Audit.

6. Multi professional audit has taken a number of years to mature and data quality issues remain, particularly for speech and language, dietetics, clinical nurse specialists and dental assessment, making meaningful reporting in these areas difficult.

7. Lessons have been learned, that a restricted data set has led to higher levels of data completeness by non-medical professionals, illustrating the need for focused and targeted questioning.

8. The quality of the Audit data has enabled monitoring of NHS standards of care down to provider organisation level. The data has supported Peer Review, service reorganisation and appropriate commissioning.

9. By-products of the audit programme have extended to the facilitation of professionally led BAHNO Standards, Clinical Lines of Enquiry and Surgeon Level Reporting. The BAHNO standards and Clinical Lines of Enquiry have further facilitated additional quality improvements.

10. The Audit has demonstrated that the combination of different data sources is both feasible and has led to significant added value.

1.2 Key Recommendations

1.2.1 Commissioners:

- Should use this report, previous Annual Reports and other sources of information such as Peer Review and The National Cancer Patient Experience Survey 2014[6] to look for evidence of excellence in the provision of care, and also areas where evidence of quality and assurance is lacking.
- Should seek assurance of multi-professional care across the breadth of the patient pathway, and where this is lacking, develop with networks/SCNs and providers (both secondary and community), definitive plans to ensure that these vital aspects can be delivered in full. This should reflect both the overall percentage delivery of an aspect of multi-professional care delivery, as well as how many individual patients received all elements of care relevant to their pathway.
- Should monitor adherence to their guidelines for treatment in early larynx cancer and confirm that patients are being offered appropriate choice between laser surgery and radiotherapy in determining their treatment.
- Should support investment in Clinical Nurse Specialists to reduce the variation seen in this report.
- Should investigate the functional arrangements for the delivery of head and neck cancer where in any MDT a large number of patients are recorded as not having their care discussed at MDT.

1.2.2 Networks/Strategic Clinical Networks (SCNs):

- Should use the Audit to explore clinical variations in the delivery of care,
- Should facilitate improvements in access to radio–therapy and chemoradiotherapy, with appropriate levels of resourcing for head and neck cancer patients,
- Should ensure access to dental services remains a high priority. Dental assessment and treatment during and following treatment for head and neck cancer remains a key quality agenda item,
- Should monitor adherence to their guidelines for treatment in early larynx cancer and confirm that patients are being offered appropriate choice in determining their treatment.

1.2.3 Providers (Trusts, Foundation Trusts and Local Health Boards):

- Should maintain commitment to audit to ensure that assurance of high quality care can be evidenced,
- Should ensure multi-professional care is delivered throughout the head and neck cancer pathway to every patient in every setting and provide assurance of this to patient groups and commissioners,
- Should ensure that where appropriate patient length of stay is minimised and work with community services to support early discharge where safe.

1.2.4 MDTs

- Are encouraged to use all available data sources to fully understand the care they provide and compare it to that of their peers. The Audit has reported a wealth and depth of data within the electronic report,
- Should ensure all cases of head and neck cancer are discussed at an appropriate MDT to minimise patient care plans being determined outside an MDT and to investigate those cases recorded as not discussed at MDT,
- Should ensure all post-surgery pathology is discussed at MDT to enable appropriate adjuvant therapy to be initiated,
- Should ensure staging agreement is a key part of every MDT discussion,
- Should ensure all MDT members have a voice in team discussions and are engaged in audit along the whole patient pathway to evidence holistic care,
- Should facilitate risk adjustment to improve completeness of co-morbidity. The MDT discussion remains central to the recording of this information. We would encourage each MDT to review their own results and appraise their methods for ensuring accurate recording of risk adjustment factors.

Recommendations specific to individual outcomes can be found in Section 4.

Future

The head and neck community should examine the process by which the recording of surgical complications could be standardised to both assure patients and commissioners of the quality of services, and to facilitate learning from adverse outcomes. This would enable future audit to look into causation of complications and potentially develop avoidance strategies.

2.0 Introduction

2.1 What is head and neck cancer and which anatomic sites does it include?

Head and neck cancers are neoplasms arising principally from the mouth (oral cavity), voice box (larynx), throat / upper gullet (pharynx), salivary glands, nose and sinuses, and primary bone tumours of the jaw. Head and neck cancer accounts for approximately 9,200 new cases diagnosed in England and Wales each year .

Over 90 per cent of all malignant head and neck tumours are squamous cell carcinomas (SCC). For the details of anatomical cancer sites covered by the Head and Neck Cancer Audit see Appendix 1.

2.2 Impact and outcome of head and neck cancer

The disease burden of head and neck cancer is significant. Patients require intensive multimodality treatments and prolonged rehabilitation/ long-term support to achieve an adequate recovery. The disease significantly impacts on eating, drinking, voice, swallowing, smell, breathing, appearance, social interaction and work capabilities.

Head and neck cancers have significant mortality. Prognosis is improved in early detection, while late presentation and neck node metastasis drastically reduce long term survival.

2.3 Objectives of the Audit

Core issues addressed in the National Head and Neck Cancer Audit are:

- Delivery of appropriate primary treatment (including adjuvant therapy) in management of head and neck cancer by a multi-professional team, and delivery of care to agreed standards.
- To assess in more detail, care provided by specialist nurses, dieticians and speech and language therapists.

2.4 Audit and its links to peer review – Clinical Lines of Enquiry

The National Institute for Health and Care Excellence, NICE[13] published guidance on head and neck cancer in England and Wales in November 2004[19]. Supporting measures have been subsequently issued and updated[7], providing recommendations on good practice in MDTs, referral, diagnosis and assessment, treatment services, post-treatment follow-up care, prevention, and palliative care.

In Wales, National Standards for Head and Neck Cancer Services 2005[8] define core aspects of service that should be provided for cancer patients and are highlighted in a grey box.

Head and Neck Clinical Lines of Enquiry (CLEs)[9] introduced in the 2011/12 National Cancer Peer Review process have been modified to now contain six national metrics, all of which are taken from the National Head and Neck Cancer Audit. A list of the six national indicators for 2014 can be found in Appendix 2 and are shown throughout the report in a green box.

The National Cancer Patient Experience Surveys 2010[10], 2011/12[11] ,2012/13[12] and 2014[6] act as further sources of information and will be used as a comparator of more diverse patient outcomes in future reports. The latest report contained submissions from 2,437 head and neck cancer patients over a time frame near matching to the eighth Annual Report cohort. 74.0 per cent of patients saw their GP no more than twice prior to referral, implying a quarter made three or more visits prior to referral.

Commissioners of services can now triangulate these different information sources in conjunction with detailed audit findings to better assess quality of local services.

The British Association of Head and Neck Oncologists (BAHNO), a multi-professional organisation, with facilitation by the HSCIC, published standards for the delivery of head and neck cancer care in 2009[2]. The standards are referred to in this report and are highlighted. These standards can be accessed from the BAHNO website

2.5 Improving available information-joint working with the National Cancer Intelligence Network (NCIN) and Public Health England, South East KIT[14] – The head and neck cancer online hub[15]

The NCIN Head and Neck Site Specific Clinical Reference Group (SSCRG) links professional bodies and the Audit, but also delivers a separate work programme to gain value from combining different data sources into a common repository. It is supported by a lead cancer intelligence team, South East Knowledge and Intelligence Team (SEKIT).

SEKIT provides long term cumulative analyses from the National Head and Neck Cancer Audit as well as supporting the Annual Report audit analysis.

An online information hub on head and neck cancer is available which signposts a variety of information sources.

Publications under the NCIN banner can be found in the resources section of the hub. These include reports on incidence[37], deprivation, travel times to treatment centres, impact of age, sex and deprivation on surgical intervention and bulletins on different head and neck cancer sites.

2.6 The contributory role of the Head and Neck Site Specific Clinical Reference Group (SSCRG)

The joint DAHNO/NCIN Head and Neck SSCRG has members representing head and neck professional bodies as well as from charitable patient groups and patient liaison. The professional group representatives have both steered the direction of the Audit, as well as reflected the views of the constituent organisations. Details of the current representatives can be found in Appendix 3.

2.7 What's new in the tenth Annual Report

New items in the tenth Annual Report include:

- The attainment of HPV status and test type in oropharyngeal cancers see section 4.4.3.1,
- Assessing if a Patient Concerns Inventory has been used see section 4.7.5,
- Four year crude mortality see section 4.9.1,
- Casemix adjusted modelling crude mortality by network/Strategic Clinical Network(SCN) see section 4.10.

2.8 Report format

Following the re-organisation of English cancer services into Strategic Clinical Networks (SCNs), there are now 15 network-level units in the tenth Annual Report, compared to 27 in the ninth Annual Report (cancer networks). The two cancer networks in Wales remain unchanged.

For each audit output a standard list of headings has been used starting with the question the Audit is addressing along with the standard the Audit is measuring against. This is followed by the results and data source with clinical comment and recommendations. Additional analyses are listed to provide more in-depth results to those shown in the main body of the report.

2.9 Trends in outcomes over ten years of audit

Cumulative data collated from submissions for each of the previous ten Annual Reports, has been compared across a number of outputs to demonstrate progress. This has focused on data quality, assurance of care and whether the timeliness of treatment has improved.

2.10 How should multi-disciplinary teams (MDTs) respond to the report findings?

Each MDT will receive an individualised key findings report later in 2015.

From the key findings, studying the report and comparison with peer organisations, each MDT should develop a Local Action Plan (LAP) that will describe the measures to be undertaken to provide higher levels of assurance that standards of care are being met, and improved quality of data submission is made where appropriate. The Local Action Plan should be discussed and adopted at the MDT annual meeting so that it is owned by the whole head and neck team.

2.11 Extending the use of the audit data

The National Head and Neck Cancer Audit database now contains data on more than 54,000 cases of head and neck cancer, more than 14,000 cases of larynx cancer, and almost 17,500 cases of oral cavity cancer. These large case cohorts provide opportunities for contributing units to work with the data in producing scientific papers. Use is encouraged from clinicians and academics with an interest in head and neck cancer research to apply for data that might support their work. In the first instance researchers should contact the Healthcare Quality Improvement Partnership (HQIP)[1].

Since August 2013 the following individuals have requested, and been provided with, non-patient identifiable summary information from the Audit:

Requested by	Summary Information Provided
Vinidh Paleri, Consultant Head and Neck and Thyroid Surgeon The Newcastle upon Tyne Hospitals NHS Foundation Trust	Percentage of larynx cancers staged at T2N0, broken down by supraglottis and glottis
Vinidh Paleri, Consultant Head and Neck and Thyroid Surgeon The Newcastle upon Tyne Hospitals NHS Foundation Trust	Count of T2N0 glottis and supraglottis broken down by performance status
Ceri Hughes, Consultant Oral and Maxillo-facial Surgeon University Hospitals Bristol NHS Foundation Trust	Cumulative histological frequency for major salivary gland
Costa Repanos, Consultant ENT Surgeon Portsmouth Hospitals NHS Trust	Count of T4b by primary site
Louise Carrington, Programme Coordinator Cancer National Specialist Advisory Group	Open 9th Annual Report data for Wales
Vinidh Paleri, Consultant Head and Neck and Thyroid Surgeon The Newcastle upon Tyne Hospitals NHS Foundation Trust	Count of breakdown by T and N for supraglottis tumours including T1N0 and T2N0
Stuart Winter, Consultant ENT Surgeon Oxford University Hospitals NHS Trust	Mean and age range of patients presenting with T1/T2 laryngeal tumours
Stuart Winter, Consultant ENT Surgeon Oxford University Hospitals NHS Trust	Mean and range for age of T1/T2 oral cavity cancer and percentage by gender
Ciaran Mariner, Head and Neck MDT Coordinator University College London Hospitals NHS Foundation Trust	National percentage of patients diagnosed in 2013 that attended pre-assessment by CNS, SaLT and Dietitian
Stuart Winter, Consultant ENT Surgeon Oxford University Hospitals NHS Trust	Count to determine the risk of metastases by T and N stage by site
James Ban, Specialist Registrar in Restorative Dentistry University Hospitals Bristol NHS Foundation Trust	Count of OPGs and dental assessments performed

3.0 Methodology

3.1 Who are the expert group which review and analyse the data?

The analysis for the tenth Annual Report was undertaken by the HSCIC analysis team: Arthur Yelland (Senior Information Analyst), Claire Meace (Higher Information Analyst) and Peter Knighton (Principal Analyst). The analysis methodology was designed by the HSCIC analysis team with clinical guidance from Richard Wight (Audit Chair) and Graham Putnam (Audit Vice Chair). The analysis results were reviewed by the Expert Panel – see Appendix 6 for membership.

Case ascertainment figures were provided by Rebecca Girdler (Senior Intelligence Analyst) at Public Health England (PHE) and Ceri White (Principal Statistician) at Public Health Wales (PHW).

3.2 Inclusion / exclusion criteria for data extraction and analysis cohort

The tenth Annual Report cohort covers all English and Welsh patients with a head and neck primary cancer diagnosed between 1 November 2013 and 31 October 2014. For details of anatomical cancer sites covered by the Head and Neck Cancer Audit see Appendix 4.

The analysis cohort was extracted from the HSCIC Clinical Audit Platform (CAP) on 28 November 2014.

To be included in the analysis cohort, each tumour record must meet the following criteria:

- The main MDT Discussion record must be a direct user submission, not a system-generated "skeleton" record,
- Valid NHS Number, Date of Birth, Primary Site Code and Diagnosing Organisation Code must be provided,
- Date of Diagnosis must be before Date of Recurrence where the latter is provided, otherwise the record is assumed to be a recurrence,
- The tumour must not match to an earlier tumour submitted for the same patient, with matching rules based on Primary Site Code.

3.3 Service provider participation

Based on a comparison of provider organisations reported in the ninth and tenth Annual Reports, trust participation in the tenth Annual Report is estimated at 96 per cent[i]. 148 organisations were recorded participants in the tenth Annual Report cohort – 138 as diagnosing Trusts, 68 as MDT hosts and 126 as treatment providers[ii].

When reviewing provider organisation participation it is important to note that drops in case numbers may not necessarily reflect poor data submission; genuine fluctuations in case numbers or changes to service provision could also be the cause. With this caveat in mind, universal contribution was again seen across Welsh Local Health Boards, with consistent reporting levels from all six organisations. In England a small number of trusts did not reach their previous participation levels.

Overall participation:

Based on the above analysis, the following participation figures can be deduced, with the denominator set to the number of provider organisations with five or more cases reported for either the ninth or tenth Annual Reports. The numerator has been set to exclude those identified as null or low submitters following the year-on-year comparison[iii]. Trusts closed for the tenth Annual Report period are excluded:

- Diagnosis provider participation is 96.2 per cent (130/135),
- MDT host provider participation is 95.6 per cent (65/68),
- Treating provider participation is 99.1 per cent (106/107), based on Trust code of first treatment.

i This comparison would not identify Trusts that have never participated over the two years of study.
ii Trusts have been classed as participants if recorded once or more as a diagnosing, MDT or first treatment Trust.
iii Low-reporting Trusts have been identified if their upper 95 per cent confidence level for year-on-year case ascertainment (based on the ninth Annual Report cohort) is below 25 per cent. This technique is intended to identify low submitters with allowance for normal variation. The cut-off point of 25 per cent is based on the assumption that a Trust would usually be expected to submit at least one quarter of the previous year's caseload, unless there are other extenuating factors such as changes to service provision.

3.4 Case ascertainment

By country

8,429 patient diagnoses have been included in the analysis following data cleaning, representing data on 8,317 patients. This covers 7,875 cases from England (91.8 per cent of the estimated case number) and 554 cases from Wales (94.4 per cent of the estimated case number), giving an estimated overall case ascertainment of 92.0 per cent. The number of cases submitted by first diagnosing provider organisation can be found here and case ascertainment by network/SCN can be found here.

Although the total number of patients collected has increased by 71 since the previous year, overall case ascertainment has dropped 3.7 percentage points from 95.7 to 92.0 per cent. This is mainly due to an upwards revision in the England estimate from 8,173 to 8,575 based on the rolling average for the last three full years of cancer registry data (2011-13), and the impact of null and low submitters.

3.5 Data quality and completeness

Participants in the Audit are encouraged to submit data that is as complete as possible. General data quality and completeness has trended upward, although there remains considerable variation in completion both at a provider and network/SCN level. For the tenth Annual Report, the overall improvement in data quality has led to the inclusion of risk adjustment mortality modelling in the audit report for the first time. Details on the completeness of variables used for risk adjustment and the Ideal Patient Pathway can be found here.

3.6 Analysis methodology

Due to the volume and variety of analysis presented in the report, it is not practicable to detail the methodology used for every measure. Instead, the logic behind a number of the key audit methodologies is outlined here, covering the following topics:

- Counts – an explanation of the types of count used in the report (e.g. patients, diagnoses, operations)
- Breakdowns – an explanation of the main types of breakdown used in the report (e.g. geographic, anatomical, by treatment classification)
- Statistical techniques – an overview of the use of statistics in the report (e.g. confidence intervals, statistical significance)
- Logic – the logic used for key measures in the report, defined as those which are highlighted as part of the Ideal Patient Pathway.

As a general rule, the interpretation of audit outputs should be made in conjunction with the report commentary and any supplied table headings and footnotes.

Risk adjustment

Risk adjustment has been undertaken for the first time this year. The three variables chosen for the logistic regression model are: age at diagnosis, pre-treatment stage and performance status. A detailed discussion of the risk adjustment methodology can be found alongside the adjusted results in section 4.10.

3.7 Small numbers policy

To avoid the risk of patient-level identification in the audit outputs, suppression of small numbers at provider level has been undertaken to prevent inadvertent patient level disclosure. In networks/SCNs where all head and neck cancer patients are diagnosed or discussed at a single provider, network/SCN level suppression has also been applied.

3.8 Outliers policy

In the event of the Audit identifying negative outliers for trusts, Local Health Boards or networks/SCNs, the Department of Health detection and management of outliers policy Jan 2011[16] is used.

4.0 Data Quality and Findings

4.1 Introduction

The following analysis was performed by the HSCIC on data extracted from the DAHNO application database. The data extract period includes patient records with a date of diagnosis between 1 November 2013 and 31 October 2014. Comparative information presented from previous reports uses published information, as well as cumulative or updated file submissions. This section details the quality of data submitted and used within the report, followed by an outline of the clinical scope – anatomical sub-sites and histologies, and a summary of the Audit over the last ten years.

Note that the findings reflect analysis of cases submitted to the Audit, which may not reflect the actual number of cases seen in provider units.

4.2 Reported data

4.2.1 Is the recording of events improving?

This year's data confirms that 86.0 per cent of patients had treatment recorded; 86.3 per cent in England and 82.1 per cent in Wales.

As will be shown later in the report, there has been a further increase in the assurance provided in a number of aspects of multi-professional care.

4.2.2 Which sub-sites of head and neck cancer have been reported?

8,429 cases were presented for analysis, with a date of diagnosis between 1 November 2013 and 31 October 2014. These comprised 2,684 oral cavity cancers, 2,439 oropharyngeal cancers, 1,763 laryngeal cancers, 504 major salivary gland cancers, 423 hypopharyngeal cancers, 335 nasal cavity and sinus cancers, 151 nasopharyngeal cancers and 130 bone tumours (mandible and maxilla).

The number of reported laryngeal cancers has reduced by 137 cases from the eighth Annual Report. This seems to demonstrate a continuing trend compared to the other anatomic sites in the head and neck and the reasons for this are unclear.

Overall cumulative submissions have now exceeded 54,000 from all ten Annual Reports; a breakdown by sub-site can be seen in Appendix 4.

We have now accumulated data on 1,082 nasal cavity and sinus cancer cases, and increasing numbers in this area will help understand management of this disease. The reported numbers of bone tumour and major salivary gland cases contain high numbers where the pathology is squamous cell carcinoma, suggesting erosion into the bone or a metastatic process within the salivary glands, rather than tumours arising *de novo*. Accurate assignment of tumour origin is important in long-term trend comparison and the NCIN head and neck group is looking at the registration process for these cancers as preliminary assessment suggests this issue is also affecting registration counts.

4.2.3 Which head and neck cancer histological diagnoses have been reported?

Tables 4.2.3
Summary of pathological diagnoses

	M80203	M80413	M80703	M80713	M80513	M80723		M81403	M82003	M84303	M85503	M89413				
	Un-differentiated carcinoma	Small cell carcinoma	Squamous carcinoma (Not Otherwise Specified)	Keratinising squamous carcinoma	Verrucous carcinoma	Non-keratinising squamous carcinoma	Squamous cell carcinoma variants *	Adenocarcinoma, not otherwise specified	Adenoid cystic carcinoma	Muco-epidermoid Carcinoma	Acinic cell carcinoma	Carcinoma in pleomorphic adenoma (malignant mixed tumour)	Other salivary variants	Other **	Blank	Total
	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Current audit year	55	22	6,658	252	35	80	23	124	101	117	71	33	92	106	660	8,429
Previous audit year	48	19	5,995	398	35	56	27	131	79	72	49	27	77	108	1,237	8,358
Difference	7	3	663	-146	0	24	-4	-7	22	45	22	6	15	-2	-577	71

* For the tenth Annual Report only, M80333 Pseudosarcomatous carcinoma has been collected and included in the histology group "Squamous cell carcinoma variants" (0 cases in tenth Annual Report cohort)

** For the tenth Annual Report only, M88903 Leiomyosarcoma has been collected and included in the histology group "Other" (3 cases in tenth Annual Report cohort)

Grouped histologies	
Squamous cell carcinoma variants	M80753 : Adenoid squamous carcinoma;
	M80743 : Spindle cell squamous carcinoma;
	M80333 : Pseudosarcomatous carcinoma (tenth Annual Report only)
Other salivary variants	M85003 : Salivary duct carcinoma;
	M85253 : Polymorphous low grade adenocarcinoma;
	M85603 : Adeno-squamous carcinoma;
	M85623 : Epithelial-myoepithelial carcinoma;
	M81473 : Basal cell adenocarcinoma;
	M84803 : Mucinous adenocarcinoma;
	M82903: Oncocytic carcinoma
Other	M09503: No microscopic confirmation, clinically malignant tumour;
	M09506: No microscopic confirmation, clinically metastatic tumour;
	M84203: Ceruminous adenocarcinoma;
	M88903: Leiomyosarcoma (tenth Annual Report only);
	M89003: Rhabdomyosarcoma;
	M92203: Chondrosarcoma NOS;
	M92603: Ewings Sarcoma;
	M92703: Odontogenic, tumour malignant;
	M92903: Ameloblastic odontosarcoma;
	M93103: Ameloblastoma, malignant;
	M93303: Ameloblastic fibrosarcoma;
	M95223: Olfactory neuroblastoma;
	M95803: Granular cell tumour of bone, malignant;

Histological diagnosis has been submitted for 92.2 per cent of total cases, a 7.0 percentage point increase from last year and is approaching complete submission.

Detail of histological diagnosis can be found in Appendix 5.

Where histological diagnosis is recorded, as expected in larynx, oral cavity, oropharynx and hypopharynx, squamous cell carcinoma not otherwise specified (M80703) predominates, making up 91.2 per cent of cases at these sites.

A further increase in the number of reported muco-epidermoid carcinomas was seen, increasing to 67 cases from last year's 40. This is now the most common type of primary salivary malignancy in major salivary cancer.

In nasal cavity and sinus, where histological diagnosis is recorded, squamous cell carcinoma not otherwise specified (NOS) was again the most common pathology, but decreased to 52.2 per cent, (65.3 per cent in the ninth Annual Report); adenocarcinoma 9.6 per cent, undifferentiated carcinoma 5.1 per cent.

4.2.4 Ten year overview - has data quality, assurance of care and timeliness of treatment improved?

The Audit has moved through three phases over the last ten years. Initially commencing with larynx and oral cavity cancers (Annual Reports 2005-07), the addition of oropharynx, nasopharynx, hypopharynx and major salivary gland cancer (Annual Reports 2008-11), and finally adding nasal cavity and sinuses and bone cancers (Annual Reports 2012-14). Over 54,000 cases have now been submitted.

Collection of casemix adjustment factors

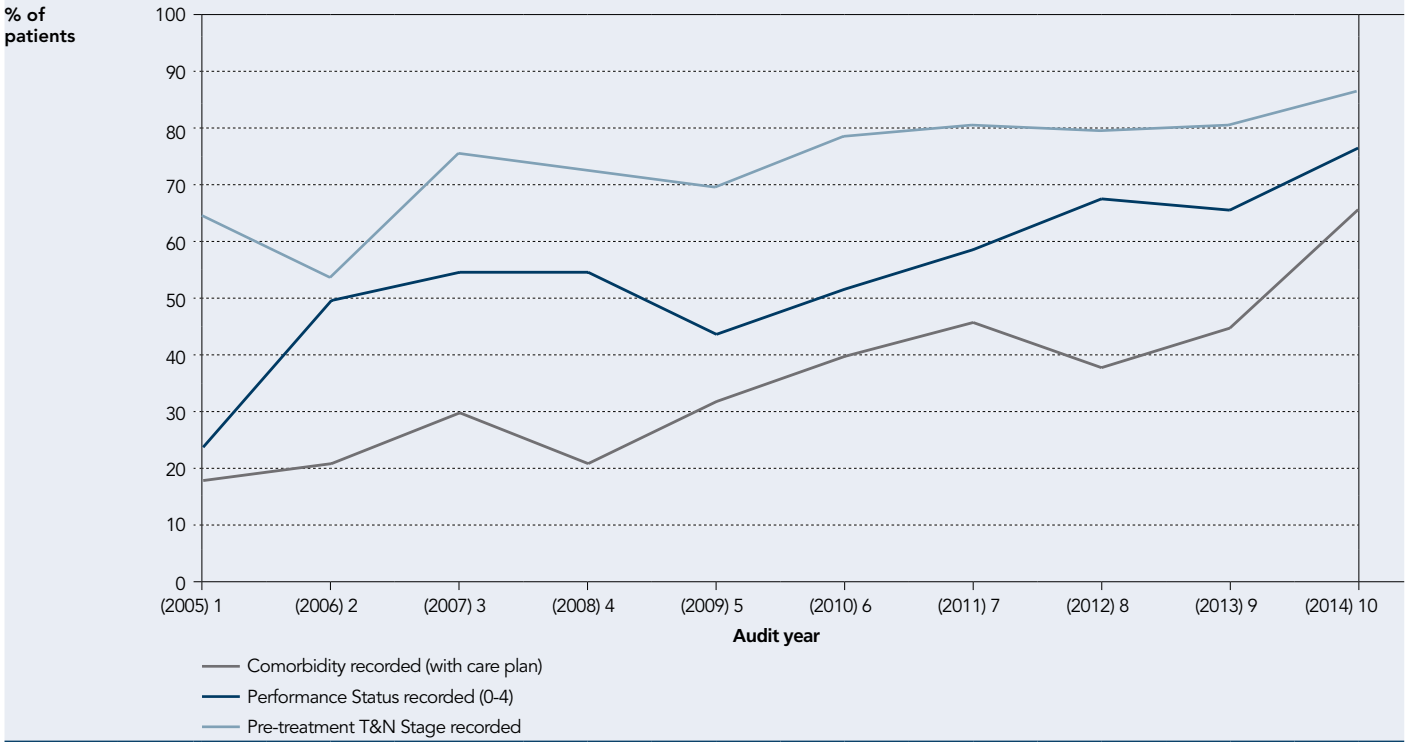
Clinicians, at the outset of the Audit, identified casemix adjustment as important to ensure that when making comparisons, like was compared with like. Four principal risk factors were felt likely to influence casemix adjustment: age, pre-treatment staging, performance status and co-morbidity status. Within the recommendations of each Annual Report the importance of comprehensive submission of the items was raised and increased submission encouraged. This was supplemented in presentations to each BAHNO annual general meeting.

From the outset, age had very high levels of return, and age profiles by each cancer anatomic sub-site were described and remained consistent as case numbers rose.

By the second Annual Report just over half of patients had pre-treatment staging and performance status recorded, and only a fifth co-morbidity status. Whilst pre-treatment staging rose significantly by the third Annual Report, and maintained a level above 80 per cent of cases from the seventh Annual Report onwards, the improved submission of performance status was much more gradual, and that of co-morbidity status made slower progress. Much higher levels of attainment of all three factors has occurred this year and will be reported below.

It is pleasing to note that in the majority of networks/ Strategic Clinical Networks (SCNs) and multi-disciplinary teams (MDTs), significant efforts have been made to attain high levels of submission and maintain this. However, in a small number further attention is needed. The progress on a casemix adjustment model can be found in section 4.10.

Figure 4.2.4a
Recorded risk factors over ten audit years



Assurance of care

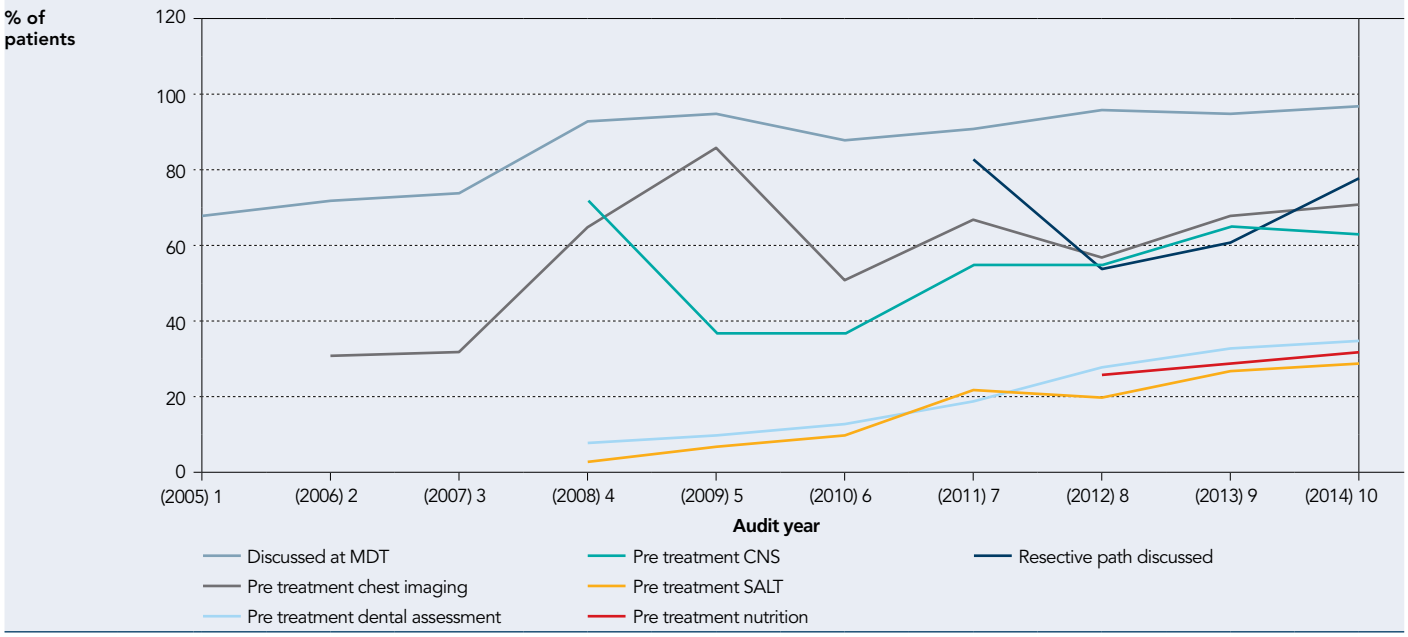
Discussion at MDT has consistently achieved over 90 per cent confirmation since the fourth Annual Report. Pre-treatment chest imaging has undergone a number of methodological changes but is now confirmed in over seven in ten patients, and the discussion of resective pathology introduced in 2011 has attained similar levels.

Pre-treatment dental assessment has remained a controversial measure both in its definition and with differences of opinion on its value. This may partly explain why this aspect of care has shown only a very slow rise in submission, being confirmed in only one third of patients.

The Audit introduced multi-professional care delivery measures in the fourth Annual Report for specialist nursing care and speech and language therapy input, and followed this with nutritional care in the eighth Annual Report. This was to recognise, in conjunction with patient groups, that multi-professional holistic care is essential to the well-being of patients, both in preparation for treatment, the ability to tolerate complex interventions, as well as facilitating rehabilitation and survivorship. The Audit was one of the first cancer audits to engage and support non-medical professionals in developing the desired outcomes and assist in promoting their selection and reporting.

Whilst specialist nursing care has been assured in a rising proportion of patients – now two thirds of cases – assurance of speech and language/swallowing and nutritional care has been much slower, with just one third of patients reported this year. The latter two professional groups have both followed an approach of rationalising the required data items, whilst encouraging providers to support and facilitate their contributions. Further work is needed to understand limiting factors and the variation between organisations to ensure this important group of professionals can be more involved in the Audit.

Figure 4.2.4b
Recorded ideal patient pathway over ten audit years



Timeliness of care – interval from diagnosis to first definitive treatment

Over the course of the Audit, cancer wait targets have been in place and have been increasingly focused on by provider organisations. Head and neck cancer remains a challenging area to achieve rapid pathways of diagnosis and treatment.

The Audit has reported median intervals from diagnosis to first definitive treatment since the fourth Annual Report (2008). These intervals have changed only minimally. It should be remembered that as these are medians, a cohort of patients are waiting considerably longer than this.

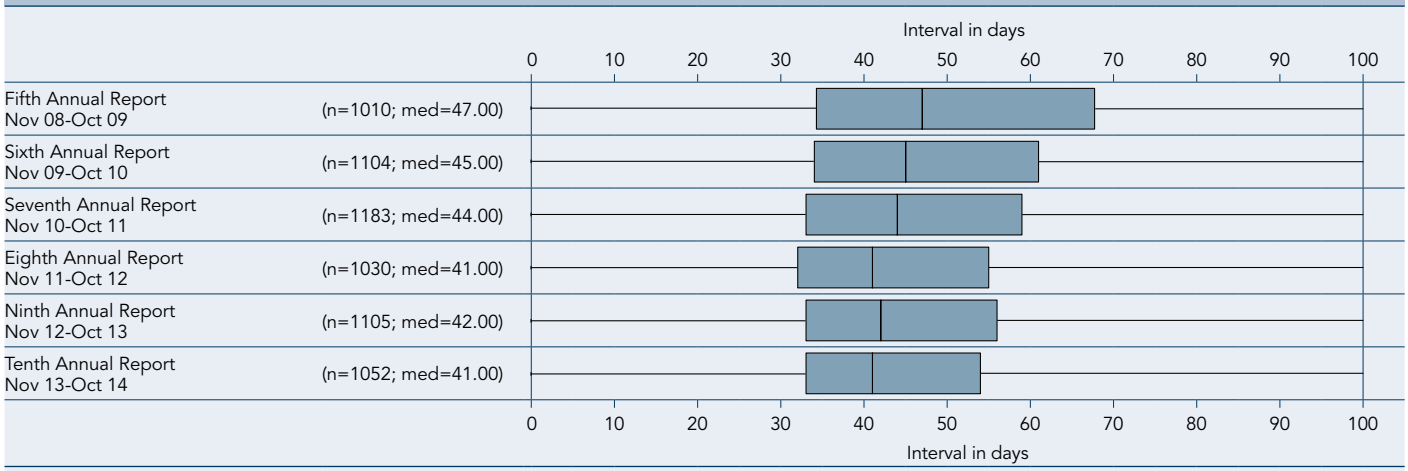
Whilst the interval from diagnosis to radiotherapy has always been longer than for surgery, it is disappointing to see that this median interval has remained at six weeks, meaning many patients are not receiving treatment within recommended guideline timeframes. Whilst investment in radiotherapy facilities has occurred in this period, this has been countered by the introduction of intensity modulated radiotherapy which is more complex to plan but reduces treatment morbidity. Further focus is needed by organisations and commissioners to ensure only clinically appropriate delays in pathways occur and services are re-aligned to provide all patients with radiotherapy within six weeks of diagnosis where this is clinically required.

Table 4.2.4b
Median diagnosis – first definitive treatment (days) - radiotherapy

	Median diagnosis - first definitive treatment (days) – radiotherapy #
Audit year	**n.n**
Fifth Annual Report – Nov 08-Oct 09	47.0
Sixth Annual Report – Nov 09-Oct 10	45.0
Seventh Annual Report – Nov 10-Oct 11	44.0
Eighth Annual Report – Nov 11-Oct 12	41.0
Ninth Annual Report – Nov 12-Oct 13	42.0
Tenth Annual Report – Nov 13-Oct 14	41.0

figures for fifth to tenth Annual Report cohorts are calculated from the tenth Annual Report cumulative extract

Figure 4.2.4c
Interval from date of diagnosis to start of first definitive treatment – radiotherapy#



figures for 5AR, 6AR, 7AR, 8AR, 9AR and 10AR cohorts are calculated from the 10AR cumulative extract

AR = Annual Report

4.3 The Ideal Patient Pathway

The complex care pathway associated with head and neck cancer contains multiple components, all contributing to the patient experience and quality of care. It is therefore possible to define an ideal patient pathway containing key aspects of care.

In this report we have analysed the following aspects as representing the ideal patient pathway for all patients. Discussion of resective pathology is only applied to those cases undergoing surgical care and is presented separately:

- Pre-treatment seen by Clinical Nurse Specialist (CNS),
- Pre-treatment nutritional assessment,
- Pre-treatment speech and language therapy (SALT) assessment,
- Pre-treatment dental assessment,
- Pre-treatment chest CT/chest X-ray (CXR),
- Discussed at multi-disciplinary team (MDT),
- Resective pathology discussed at MDT (surgical patients only).

In an ideal patient pathway, each patient would receive each of the six or seven aspects of care. These are reported here. Below is a summary chart for England showing the seven aspects and the percentage achieved and a table showing the changes from the ninth Annual Report.

In reporting the findings, we have presented the data in two different ways. The percentage of each individual aspect achieved by networks/SCNs is shown in a radar chart where each pathway aspect is represented by a chart sector divided into 20.0 per cent bands.

For those patients undergoing surgery, the key additional element is the discussion of resective pathology by the MDT.

Figure 4.3
The Ideal Patient Pathway - England

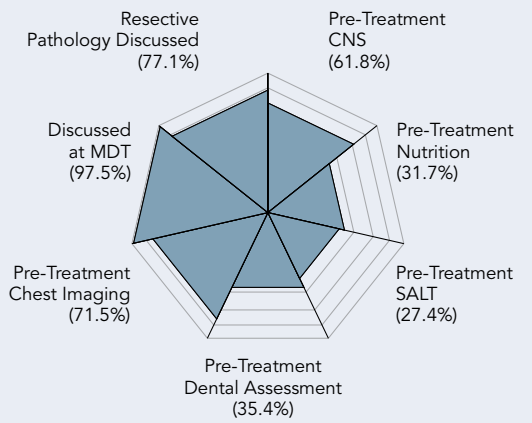
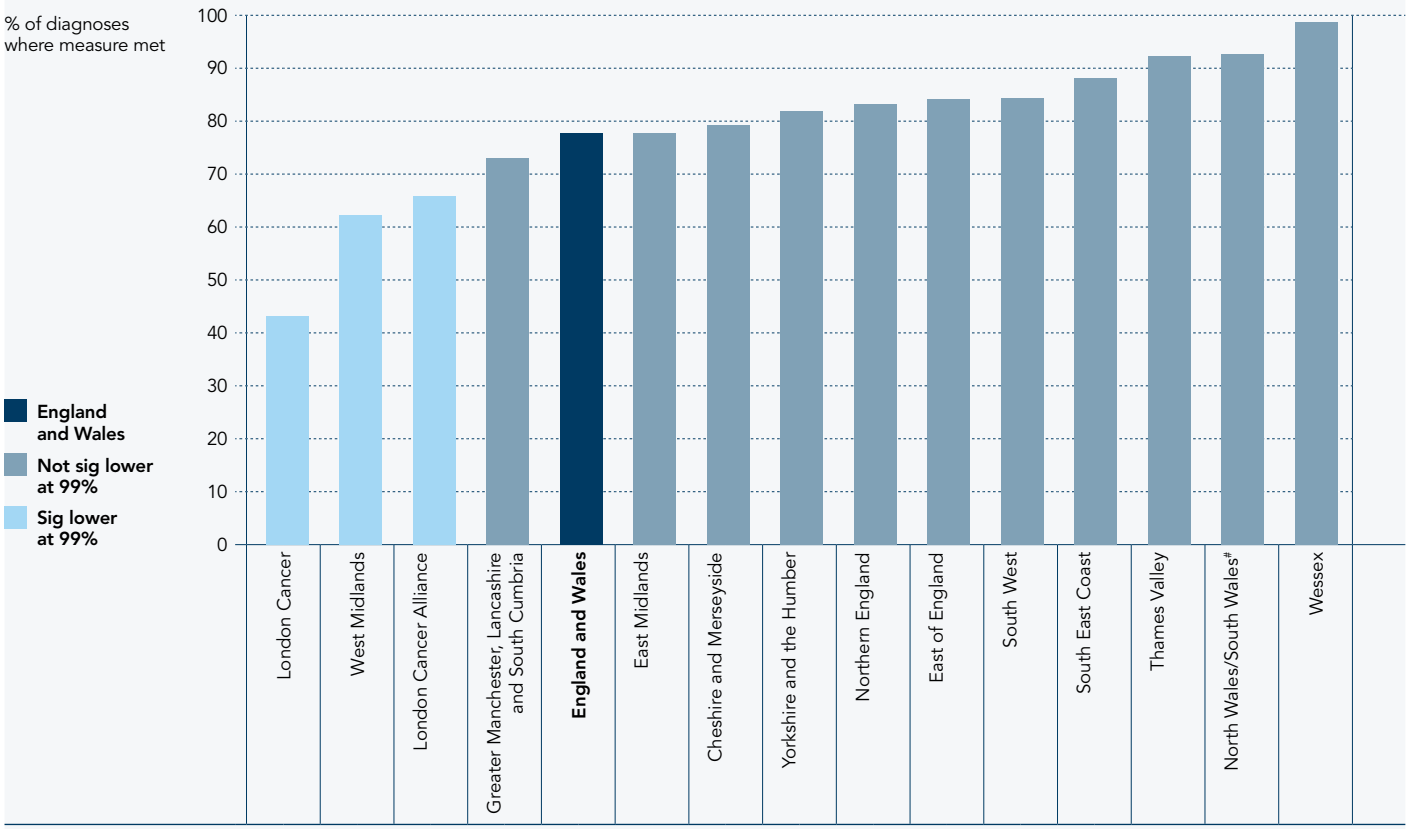


Table 4.3.a
Percentage of (6 indicator) patients pathway achieved

	Current Audit Year		Previous Audit Year	Difference
	n	%	%	%
0	52	0.8	1.6	-0.7
1	694	11.3	12.1	-0.8
2	1,327	21.6	21.4	0.2
3	1,472	24.0	25.5	-1.5
4	1,233	20.1	19.1	1.0
5	896	14.6	13.8	0.8
6	467	7.6	6.6	1.0
Total	**6,141**	**100.0**	**100.0**	**0.0**

Mean number of (6) key aspects recorded		
Current Audit Year	Previous Audit Year	Difference
3.3	3.2	0.1

Figure 4.3b
Discussion of resective pathology: attainment by treating SCN/network



To preserve the small number suppression applied on an associated table, the two Welsh networks have been combined into one unit (North Wales/South Wales)

Clinical comment

The mean score has improved minimally from 3.2 to 3.3 aspects of care on the ideal patient pathway. There has also been a small rise in the number of patients receiving three or more aspects of the pathway, with a one per cent increase where assurance was provided that all six contributory elements of care were delivered. The Expert Panel remains concerned that there has been no closing of the gap towards the gold standard that all patients receive all elements of the pathway. MDTs and patient groups need to continue their focus on the steps needed to provide this assurance.

For patients undergoing surgery, there was a rise in the mean number of elements recorded from 3.5 last year to 3.8 in this year's report. The same comment about the number of patients receiving all elements of care on the pathway applies to surgical patients as non-surgical above.

An analysis defined by first treating English SCN, comparing the six and seven key elements recorded this year, compared to the ninth Annual Report can be found here. The SCN with the highest mean number of patients meeting the ideal patient pathway (all patients) was Northern England, with a mean number of 4.1, whilst the SCN achieving the lowest mean number was Cheshire and Merseyside at 2.3. With the addition of the seventh aspect for surgical patients, Thames Valley achieved a mean of 4.6 elements recorded, whilst the lowest mean number was in Cheshire and Merseyside at 2.8.

4.4 Patient pathways

These pathways have been selected as they represent areas of clinical interest and there remain dilemmas over the most appropriate management.

4.4.1 Treatment of early stage larynx cancer

Audit question:

Are patients being provided with choice of radiotherapy or trans oral endoscopic surgery for suitable cancers?

Why is this important?

Early larynx cancer encompasses T1 N0 and T2 N0 squamous carcinoma. ENT-UK[17] Head and Neck believe that all patients with early larynx cancer in the UK should be given the choice of radiotherapy or endoscopic surgery for suitable cancers[18]. For more details on the different impacts of radiotherapy and microlaryngeal endoscopic resection please refer to earlier Annual Reports.

Each network/SCN is required under Improving Outcomes Guidance[19] to have agreed treatment guidelines, which MDTs are expected to follow.

In the seventh, eighth and ninth Annual Reports, variability was seen by cancer network, MDT and care providers in the availability of endoscopic laser excision. The distribution of cases recorded as receiving radiotherapy or endolaryngeal resection appeared to be driven by MDT preference. In a number of networks the majority of early larynx cases were recorded as having received radiotherapy as the first definitive treatment.

Results:

Table 4.4.1a
Summary

	Total	All treatment *	No treatment	Cancer care plan intent where no treatment recorded		
				Curative	Other** / Not known	Blank
	n	n	n	%	%	%
Early larynx	**844**	**751**	**93**	**74.2**	**12.9**	**12.9**
Early larynx, previous audit year	803	702	101	73.3	10.9	15.8
Early larynx, cumulative 2004-audit year	5,703	4,416	1,287	63.7	10.6	25.6
Glottic	**774**	**693**	**81**	**77.8**	**9.9**	**12.3**
Glottic, previous audit year	712	627	85	74.1	11.8	14.1
Glottic, cumulative 2004-audit year	5,014	3,916	1,098	65.4	10.0	24.6
Supraglottic	**70**	**58**	**12**	**50.0**	**33.3**	**16.7**
Supraglottic, previous audit year	91	75	16	68.8	6.3	25.0
Supraglottic, cumulative 2004-audit year	689	500	189	54.0	14.3	31.7

* Any treatment (surgery/chemo/radio/chemoradio/palliative), including palliative intent

** Other includes non-curative intent, no active treatment, patient declined treatment

Table 4.4.1b
Larynx cases with first treatment, by diagnosing SCN/network

Code	Diagnosis SCN/Network	Total diagnoses	Having treatment *		Microlaryngeal surgery as first treatment *		Radiotherapy as first treatment *		Number having other treatment first **		No treatment ***	
		n	n	%	n	%	n	%	n	%	n	%
N50	Cheshire and Merseyside	57	55	96.5	20	36.4	33	60.0	2	3.6	2	3.5
N55	East Midlands	61	55	90.2	19	34.5	28	50.9	8	14.5	6	9.8
N54	East of England	78	72	92.3	29	40.3	41	56.9	2	2.8	6	7.7
N51	Greater Manchester, Lancashire and South Cumbria	77	69	89.6	16	23.2	42	60.9	11	15.9	8	10.4
N40	London Cancer Alliance	67	43	64.2	13	30.2	25	58.1	5	11.6	24	35.8
LC	London Cancer	41	37	90.2	13	35.1	18	48.6	6	16.2	4	9.8
N52	Northern England	57	54	94.7	19	35.2	27	50.0	8	14.8	3	5.3
N58	South East Coast	52	42	80.8	17	40.5	24	57.1	1	2.4	10	19.2
N57	South West	48	45	93.8	25	55.6	18	40.0	2	4.4	3	6.3
N59	Thames Valley	23	23	100.0	5	21.7	14	60.9	4	17.4	0	0.0
N60	Wessex	44	37	84.1	17	45.9	19	51.4	1	2.7	7	15.9
N56	West Midlands	73	68	93.2	29	42.6	32	47.1	7	10.3	5	6.8
N53	Yorkshire and the Humber	120	113	94.2	60	53.1	47	41.6	6	5.3	7	5.8
	England total	**798**	**713**	**89.3**	**282**	**39.6**	**368**	**51.6**	**63**	**8.8**	**85**	**10.7**
NWW	North Wales	12	10	83.3	*	*	6	60.0	*	*	2	16.7
SWCN	South Wales	34	28	82.4	*	*	17	60.7	*	*	6	17.6
	Wales total	**46**	**38**	**82.6**	**11**	**28.9**	**23**	**60.5**	**4**	**10.5**	**8**	**17.4**
	England and Wales total	**844**	**751**	**89.0**	**293**	**39.0**	**391**	**52.1**	**67**	**8.9**	**93**	**11.0**

* (asterisk) in table cell = small number between 1-4 [primary suppression] or another number (including zero) selected for secondary suppression (i.e. to ensure that the primary suppression cannot be derived by subtraction).

* Including palliative intent

** Including chemotherapy (including palliative intent), chemoradiotherapy, palliative care and other surgical procedures

*** No treatment reported

Data source: DAHNO

Clinical comment:

844 cases of early larynx cancer were submitted comprising 774 glottic and 70 supraglottic cancers. The cumulative record of early larynx cancers since the inception of the Audit now totals 5,703 cases. In this year's cohort, 52.1 per cent received radiotherapy as first treatment and 45.0 per cent received surgery, either microlaryngeal (39.0 per cent) or other (6.0 per cent) surgery. This is consistent with last year's figures.

There appears however, established practice with networks/SCNs showing similar patterns of treatment from year to year.

The use of the generally larger SCNs appears to average out some of the differences of treatment strategies seen at a unit level. Given this persistent position it would be useful for future work to look at disease specific outcomes to compare treatment strategies.

The highest ratio of microlaryngeal surgery to radiotherapy was seen in the South West 1.39:1 and Yorkshire and the Humber 1.28:1. The lowest ratios were seen in Thames Valley 1:2.8 and Greater Manchester, South Cumbria and Lancashire 1:2.63, where radiotherapy predominated as first treatment.

Recommendations:

Networks/SCNs and commissioners should monitor adherence to their guidelines for treatment in early larynx cancer and confirm that patients are being offered appropriate choice in determining their treatment.

MDTs are encouraged to record current status to allow future disease specific survival to be calculated.

4.4.2 Oral cavity – cancer of tongue

Audit question:

Currently there appears to be variation in the management of oral tongue cancer, with respect to management of the primary site and neck. There are currently no agreed professional standards written for management of oral tongue cancer in England and Wales. It is the aim of the Audit to collect data to inform professional bodies on current practice to develop future management standards.

Why is this important?

The oral tongue is the most common oral sub-site for squamous cell carcinoma cancer. Management of the neck is controversial with no level-one evidence to determine the most appropriate management of the N0 neck. With the incidence of occult metastasis around 20 per cent in clinically and radiographically negative necks, many teams prefer to carry out a prophylactic staging neck dissection. A Medical Research Council (MRC)[20] funded trial (SEND[21]) is trying to define criteria to select patients requiring elective neck dissection. Increasing accumulation of cases and their treatment within the Audit provides additional opportunities to investigate this topic outside a formal research trial. The Audit now contains information on 7,736 cancers of the oral tongue, making it a powerful tool in attempting to understand how best to manage this disease entity.

Results:

Tables 4.4.2
Summary

	Diagnoses	
	n	%
Oral cavity	**2,684**	-
Tongue	1,247	46.5
Cheek Mucosa	224	8.3
Floor of Mouth	496	18.5
Hard Palate	109	4.1
Lip Inner Aspect	106	3.9
Mouth Unspecified	95	3.5
Retromolar Area	169	6.3
Upper and Lower Gingivae	219	8.2
Vestibule of Mouth	19	0.7
Oropharynx	**2,439**	
… Base of tongue	676	27.7

		Diagnoses	
		n	%
All tongue diagnoses		**1,247**	-
C02.0	Tongue dorsal surface anterior 2/3	53	4.3
C02.1	Tongue lateral border tip of tongue	458	36.7
C02.2	Tongue ventral inferior surface	119	9.5
C02.3	Anterior two-thirds of tongue part unspecified	52	4.2
C02.4	Lingual tonsil (previously in oropharynx)	22	1.8
C02.8	Tongue overlapping lesion of anterior two-third	47	3.8
C02.9	Tongue unspecified	496	39.8

Staging *	Pre-treatment T stage	
	n	%
Surgery as first active treatment *	**845**	**-**
Pre-treatment T1	379	44.9
Pre-treatment T2	262	31.0
Pre-treatment T3	36	4.3
Pre-treatment T4a	73	8.6
Pre-treatment T4b	2	0.2
Pre-treatment TX	11	1.3
Unknown staging	82	9.7

Staging *	Pre-treatment N stage	
	n	%
Surgery as first active treatment *	**845**	**-**
Pre-treatment N0	590	69.8
Pre-treatment N1	64	7.6
Pre-treatment N2a	9	1.1
Pre-treatment N2b	59	7.0
Pre-treatment N2c	24	2.8
Pre-treatment N3	5	0.6
Pre-treatment NX	16	1.9
Unknown staging	78	9.2

* Excluding surgery with palliative intent

	Total diagnoses	Post Surgery Staging*									
		Upstaged		Downstaged		Downstaged to T1		Path-T not recorded		Path-TX	
	n	n	%	n	%	n	%	n	%	n	%
Pre-treatment T1 with surgery	379	36	9.5	-	-	-	-	55	14.5	7	1.8
Pre-treatment T2-T4 with surgery	373	21	5.6	105	28.2	72	19.3	34	9.1	3	0.8

	Total diagnoses	Post Surgery Staging*									
		Upstaged		Downstaged		Downstaged to N0		Path-N not recorded		Path-NX	
	n	n	%	n	%	n	%	n	%	n	%
Pre-treatment N0 with surgery	590	80	13.6	-	-	-	-	74	12.5	42	7.1
Pre-treatment N+ with surgery	161	15	9.3	39	24.2	35	21.7	17	10.6	4	2.5

Surgical procedures: DAHNO			
	Total diagnoses	Total	Having surgery (any)
	n	%	%
Total Oral Tongue diagnoses	**1,247**	**-**	**-**
Having surgery (any) **	854	68.5	-
Having total glossectomy (F22.1) ***	15	1.2	1.8
Having Neck dissection (T85.1*) ***	413	33.1	48.4
... Neck dissection, radical, (T85.1) ***	88	7.1	10.3
... Neck dissection, modified, (T85.1A*) ***	22	1.8	2.6
... Neck dissection, selective, (T85.1B*, except T85.1BVIII) ***	305	24.5	35.7
... Neck dissection, selective, level 1-4, (T85.1B[I-IV]) ***	147	11.8	17.2
... Neck dissection, selective, undefined, (T85.1B) ***	159	12.8	18.6

** Including surgery with palliative intent

*** Diagnoses may have more than one procedure, so procedure counts may not add up. Procedures appearing multiple times against the same patient have been counted once only.

Surgical procedures: Combined	
	Procedures *
	n
Tongue procedures **	797
Neck dissections ***	424
Tongue procedures : Neck dissections	1.88 : 1

* Procedures types are counted multiple times if recorded multiple times against the same patient. OPCS codes have been counted for this analysis.

** Tongue procedures are defined as OPCS codes F22.1 (Total Glossectomy), F22.2 (Partial Glossectomy) and F23.1 (Excision Lesion Of Tongue)

*** Neck dissections are defined as OPCS codes T85.1* (Neck Dissection and subgroups)

Pre-treatment assessment										
	Total diagnoses	Having SALT record		Having Nutrition record		Having treatment *	Pre-treatment SALT assessment		Pre-treatment dietetic assessment	
	n	n	%	n	%	n	n	%	n	%
All cohort	1,247	529	42.4	604	48.4	1,032	311	30.1	362	35.1

* Surgery/chemo/chemoradio/radio treatment only (including palliative intent, excluding suspected biopsies)

Data source: DAHNO

Clinical comment:

The number of oral tongue tumours has increased from 1,157 cases in the eighth Annual Report to 1,247 cases this year, making it the dominant sub-site in the oral cavity. The most common specified sub-site for oral tongue tumours is the lateral border, which makes up 36.7 per cent of the total. A higher than expected number of cases has been recorded as tongue unspecified (39.8 per cent), from last year (34.1 per cent), which is disappointing.

Of the 1,247 cases, 845 underwent primary surgical treatment (67.8 per cent). 413 cases underwent a neck dissection, a rate of 48.4 per cent of surgery cases – an increase from the 43.7 per cent seen last year.

44.9 per cent of surgery cases were T1 at presentation, 31.0 per cent T2, 4.3 per cent T3 and T4 a + b 8.8 per cent. For pre-treatment staging of the neck, 69.8 per cent of cases were N0 and 19.1 per cent N positive (N+) (11.1 per cent unknown or Nx). This year we have seen an increased number of early stage cases of tongue cancer, which could be related to the increased volume of staging information, or possibly earlier presentation of cases. Continued analysis of this trend is indicated.

Of 590 cases that were N0 at presentation, 80 (13.6 per cent) were upstaged on post-surgical staging. The accuracy of pre-treatment staging appears to have stabilised with the high levels seen last year decreasing in this cohort of patients, (eighth Annual Report 11.5 per cent upstaged). Of the 161 patients who were staged N+ pre-treatment, 35 (21.7 per cent) patients were downstaged to N0 following pathological review (eighth Annual Report 17.4 per cent). It is disappointing that a significant number of patients failed to have their post-surgery staging recorded.

There were 614 early oral tongue tumours comprising T1 and T2 N0 cases. The most common surgical procedure in this group was excision lesion of tongue (258 cases) or partial glossectomy (268). Of these 526 cases, 219 neck dissections were recorded in 216 patients. With resective pathology 29 cases (8.5 per cent) were upstaged in T category and 51 (25.9 per cent) downstaged. In N category 64 (11.9 per cent) were upstaged, confirming the difficulties in accurate pre-operative staging despite sophisticated imaging. Reconstructive procedures are recorded for 34 of the 64 cases in this group suggesting more extensive resection has taken place.

There were 434 cases of T1 tongue, with 191 being lateral border of tongue. Surgery was the predominant first treatment in 379 cases (87.3 per cent of cases), with only seven cases (1.6 per cent) recorded as having primary radiotherapy. Surprisingly, ten cases were recorded as having a different first active treatment (chemoradiotherapy nine patients and chemotherapy one patient), which does not seem to follow established protocols for the management of early stage disease, assuming that this accurately reflects actual treatment.

9.5 per cent of tumours initially staged as T1 were up-staged following pathological review.

In T1 cases undergoing surgery there was a ratio of 3.21 tongue procedures to one neck dissection.

41.0 per cent of T1 cases received SALT input and 42.6 per cent had a nutritional assessment. It is encouraging to see this level of input in the management of these early stage cases and represents good evidence of multidisciplinary working.

Radiotherapy data this year has not been supplemented with RTDS data and therefore may under represent radiotherapy treatment. However, 21 T1 (5.5 per cent) cases underwent adjuvant radiotherapy out of 379 surgical resections and for all oral tongue (all stages) 114 (13.5 per cent) of 845 cases received adjuvant radiotherapy.

Recommendations:

Professional bodies should consider using the Audit data triangulated with RTDS[22], HES and the SACT[23] data sets to produce professional standards for the management of oral tongue cancer.

The improvement of multi-professional submission continues an encouraging trend and should be built upon by MDTs to provide a more comprehensive assurance to patients and commissioners.

4.4.3 Oropharynx cancer

4.4.3.1 Oropharynx cancer and HPV (Human Papilloma Virus)

Audit question:

HPV (Human Papilloma Virus) has become a recognised cause of oropharynx cancer. The Audit wishes to establish what proportion of oropharyngeal squamous cell carcinomas (OPSCC) are assessed for high risk HPV infection and what tests are being used?

Why is this important?

It is established that the HPV status of OPSCC is a strong and independent prognostic factor. As a consequence, clinical guideline documents from the National Comprehensive Cancer Network USA, College of American Pathologists, ENT UK and the Royal College of Pathologists recommend HPV testing for OPSCC[24-27]. There is evidence that the HPV status of OPSCC can be accurately defined using a combination of p16 immunohistochemistry and high risk HPV DNA *in situ* hybridisation[24-27]. p16 immunohistochemistry as a single test is also considered to be a strong prognostic marker and a good surrogate marker of oncogenic (cancerous) HPV infection[28].

There is a need to capture accurate contemporary data to establish the 'landscape' of HPV testing for OPSCC in the UK. This will raise the profile of HPV testing, drive test implementation, facilitate equitable patient access to relevant prognostic information and gauge the burden of OPSCC attributable to HPV. Currently HPV status can only be used as a prognostic marker. However, international clinical trials are recruiting participants with OPSCC to establish if HPV testing can inform treatment decision, and allow more targeted, less intensive treatment for some oropharynx cancers.

Results:

Tables 4.4.3.1
Have all patients with squamous cell carcinoma of the oropharynx had HPV testing?

Total	HPV test status recorded		Of recorded, has HPV Status testing been performed?						HPV test status not recorded	
			Yes		No		Not applicable			
n	n	%	n	%	n	%	n	%	n	%
1,972	1,018	51.6	803	78.9	77	7.6	138	13.6	954	48.4

Of those tested, what test did they have?

Total	HPV test type recorded		Of recorded, HPV test type				HPV test type not recorded	
			p16 immunohistochemistry only		p16 immunohistochemistry + High-risk HPV in situ hybridisation			
n	n	%	n	%	n	%	n	%
803	785	97.8	632	80.5	153	19.5	18	2.2

What was the result of the HPV test?

Total	p16 immunohistochemistry									p16 immunohistochemistry + High-risk HPV in situ hybridisation								
	Total	Status recorded		Status				Status not recorded		Total	Status recorded		Status				Status not recorded	
				Positive		Negative							Positive		Negative			
N	n	n	%	n	%	n	%	n	%	n	n	%	n	%	n	%	n	%
785	632	609	96.4	437	71.8	172	28.2	23	3.8	153	153	100.0	118	77.1	35	22.9	0	0.0

Data source: DAHNO

Clinical Comment:

For the first time in England HPV status and testing has been recorded on a national basis. Of 1,972 oropharyngeal squamous cell carcinoma cases in England, 51.6 per cent had an entry relating to testing, with 78.9 per cent of completed cases entered as 'yes, test performed'. This is an achievement in the first year of collection and demonstrates the enthusiasm of multi-disciplinary teams to understand the impact of HPV in outcomes. By MDT host, the network/SCN with the highest recording of testing (Yes/No/not applicable) is Thames Valley at 75.9 per cent and the poorest London Cancer at 25.0 per cent. In 13.6 per cent of cases HPV testing was recorded as not applicable, but this was predominantly in one network (Yorkshire and Humber) and likely to reflect a data quality error.

In implementing HPV testing, selection of appropriate HPV tests, laboratory validation and interpretation of results may be barriers to adoption of HPV testing by diagnostic pathology services. Securing funding for additional laboratory tests can be problematic, depending on the local organisation of laboratory services.

Of 803 cases where HPV testing was recorded as yes, 97.8 per cent (785 cases) had the type of HPV testing recorded. 80.5 per cent had p16 immunohistochemistry alone, and 19.5 per cent had in addition high risk HPV *in situ* hybridization (HR-HPV DNA ISH) performed.

Of 632 cases tested by p16 immunohistochemistry, 437 (71.8 per cent) were positive, and 172 (28.2 per cent) negative, a ratio of positive to negative of 2.54 to 1.

Of 153 cases with p16 and *in situ* hybridisation testing, 118 (77.1 per cent) were positive and 35 (22.9 per cent) were negative, a ratio of positive to negative of 3.37 to 1.

Over 70 per cent, therefore, of tested cases were HPV positive, which identifies HPV as a likely contributory causative factor in a majority of oropharynx cases in England. This is consistent with contemporary US[29] and UK data[30-32].

As rates of smoking decline it will be relevant to monitor the proportion of cases with HPV positivity.

When comparing networks/SCNs with high levels of HPV testing, there is a variation in the rates of p16 positivity. This may reflect geographic incidence of HPV or variation in age or sex and this should be further studied as case numbers grow and consistency of testing and results evidenced.

UK National External Quality Assessment Service for Immunocytochemistry and *In-situ* Hybridisation are planning a quality assurance of HPV testing in head and neck cancer pilot scheme for 2016, which will help laboratory services to share best practice in HPV testing and facilitate wider adoption of routine testing.

Recommendations:

Networks/SCNs and Commissioners should review their guidelines and consider how they can facilitate patient access to HPV testing for prognostic purpose.

Individual network/SCN audit data should be scrutinised to establish compliance with guideline documents and the requirements for network-wide HPV testing. Capacity should be built for HPV testing to ensure that, should clinical trials demonstrate that HPV can be used as a predictive biomarker, UK networks/SCNs will be able to deliver the diagnostic information required.

Additional analyses:

HPV test recorded by SCN/network

Type of HPV testing undertaken by SCN/network

Outcome of test by SCN/network

4.4.3.2 Oropharynx cancer and treatment

Audit question:

Over recent years there has been a switch from surgical to non-surgical management of oropharynx cancer and within non-surgical treatment increasing use of chemoradiotherapy. Ongoing studies are looking at the feasibility of de-escalating chemoradiotherapy regimens. It is the aim of the Audit to collect data on current practice to inform professional bodies to help develop management guidelines for the future.

Why is this important?

Interpretation of the current published evidence appears to vary by MDT and network/SCN. At present, the majority of this information is from non-UK studies. The difficulties and cost of setting up multi-centre randomised controlled trials to investigate this clinical area means that information, accumulated in an audit such as this, can play a useful role in identifying treatment strategies. The Audit now contains cumulative information on 13,734 cases of oropharynx cancer, a useful source of comparative information.

Results:

Tables 4.4.3.2
Summary

	Total cases	
	n	%
Oropharynx diagnoses	**2,439**	
- Active treatment *	1,937	79.4
- - First active treatment, surgical *	858	44.3
- - First active treatment, non-surgical *	1,079	55.7
- No Active treatment *, No palliative treatment **	333	13.7
- - with curative cancer care plan intent	169	50.8
- - with non-curative cancer care plan intent	51	15.3
- - with 'no active treatment' cancer care plan intent	15	4.5
- - with 'not known' cancer care plan intent	33	9.9
- - with 'patient refused treatment' cancer care plan intent	5	1.5
- - with blank cancer care plan intent	60	18.0

* Excluding surgery/radio/chemo with palliative intent

** where palliative treatment covers both palliative care and surgery/chemo/radio with palliative intent

Treatment procedures

	Most frequent surgical procedures	Procedures *
		n
F34.9	Tonsillectomy Unilateral **	378
T85.1B	Selective Neck Dissection (SND) ***	134

* Procedures on first treatment date where first treatment is surgery only, includes palliative intent. Procedures are counted multiple times if recorded multiple times against the same patient. OPCS codes have been counted for this analysis.

** OPCS code F34.9

*** OPCS code T85.1B

Specific surgical procedures

	Most frequent surgical procedures	Procedures *
		n
T85.1*	Neck dissection **	364
	Open resective OR reconstructive procedures ***	1,173
	Reconstructive procedures only***	154

* Procedures on first treatment date where first treatment is surgery only, includes palliative intent. Procedures are counted multiple times if recorded multiple times against the same patient. OPCS codes have been counted for this analysis.

** Neck dissections are defined as OPCS codes T85.1* (Neck Dissection and subgroups)

*** Specified lists of reconstructive and open resective (includes some T85.1*) procedures. (Figure and methodology is not comparable from the ninth Annual Report.)

Surgery - highest/lowest SCN/network summary

	Treating SCN/Network		Oropharynx cases
			n
Highest Network Name	N51	Greater Manchester, Lancashire and South Cumbria	96
Lowest Network Name	NWW	North Wales	8

Oropharynx cases where the first treatment was surgery, radiotherapy or chemoradiotherapy by MDT SCN/Network					
Code	**MDT SCN/Network**	**Surgery as first active treatment ***	**Non-surgical as first active treatment ***	**Radiotherapy as first active treatment ***	**Chemoradiotherapy as first active treatment ***
		n	**n**	**n**	**n**
N50	Cheshire and Merseyside	62	65	17	43
N55	East Midlands	74	47	14	24
N54	East of England	68	107	41	49
N51	Greater Manchester, Lancashire and South Cumbria	96	89	34	37
N40	London Cancer Alliance	38	81	13	56
LC	London Cancer	42	42	18	19
N52	Northern England	47	81	18	62
N58	South East Coast	47	49	8	31
N57	South West	96	90	16	66
N59	Thames Valley	38	19	4	9
N60	Wessex	25	70	6	35
N56	West Midlands	91	118	28	70
N53	Yorkshire and the Humber	87	148	52	74
	England total	**811**	**1,006**	**269**	**575**
NWW	North Wales	8	12	0	8
SWCN	South Wales	39	61	9	37
	Wales total	**47**	**73**	**9**	**45**
	England and Wales total	**858**	**1,079**	**278**	**620**

* Excluding surgery/radio/chemo with palliative intent

Data source: DAHNO

Clinical Comment:

Of the 2,439 cases of oropharynx cancer, 1,937 had curative treatment intent, with the majority – 1,079 (55.7 per cent) – having non-surgical treatment as the first recorded treatment.

This shows consistency with the eighth and ninth Annual Reports, where 53.1 and 54.0 per cent respectively had non-surgical treatment. Within the non-surgical treatment group, chemoradiotherapy (620) is more than twice as frequent as radiotherapy (278) as the first treatment. The ratio of chemoradiotherapy to radiotherapy has increased from 2.02 to 2.23 in this year's Annual Report, suggesting an increase in chemoradiotherapy. There remains variation between networks/SCNs in their use of surgical or non-surgical primary treatments as well as a difference in the use of chemoradiotherapy or radiotherapy, reflecting the lack of clinical consensus on the optimum treatment modality.

The highest percentage of curatively-treated patients undergoing surgery as first treatment was 66.7 per cent in Thames Valley, and the highest rate of non-surgical treatment was in Wessex at 73.7 per cent.

The Audit has compared treatment for base of tongue against other oropharyngeal sub-sites and found that for base of tongue, non-surgical treatment was more than twice as likely as surgery as first treatment (355 non-surgical treatments, 171 surgical). For base of tongue, surgical access remains challenging.

For the first time the Audit has been able to review episodes of TORS (Trans Oral Robotic Surgery) and future audits should monitor this treatment and see if it influences surgical management of areas such as the tongue base.

Within the base of tongue non-surgical group, chemoradiotherapy was nearly three times as frequent as radiotherapy as first treatment (chemoradiotherapy 221 cases, radiotherapy 77 cases).

For oropharynx, excluding base of tongue, there was a similar level of surgery to non-surgery as first active treatment (surgery 687 cases, non surgical 724 cases). Within the non-surgical cohort, chemoradiotherapy was twice as frequent as radiotherapy as the first treatment, 399 cases had chemoradiotherapy compared to 201 cases having radiotherapy.

Recommendations:

Variation in treatment strategies remains evident across networks/SCNs. Current published evidence does not provide a consensus view that would help define the most appropriate treatment strategy. Professional bodies are encouraged to use the available evidence from the Audit and triangulate with other sources to progress this agenda.

Future work should look at variation in treatment preference to investigate whether, as expected, different anatomic sub-sites influence the treatment modality within the oropharynx.

Additional analyses:

Oropharynx cases - base of tongue only by treatment type by SCN/network

Oropharynx cases excluding base of tongue by treatment type by SCN/network

Oropharynx cases by treatment type by SCN/network

4.4.4 Advanced laryngeal cancer

Audit question:

The Audit has sought to evaluate whether there is evidence of increasing use of non-surgical chemoradiotherapy protocols (so called laryngeal preservation treatments) and to study variation in practice across MDTs, in particular in the treatment of T3 glottic cancer.

Why is this important?

Advanced stage laryngeal cancer encompasses higher T category tumours (T3 and T4) and any larynx cancers with nodes or distant metastases (e.g. T2 N1). Previous audit reports have described the surgical and non-surgical treatment modalities applicable.

The role of chemoradiotherapy in the management of advanced laryngeal cancer remains unclear with conflicting published studies.

Results:

Tables 4.4.4
Advanced larynx (T3,T4): Summary of all advanced larynx

	Total diagnoses n
All cases	**607**
… T3/T4N0	353
… T3/T4N+	240
… no N category recorded	14

Treatment: T3/T4 Larynx

	Total diagnoses	
	n	%
All advanced larynx	**607**	
Any active treatment *	435	71.7
...Surgery as first active treatment *	236	38.9
...Non-surgical treatment as first active treatment *	199	32.8
… ...Radiotherapy as first active treatment *	77	12.7
… ...Chemoradiotherapy as first active treatment	100	16.5
… ...Chemotherapy as first active treatment *	22	3.6
No active treatment recorded	172	28.3
...Palliative treatment where no active treatment recorded **	87	14.3

* Excluding surgery/radio/chemo with palliative intent

** First treatment is either palliative care or surgery/chemo/radio with palliative intent

Summary: T3/T4 Glottis

	Total diagnoses n
All cases T3	**204**
… T3N0	167
… T3N+	32
… no N category recorded	5
All cases T4	**174**
… T4N0	99
… T4N+	72
… no N category recorded	3

Treatment: T3 Glottis	Total diagnoses	
	n	%
All T3 Glottis	**204**	
Any active treatment *	163	79.9
... Surgery as first active treatment *	61	29.9
... Non-surgical treatment as first active treatment *	102	50.0
… ... Radiotherapy as first active treatment *	44	21.6
… ... Chemoradiotherapy as first active treatment*	51	25.0
… ... Chemotherapy as first active treatment *	7	3.4
No active treatment recorded	41	20.1
... Palliative treatment where no active treatment recorded **	20	9.8

Treatment: T4 Glottis	Total diagnoses	
	n	%
All T4 Glottis	**174**	
Any active treatment *	117	67.2
... Surgery as first active treatment *	91	52.3
... Non-surgical treatment as first active treatment *	26	14.9
… ... Radiotherapy as first active treatment *	14	8.0
… ... Chemoradiotherapy as first active treatment	11	6.3
… ... Chemotherapy as first active treatment *	1	0.6
No active treatment recorded	57	32.8
... Palliative treatment where no active treatment recorded **	29	16.7

* Excluding surgery/radio/chemo with palliative intent

** First treatment is either palliative care or surgery/chemo/radio with palliative intent

Data source: DAHNO

Clinical comment:

Across all laryngeal sub-sites, 607 cases had sufficient staging information to be recorded as advanced. 353 were node negative and 240 node positive (14 cases had no N category recorded). This cohort shows a slight increase in the number of patients undergoing surgical treatment (236 equating to 54.3 per cent of those having active treatment) compared to non-surgical treatment (199 cases equating to 45.7 per cent), but it is too early to draw any firm conclusions from this data.

Within the non-surgical treatment group, 77 had radiotherapy (17.7 per cent), 100 chemoradiotherapy (23.0 per cent) and 22 chemotherapy (5.1 per cent). There has been a reduction in the use of radiotherapy alone, but the use of chemoradiotherapy in advanced laryngeal cancers is unchanged from the eighth and ninth Annual Reports.

There is no overall increase in chemoradiotherapy within this cohort. To further assess if this varied between T3 and T4 cases, separate analyses of T3 and T4 glottic cancers have been made.

T3 Glottic cancer:

Of 204 T3 glottic cancer cases, 167 were node negative (N0) and 32 were node positive (N+) (5 cases had no N category recorded). Of the 204 cases, 163 had active treatment, with 61 undergoing surgery (37.4 per cent) and 102 (62.6 per cent) having non-surgical treatment. Once again this distribution matches both the eighth and ninth Annual Reports, showing a remarkable consistency of treatment modalities. In the non-surgical treatment group, 44 patients were treated with radiotherapy, whilst 51 underwent chemoradiotherapy, with seven recorded as chemotherapy alone. This slight increase in chemoradiotherapy, matches the trend seen in the eighth Annual Report.

When comparing geographic differences in chemoradiotherapy use, in the 13 English networks/SCNs, high rates were seen in South East Coast 83.3 per cent, compared to none in Cheshire and Merseyside. However, the numbers are small and clinical trials such as ART DECO[34] may have influenced treatment strategies.

In those patients undergoing any surgery, 13 cancers (19.1 per cent) originally staged as T3 were upstaged after resective pathology to T4; this confirms the difficulty in accurately staging the primary in advanced laryngeal cancer.

A range of different imaging modalities had been used by MDTs, but none were completely accurate. Staging of the neck was more accurate with imaging, with only a small number of cases changing N category with resective pathology.

The surgical data shows that the majority of cases undergoing surgery (35 cases) had a total laryngectomy with a smaller number undergoing extensive laser resection (18 cases).

The Audit is failing to obtain data on patients undergoing surgical voice restoration and it remains unclear why this has proved difficult to capture.

T4 Glottic cancer:

Of 174 cases of T4 glottic cancer, 99 were N0 and 72 N+ (3 cases had no N category recorded). Of these 174 cases, 117 had active treatment with curative intent, 91 underwent surgery (77.8 per cent) and 26 had non-surgical treatment (22.2 per cent) of which 14 were radiotherapy, 11 were chemoradiotherapy and one chemotherapy. 29 patients had palliative treatment.

These results are consistent with previous reports. The predominance of surgery is as expected due to compromise of the airway in T4 disease. The small rise in the use of chemoradiotherapy in comparison to radiotherapy may be an early trend, but small numbers may impact on this finding.

Of those patients where post-surgical staging was available, 62 patients were confirmed as T4 but 17 were down staged to T3, T2 and T1 categories. This again reflects difficulties in assessing some cancers with imaging and endoscopy. Within the neck, 13 cases were upstaged and four down staged following surgery.

Advanced supraglottic cancer:

In the 118 T3 supraglottic cancers, 57 cases (48.3 per cent) were N+ and in the 111 T4 cancers, 79 cancers (71.2 per cent) were N+, confirming the high propensity for supraglottic and transglottic tumours to metastasise to the neck.

Recommendations:

There is a lack of information on the longer-term function of the larynx following chemoradiotherapy, on both speech and swallowing function. Research is needed to investigate the impact this produces to understand if improved survival occurs and what the quality of life is in survivors.

MDTs are encouraged to ensure that outcome data is recorded to enable analysis of disease free survival data in a cumulative cohort as clinical trials are unlikely to answer these questions.

4.4.5 Nasal cavity and sinus cancer

Audit question:

There are currently no comprehensive sources of information on the management of nasal cavity and sinus cancer.

Why is this important for future audits?

Nasal cavity and sinus cancers are rare, with a diverse range of pathologies. By collecting information on pathology and management and where treatment is currently occurring, more comprehensive treatment strategies and guidance can be evolved.

Results:

Tables 4.4.5
Summary

	Total cases			
	Current Annual Year		Cumulative 3 Year	
	n	%	n	%
Nasal cavity and sinus	**335**		**1,082**	
Cartilage of nose, lateral wall of nose, septum of nose	196	58.5	624	57.7
Maxillary Sinus: Antrum (Highmore) (maxillary)	98	29.3	325	30.0
Ethmoidal sinus	23	6.9	65	6.0
Frontal sinus	3	0.9	9	0.8
Sphenoidal sinus	4	1.2	22	2.0
Overlapping lesion of accessory sinuses	5	1.5	14	1.3
Accessory sinus, unspecified	6	1.8	23	2.1

Pre-treatment histology

	Current Audit Year	Cumulative 3 Year
	n	n
Histological diagnosis	279	836
... Squamous cell carcinoma / variants *	190	597
... Adenocarcinoma, not otherwise specified **	32	77
... Olfactory neuroblastoma ***	11	31
... Adenoid cystic carcinoma ****	9	33
No histological diagnosis	56	246

* M80703, M80713, M80723, M80743, M80753, M80333 (M80333 first collected for tenth Annual Report)
** M81403
*** M95223
**** M82003

Staging

Summary	Total cases			
	Current Audit Year		Cumulative 3 Year	
	n	%	n	%
All cohort - (TNM applicable sites) *	**317**		**1,014**	
Early	**71**	**22.4**	**208**	**20.5**
T1	39	54.9	133	63.9
T2	32	45.1	75	36.1
Late	**158**	**49.8**	**460**	**45.4**
T1	3	1.9	11	2.4
T2	2	1.3	17	3.7
T3	22	13.9	65	14.1
T4	131	82.9	367	79.8
Unknown	**88**	**27.8**	**346**	**34.1**

* Excluding the following primary sites: C31.2 (Frontal sinus), C31.3 (Sphenoidal sinus), C31.8 (Overlapping lesion of accessory sinuses) and C31.9 (Accessory sinus, unspecified)

Summary: N-stage, Current Audit Year

		Total *		C30.0 - Cartilage of nose, lateral wall of nose, septum of nose		C31.0 - Maxillary Sinus: Antrum (Highmore) (maxillary)		C31.1 - Ethmoidal sinus	
		n	%	n	%	n	%	n	%
All cohort - (TNM applicable sites) *	Current Audit Year	**317**		**196**		**98**		**23**	
N0		199	62.8	124	63.3	57	58.2	18	78.3
N+		45	14.2	16	8.2	26	26.5	3	13.0
NX		6	1.9	3	1.5	3	3.1	0	0.0
Not recorded		67	21.1	53	27.0	12	12.2	2	8.7

Summary: N-stage, Cumulative 3 Year

		Total *		C30.0 - Cartilage of nose, lateral wall of nose, septum of nose		C31.0 - Maxillary Sinus: Antrum (Highmore) (maxillary)		C31.1 - Ethmoidal sinus	
		n	%	n	%	n	%	n	%
All cohort - (TNM applicable sites) *	Cumulative 3 Year	**1,014**		**624**		**325**		**65**	
N0		591	58.3	362	58.0	183	56.3	46	70.8
N+		138	13.6	69	11.1	65	20.0	4	6.2
NX		18	1.8	13	2.1	5	1.5	0	0.0
Not recorded		267	26.3	180	28.8	72	22.2	15	23.1

* Excluding the following primary sites: C31.2 (Frontal sinus), C31.3 (Sphenoidal sinus), C31.8 (Overlapping lesion of accessory sinuses) and C31.9 (Accessory sinus, unspecified)

Cumulative Treatment:

	Cumulative 3 Year	
	Total cases	
	n	%
All cases	**1,082**	
… with surgery *	536	49.5
… with non-surgical treatment *	302	27.9
… with no treatment recorded	180	16.6
… with palliative treatment **	64	5.9
… with curative surgery	490	45.3
… with adjuvant radiotherapy	166	15.3

* First treatment only, including palliative intent

** Where palliative care is recorded as first treatment, not surgery/chemo/radio with palliative intent

Data source: DAHNO

All nasal cavity and sinus cancer diagnoses in audit year. Additionally, three year cumulative data is reviewed.

Clinical comment:

Site

Of the 335 cases submitted, 196 arose from the nasal cavity (58.5 per cent) and 98 cases were situated in the maxillary antrum (29.3 per cent). The remainder was from the other accessory sinuses. These figures are highly consistent with the ninth Annual Report.

Stage

Late stage presentation dominated in this group of cancers with 49.8 per cent being staged as late and 22.4 per cent as early, however 27.8 per cent had unknown stage. 14.2 per cent were node positive (N+) and 4.4 per cent had distant metastases at presentation.

Treatment

Surgery remains the mainstay of treatment where treatment is with curative intent. 142 patients underwent surgery with curative intent (42.4 per cent of the patient cohort) and of those 38.0 per cent had adjuvant radiotherapy; however, no RTDS data has been used to complement the DAHNO data.

Crude survival

The in-year crude mortality for this cohort was 16.5 per cent, a slight rise when compared to the eighth and ninth Annual Report cohorts. In looking further at the ninth Annual Report cohort, the overall one year crude mortality rate for nasal cavity and sinus cancers was 22.9 per cent.

Cumulative data

There are now 1,082 cases of nasal cavity and sinus cancer held in the DAHNO database, representing 4.3 per cent of submissions. Geographically there is a significant variance in case accumulation between networks/SCNs. In England, the highest number is in East of England SCN with 120 cases and the smallest in the Thames Valley with 46 cases. As a percentage of submissions, percentages ranged from 5.4 per cent of submissions in East of England to 3.0 per cent in Greater Manchester, Lancashire and South Cumbria. In Wales, the cumulative total was 63 cases over the same three year period.

When using the denominator of an individual MDT, some MDTs are only seeing very small numbers of cases and networks/SCNs may choose to look at how and where care is delivered for this rare subset of tumours.

The predominant histology was squamous cell carcinoma (597 cases), followed by adenocarcinoma (77 cases). Rarer tumours included adenoid cystic carcinoma (33 cases) and olfactory neuroblastoma (31 cases).

The most common treatment was surgical with just under half the cases (49.5 per cent) undergoing surgery, with the most common procedure being maxillectomy in 137 cases. 70 cases underwent total or partial rhinectomy. Only a small number (seven cases) underwent a craniofacial resection, but this is likely to represent an underestimate due to the complexity of recording the multiple codes required to accurately describe these procedures.

166 patients (15.3 per cent) were recorded as having adjuvant radiotherapy and 51 chemoradiotherapy.

There were no deaths within 30 days of surgery in this cohort.

Summary

The patterns of disease staging and treatment have been consistent over a three year period. This provides an opportunity to consider both guidelines and service organisation for patients with this rare subtype of head and neck cancer.

Recommendations:

To further support the development of guidelines and service provision it is important that comprehensive staging information and histology is submitted for all cases by MDTs. It requires further case accumulation to allow conclusions to be drawn.

It remains difficult to record complex craniofacial resections and future audits should look at ways to assist the submission of this data.

Additional analysis:

Cumulative numbers of cases nasal cavity and sinus cancer submitted by diagnosing SCN/network

Cumulative numbers of cases nasal cavity and sinus cancer submitted by MDT host

M category cumulative information in nasal cavity and sinus cancers

4.5 Recording of risk adjustment factors

Why is this important?

Risk adjustment allows a meaningful comparison of similar cases and allows variation in treatments and outcomes to be assessed. For true risk adjustment to be carried out the Audit requires information for each patient treated in an MDT, as well as details on stage, performance status co-morbidity and accurate treatment data.

The histogram below graphically displays the variation in recording of the combined measure of performance status, staging and co-morbidity. Eight SCNs/networks have a higher level of recording than the England and Wales mean of 58.5 per cent, potentially allowing casemix adjustment to be carried out, while seven have a lower attainment, with six SCNs/networks recording significantly below the national average. In Wales the mean was 72.6 per cent.

Results:

Table 4.5
Recording of risk adjustment factors – data quality by diagnosing SCN/network

Code	Diagnosis SCN/Network	Case ascertainment % of estimate *	% Pre-treatment T and N staging**	% Cases with recorded performance status 0-4***	% Cases with co-morbidity status 0-3	% PS 0-4 and pre-treatment staging****	% All 3 of PS, co-morbidity and pre-treatment staging****	% Post-surgical staging**
N50	Cheshire and Merseyside	>=80%	83.1	87.6	84.4	77.1	80.1	65.7
N55	East Midlands	>=80%	79.0	60.4	46.4	49.7	43.1	83.6
N54	East of England	<80%	92.8	72.6	64.8	69.6	67.7	71.0
N51	Greater Manchester, Lancashire and South Cumbria	>=80%	78.0	76.8	25.2	65.9	24.7	82.2
N40	London Cancer Alliance	>=80%	90.6	76.8	50.2	72.4	52.3	93.3
LC	London Cancer	>=80%	94.7	32.6	31.8	30.2	29.9	84.0
N52	Northern England	>=80%	92.8	87.2	85.1	82.4	87.8	94.6
N58	South East Coast	<80%	87.9	73.7	17.8	66.1	17.2	87.6
N57	South West	>=80%	81.8	61.0	51.7	54.8	50.7	72.8
N59	Thames Valley	>=80%	76.2	80.9	79.9	64.5	67.2	97.7
N60	Wessex	>=80%	98.4	99.2	89.2	95.0	92.1	98.1
N56	West Midlands	>=80%	90.8	91.2	84.7	82.8	82.4	80.4
N53	Yorkshire and the Humber	>=80%	79.4	76.8	76.1	66.8	59.4	70.2
	England total	**91.8**	**86.1**	**75.3**	**60.2**	**67.9**	**57.5**	**81.2**
NWW	North Wales	>=80%	86.9	93.4	0.0	82.8	0.0	72.7
SWCN	South Wales	>=80%	99.3	94.7	96.8	87.4	93.4	90.3
	Wales total	**94.4**	**96.6**	**94.4**	**75.2**	**86.4**	**72.6**	**87.6**
	England and Wales total	**92.0**	**86.8**	**76.6**	**61.2**	**69.1**	**58.5**	**81.6**

* Case ascertainment estimated figures: for England, PHE 2011-13 estimate; for Wales, PHW 2013 estimate.

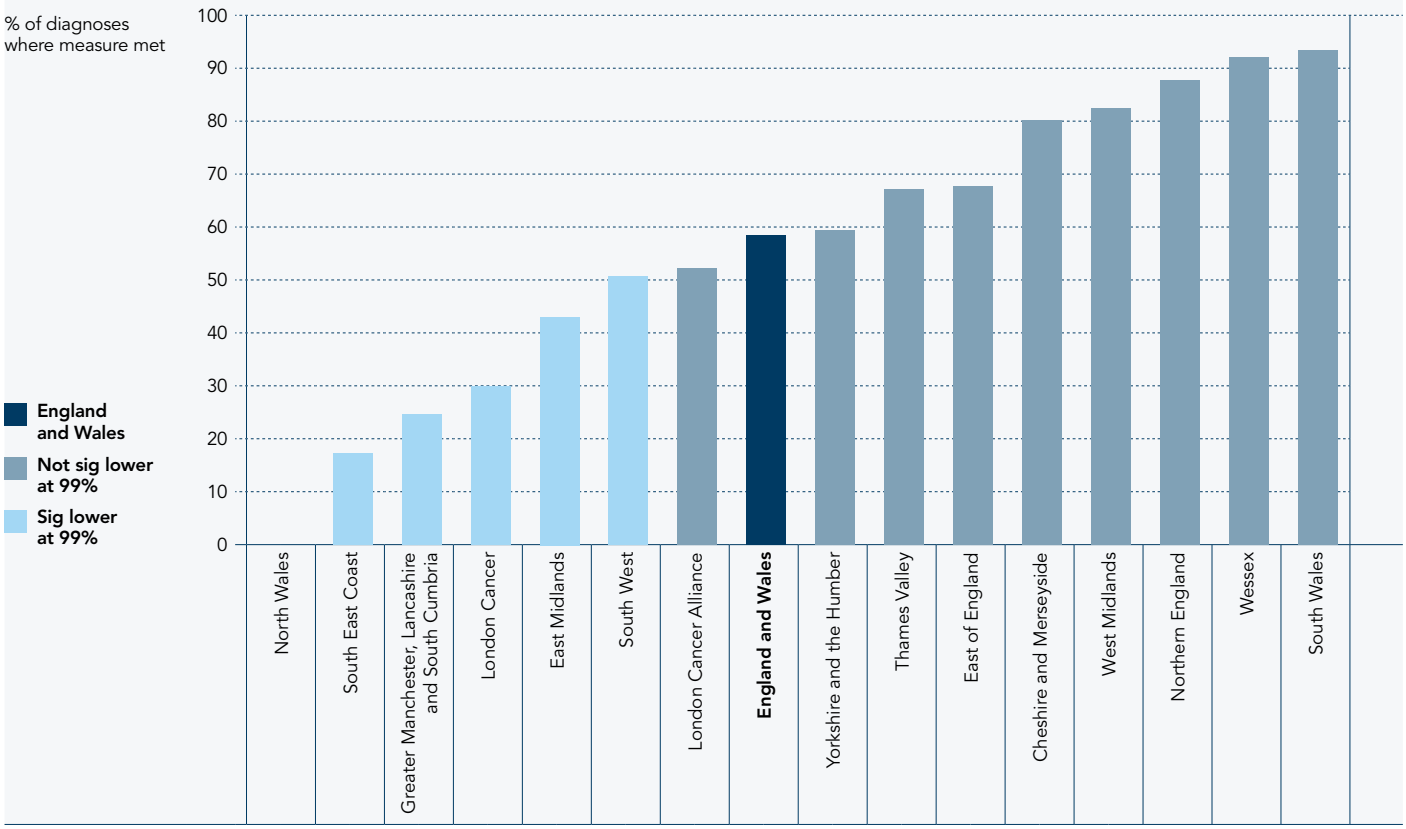
** T and N staging completeness includes TX, NX

*** Performance status does not match 4.6.2, primary sites chosen for assessment of PS are not consistent.

**** T and N staging completeness excludes TX, NX

***** PS, staging and comorbidity measure is adjusted - denominator is 92% of patient cohort.

Figure 4.5
Recorded performance status, comorbidity, and pre-treatment staging (adjusted): attainment by diagnosing SCN/Network



Data source: DAHNO

Clinical comment:

Variability remains an issue across SCNs/networks, with some achieving high levels of recording and others struggling to record these factors. Where SCNs/networks are achieving 80 per cent or higher recording of these values, meaningful risk adjustment can be made. Two SCNs (Northern England and Wessex) stand out in achieving these levels of risk adjustment factors.

The Welsh data shows high levels of recording of stage and performance status and a high level of co-morbidity scoring in South Wales.

Recommendations:

The focus given to this topic by MDTs has raised the levels of submission of risk adjustment variables, but further work is needed to achieve the levels required to carry out meaningful risk adjustment, which remains an important goal for the Audit.

4.6 Are factors relevant to risk adjustment being recorded?

The core factors of staging, performance status and co-morbidity are key to the Audit's aim of producing risk adjusted outcome. All three values are required to optimise this. This section highlights progress with the collection and reporting of these important elements.

4.6.1 Distribution of stage

Why is this important?

Staging is a defining parameter, which facilitates a description of disease extent in a uniform manner, to allow valid comparison between cases. Teams are encouraged to achieve high levels of data quality with regard to staging in order to facilitate risk adjustment.

Recording cancer site and accurate stage is a key medical responsibility, with best practice suggesting that this should be clearly documented and captured at the MDT. Staging remains a key influence on outcome. It is important that this improves to achieve 100.0 per cent of cases staged, to allow valid comparisons to be made. (BAHNO Standard)

Percentage of new cases of head and neck cancer discussed at MDT where recorded T, N, M staging category is evident. (CLE 2)

Results:

Tables 4.6.1
Summary

		Cohort cases	England cases	Wales cases
		%	%	%
T and N recorded	Current Audit Year	86.8	86.1	96.6
	Previous Audit Year	81.5	80.8	91.5
	Difference	5.3	5.3	5.1

Submitted diagnoses by year where T and N recorded *

	2004-05 **	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12 ***	2012-13 ***	2013-14 ***
Diagnoses submitted (n)	1,042	1,443	2,035	4,038	5,597	6,458	6,879	8,147	8,229	8,267
Cases with T and N staging recorded (n)	673	776	1,550	2,936	3,942	5,079	5,583	6,506	6,708	7,175
% staging	64.8	53.8	76.2	72.7	70.4	78.6	81.2	79.9	81.5	86.8

* Historic figures taken from respective Annual Reports

** England only

*** Diagnoses where TNM is applicable

Pre-treatment staging: SCN/Network
SCN/Network performance

	SCN/Networks *
	n of n
85+% T and N recorded	9 of 15
<70% T and N recorded	0 of 15
<67% T and N recorded	0 of 15

* Following the re-organisation of English cancer services into Strategic Clinical Networks (SCN), there are 15 network-level units in the tenth Annual Report, compared to 27 Cancer Networks in the ninth Annual Report.

Pre-treatment staging: SCN/Network
Highest/Lowest SCN/Network recording

	Highest SCN/ Network T&N	Lowest SCN/ Network T&N
	%	%
All networks	99.3	76.2
England SCNs	98.4	76.2
Wales networks	99.3	86.9

Pre-treatment Staging: Early-Late

Site	Early	Late	Unknown
	%	%	%
Larynx (n = 1,749)	49.3	39.3	11.4
Oral Cavity (n = 2,684)	44.4	39.3	16.3
Oropharynx (n = 2,439)	13.3	72.8	13.9
Hypopharynx (n = 423)	9.0	79.4	11.6
Nasopharynx (n = 151)	22.5	56.3	21.2
Major Salivary Glands (n = 504)	34.1	33.1	32.7
Nasal Cavity and Sinus (n = 317)	22.4	49.8	27.8
Total (n = 8,267)	**32.6**	**51.6**	**15.8**

Figure 4.6.1a
Final pre-treatment stage by site

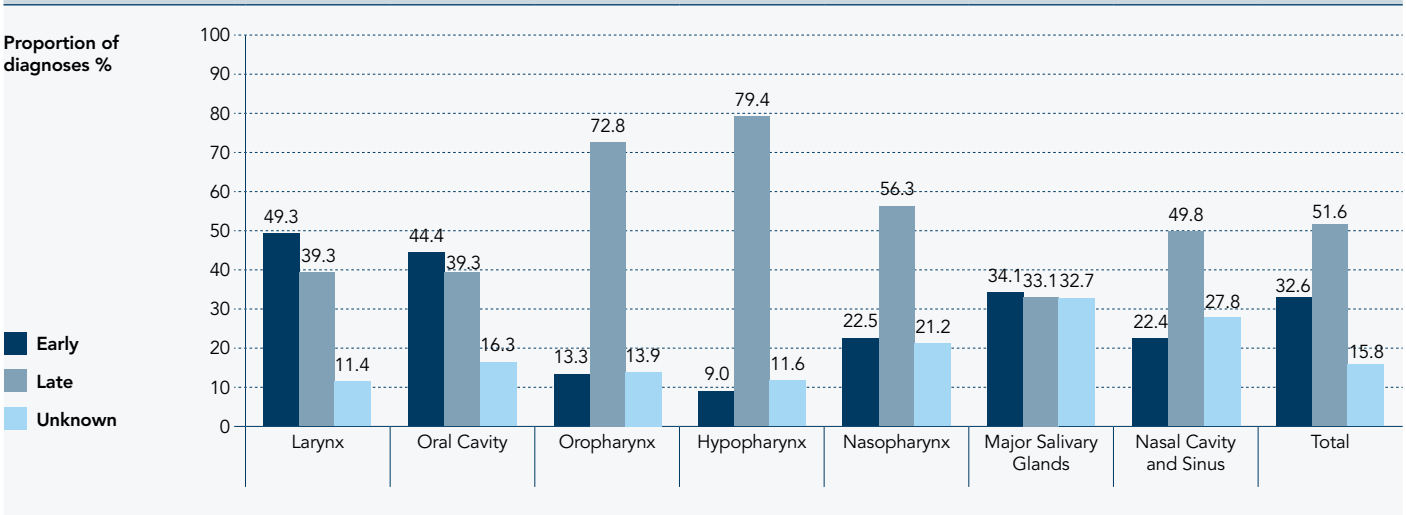
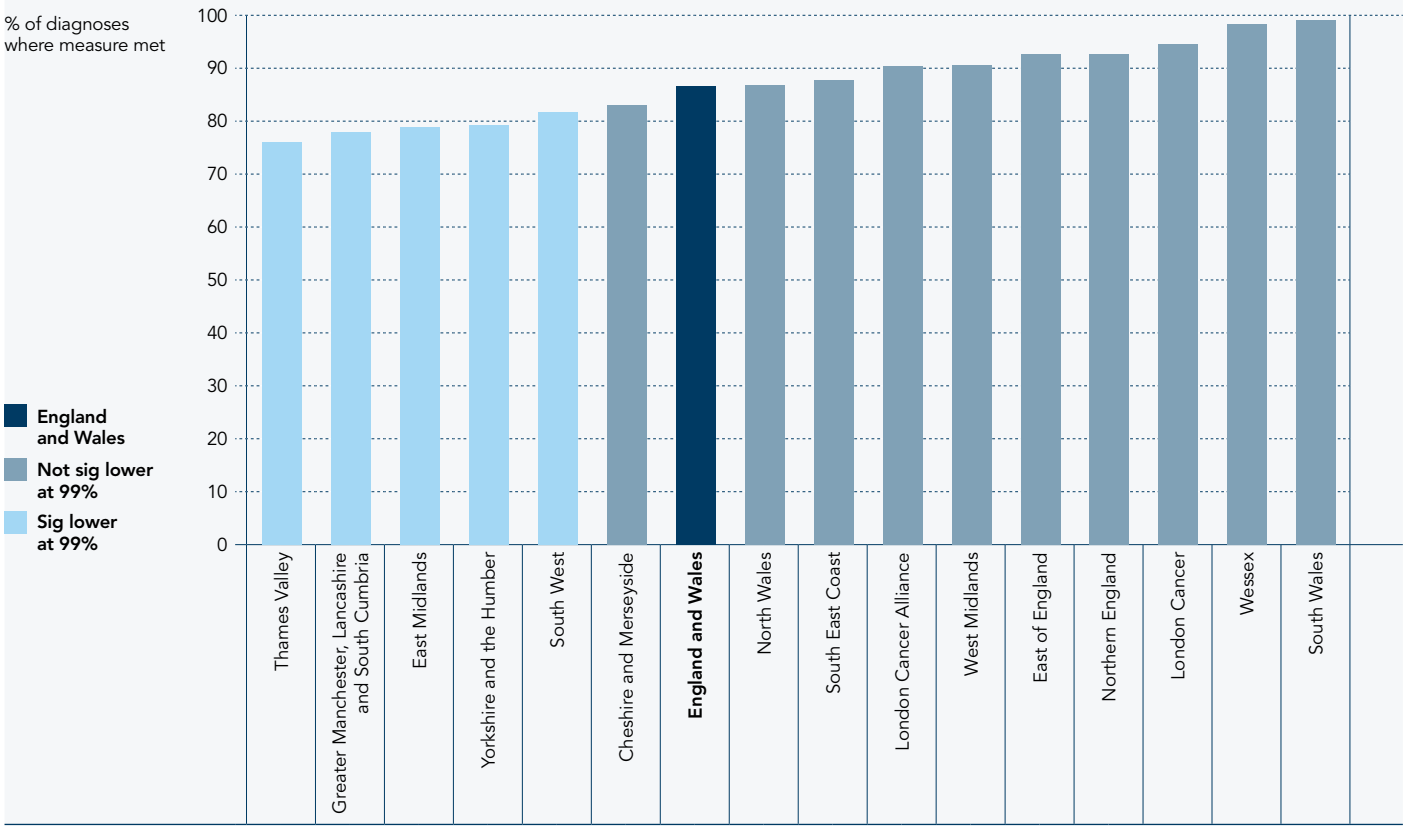


Figure 4.6.1b
Final pre-treatment T and N staging completeness: attainment by diagnosing SCN/Network



Data source: DAHNO

All diagnoses for sites applicable for TNM staging.

Clinical comment:

The recording of stage has reached the highest level since the inception of the Audit, rising 5.3 per cent to reach 86.8 per cent. This comprises a return of 86.1 per cent in England and in Wales 96.6 per cent. Nine out of 15 SCNs/networks achieved over 85 per cent staging recorded, with the highest returns seen in South Wales at 99.3 per cent and Wessex at 98.4 per cent. The lowest SCN/network was Thames Valley with 76.2 per cent of staging recorded.

Over the ten years of Annual Reports, staging has increased from 64.8 per cent to the current credible figure of 86.8 per cent. This confirms the focus now given to this important casemix variable by MDTs. However, variation remains between SCNs/networks and MDTs. The histogram above displays the different levels of attainment with confidence limits at 99.0 per cent.

From the staging submitted it has been possible to categorise 84.2 per cent of submissions into early or late stage disease. It can be seen that, as expected, late stage disease predominates across the pharyngeal sites.

Recommendations:

Focused effort is required in some SCNs/networks and their contributing MDTs, who have consistently failed in adequately recording stage.

Additional analyses:

Number of new primaries with final pre-treatment T, N and M staging recorded by SCN/network

Number of new primaries with final pre-treatment T, N and M staging recorded by MDT host

4.6.2 Distribution of performance status at point of treatment decision

Why is this important?

Performance status has been proposed as a useful indicator of a patient's overall fitness and thus plays an important role in allowing discriminatory risk adjustment.

Recording of performance status has increased dramatically compared to last year from 65.5 per cent to 76.8 per cent in England and Wales, with a value recorded between zero and four.

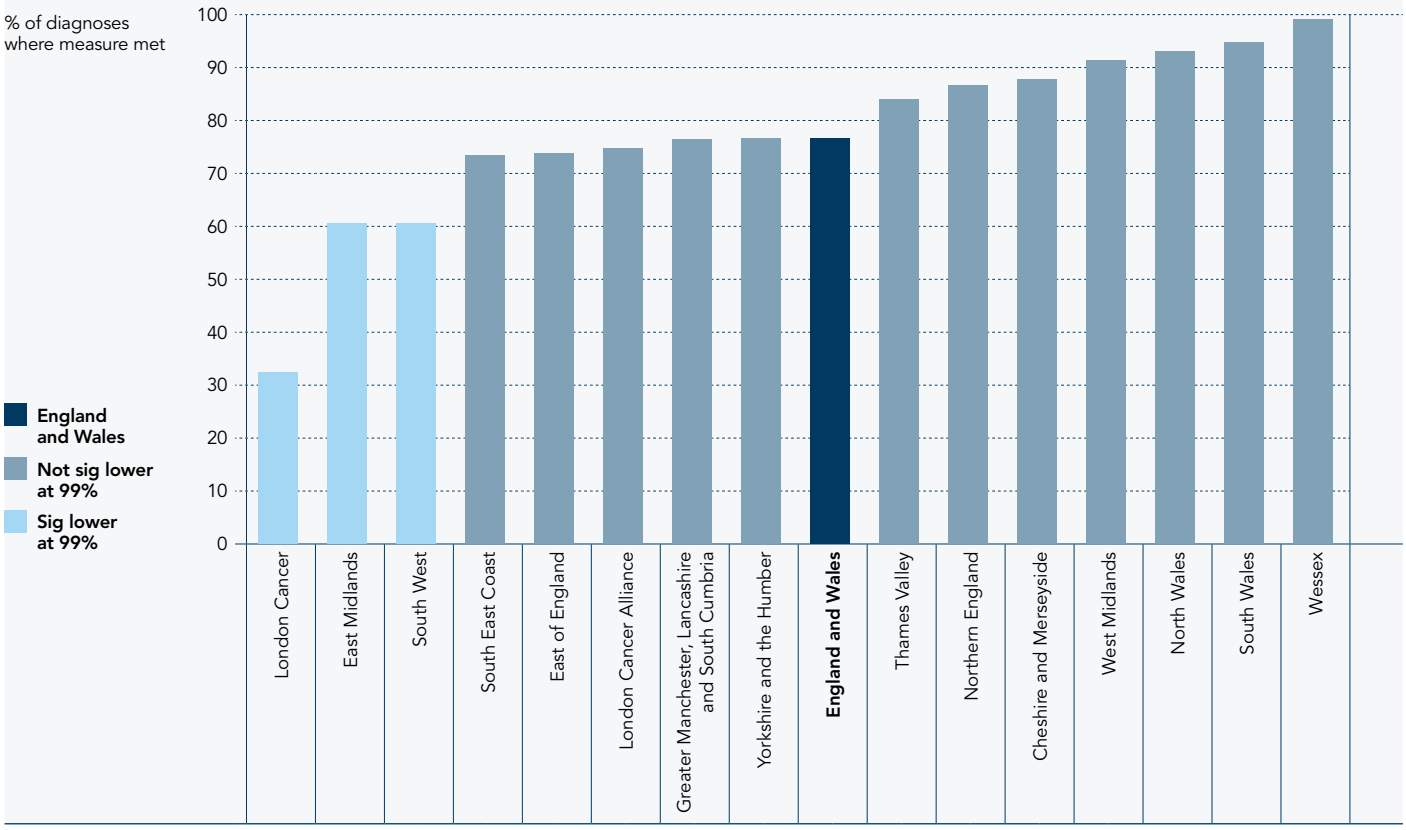
Even higher levels of recording of this parameter were seen in Wales where 94.4 per cent of patients had performance status recorded, an increase of 17.4 per cent.

Results:

Table 4.6.2
Distribution of performance status at point of treatment decision

Performance Status	Total (tenth Annual Report)		
	n	% recorded	% PS0-4
0. Able to carry out all normal activity without restriction	3,231	49.3	53.9
1. Restricted in physically strenuous activity, but able to walk and do light work	1,671	25.5	27.9
2. Able to walk and capable of all self care, but unable to carry out any work. Up and about more than 50% of waking hours	725	11.1	12.1
3. Capable of only limited self care, confined to bed or chair more than 50% of waking hours	321	4.9	5.4
4. Completely disabled. Cannot carry out any self care. Totally confined to bed or chair	50	0.8	0.8
Recorded Total 0-4	**5,998**	**91.6**	**100.0**
9. Not recorded	551	8.4	
Recorded Total	**6,549**	**100.0**	
Blank	1,264		
Total	**7,813**		

Figure 4.6.2
Performance status completeness: Attainment by MDT SCN/Network



Data source: DAHNO

Clinical comment:

There remains significant variation in the recording of performance status by SCNs/networks and MDTs, with the highest recording 99.2 per cent of cases (Wessex), compared to the worst - 32.5 per cent (London Cancer).

Over the first ten Annual Reports 28,088 patients (with values from zero to four) show that the majority (81.3 per cent) have a normal performance status (PS 0-1). The consistent lack of sensitivity of performance status to separate, by category, different patient groups' questions whether performance status will provide adequate discrimination for risk adjustment.

Recommendations:

We would encourage each MDT to review their own results and appraise their methods for ensuring accurate recording of risk adjustment factors.

Additional analyses:

Number of cases recorded with performance status by MDT provider.

4.6.3 Presence or absence of significant co-morbidity at diagnosis (ACE 27)

Why is this important?

Co-morbidity has been shown to have an important impact in assessing risk and to be an important predictor of outcome. The ACE 27 proforma can be found here.

Results:

Tables 4.6.3
Summary: Care plan

	Total cases - Current audit year		Total cases - Previous audit year		Difference	
	n	%	n	%	n	%
Care plan recorded	6,929		6,171		758	
… and co-morbidity recorded *	4,594	66.3	2,747	44.5	1,847	21.8

* Co-morbidity 0-3

Co-morbidity recording
Highest performing SCN/Network

	Total cases	Co-morbidity recorded	
	n	n	%
South Wales	405	392	96.8

Co-morbidity recording
SCN/Network comorbidities

	SCN/Network Count *
	n of n
50+% co-morbidities recorded	10 of 15

Co-morbidity recording: Cumulative

	Total cases	Comorbidity recorded *	Grade 0	Grade 1	Grade 2	Grade 3	Grade 0-1	Grade 2-3
	n	n	n	n	n	n	%	%
2004/05-Audit year	50,863	19,483	8,497	5,613	3,354	2,019	72.4	27.6

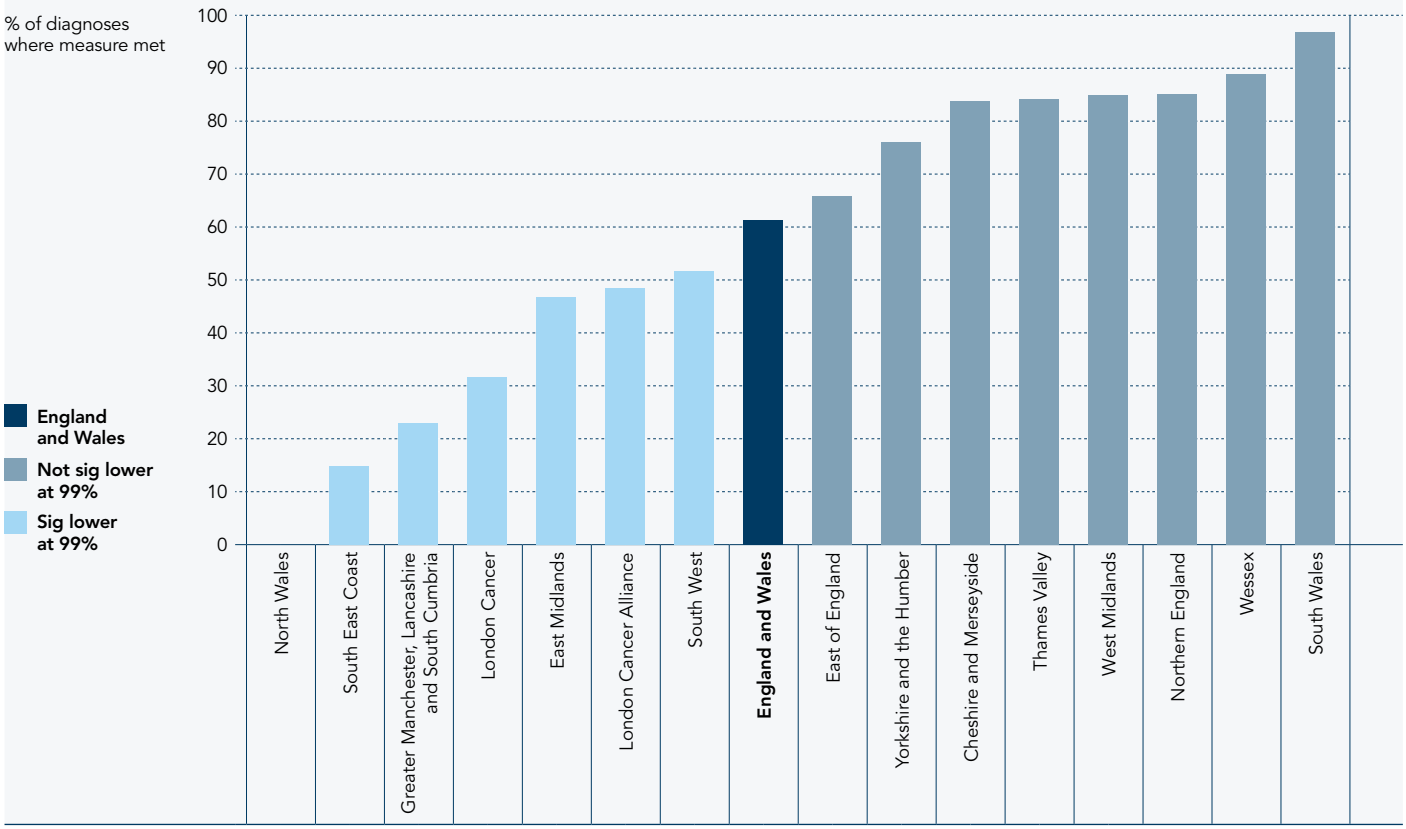
* Co-morbidity 0-3, including tumours without Care Plan Agreed Date

Summary of co-morbidity index; Percentage of recorded values

Co-morbidity index	Current audit year *		Previous audit year *		Difference	
	n	%	n	%	n	%
Grade 0 - No comorbidity	1,886	39.4	1,187	40.2	699	-0.8
Grade 1 - Mild decompensation	1,445	30.2	841	28.5	604	1.7
Grade 2 - Moderate decompensation	865	18.1	523	17.7	342	0.4
Grade 3 - Severe decompensation	587	12.3	405	13.7	182	-1.4
Total	**4,783**	**100.0**	**2,956**	**100.0**	**1,827**	

* Including tumours without Care Plan Agreed Date

Figure 4.6.3
Co-morbidity completeness: Attainment by MDT SCN/Network



Data source: DAHNO

Co-morbidity values from Wales have been submitted for the first time.

Clinical comment:

There has been a significant increase in the recording of co-morbidity from last year's 44.5 per cent to 66.3 per cent this year, a rise of 21.8 per cent. This demonstrates the recognition by MDTs that comorbidity status is a key casemix adjustment factor and that processes have been established to collect this data item routinely. Ten out of 15 SCNs/networks recorded over 50 per cent of cases, with the best performing being South Wales 96.8 per cent and Wessex with 88.9 per cent. A zero return was seen in North Wales and only 14.7 per cent from South East Coast. The failure to capture this information could potentially place a MDT at risk of appearing to have adverse outcomes due to an inability to risk adjust.

The Audit has now accumulated more than 19,400 patients with co-morbidity data. This shows that 72.4 per cent of patients have mild or no co-morbidity. This leaves around a quarter of patients with significant co-morbidity (moderate and severe), which is known to impact adversely on outcome. The identification of patients with significant co-morbidity is important to ensure appropriate risk stratification.

Recommendations:

To facilitate risk adjustment, improved completeness of co-morbidity is required. The MDT discussion remains central to the recording of this information. We would encourage each MDT to review their own results and appraise their methods for ensuring accurate recording of risk adjustment factors.

Additional analyses:

Co-morbidity by level of decompensation for summated site groups by MDT host

Distribution of co-morbidity at point of treatment decision

4.6.4 Summary by SCN/network of records containing staging, performance status and co-morbidity for larynx, oral cavity, oropharynx, hypopharynx and major salivary gland cancer

Why is this important?

The core factors of staging, performance status and co-morbidity are key to the Audit's aim of producing risk adjusted outcome. All three values are required to optimise this.

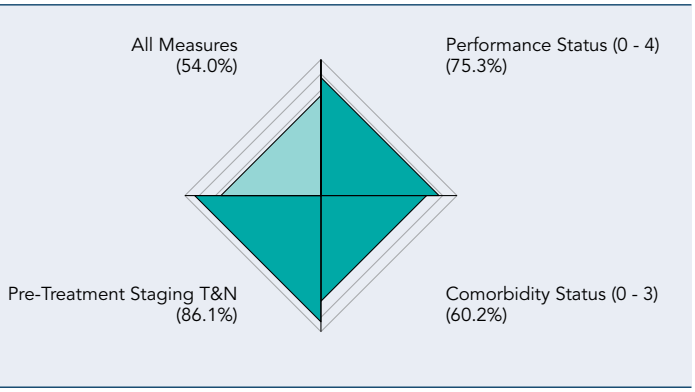
Results:

The diagram below provides a visual integrated representation of the recording of the three values of

staging, performance status and co-morbidity for all SCNs/networks as well as the number of cases where all three measures were evident. The larger the area coloured in each segment the greater the compliance.

Figure 4.6.4
England Total

Cohort:		
	All diagnoses in audit year	Performance status (0-4)
	All diagnoses in audit year, sites applicable for TNM	Pre-treatment staging - T and N
	All diagnoses in audit year, primary sites larynx, oral cavity, oropharynx, hypopharynx, major salivary glands	Comorbidity status (0-3)
	All diagnoses in audit year, primary sites larynx, oral cavity, oropharynx, hypopharynx, major salivary glands, sites applicable for TNM	All measures



4.6.5 Casemix variation between SCNs, MDTs and peers

Why is this important?

A number of casemix variables have been proposed as having significance when comparing different SCNs/networks and MDTs. The Audit is now able to present a comparative analysis of these variables with 99.0 per cent confidence intervals.

Results:

Table 4.6.5
Casemix Overview at 99% Confidence - diagnosing SCN/network

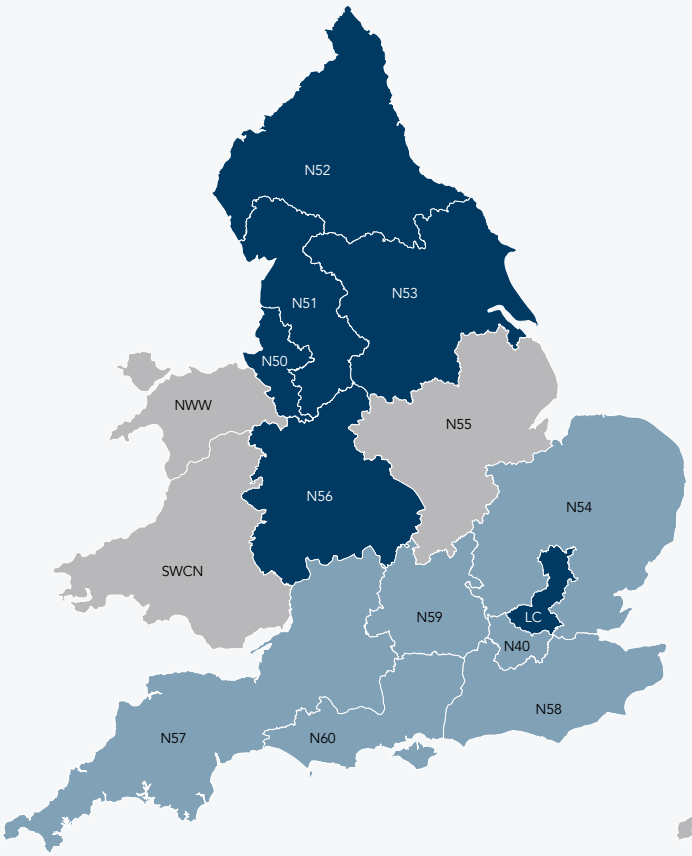
Code	Diagnosis SCN/network	Comorbidity Index 2-3	Performance Status 2-4	Age at Diagnosis Mean	Deprivation Quintile 1 (most-deprived)	Late Stage at Diagnosis
		%	%	nn.n	%	%
N50	Cheshire and Merseyside	33.1	27.6 ▲	64.0	43.9 ▲	57.1
N55	East Midlands	26.8	18.3	64.7	22.8	58.8
N54	East of England	32.1	21.3	64.6	9.0 ●	59.6
N51	Greater Manchester, Lancashire and South Cumbria	29.9	14.5	63.8	35.2 ▲	60.0
N40	London Cancer Alliance	19.9 ●	15.9	63.5	17.8 ●	62.9
LC	London Cancer	27.4	15.9	62.7	35.9 ▲	61.0
N52	Northern England	46.0 ▲	19.7	64.5	38.9 ▲	66.7
N58	South East Coast	38.0	14.4	64.9	12.5 ●	58.9
N57	South West	25.4	16.3	63.9	10.4 ●	61.0
N59	Thames Valley	20.9	8.7 ●	63.2	6.6 ●	51.3
N60	Wessex	29.5	12.1	65.7	9.5 ●	58.6
N56	West Midlands	35.8	23.8 ▲	63.6	32.3 ▲	64.8
N53	Yorkshire and the Humber	19.8 ●	19.6	62.7	31.1 ▲	56.4
	England total	**29.6**	**18.3**	**63.9**	**24.5**	**60.3**
NWW	North Wales	*0.0*	17.4	65.0	13.7	61.6
SWCN	South Wales	39.7 ▲	17.2	63.8	27.3	72.2 ▲
	Wales total	**39.7 ▲**	**17.2**	**64.1**	**24.2**	**70.0 ▲**
	England and Wales total	**30.4**	**18.2**	**63.9**	**24.5**	**61.0**

Key
● Green - significantly lower than national average at 99% confidence
▲ Red - significantly higher than national average at 99% confidence
Number - fewer than 20 cases recorded in the denominator.

Map 4.6.5

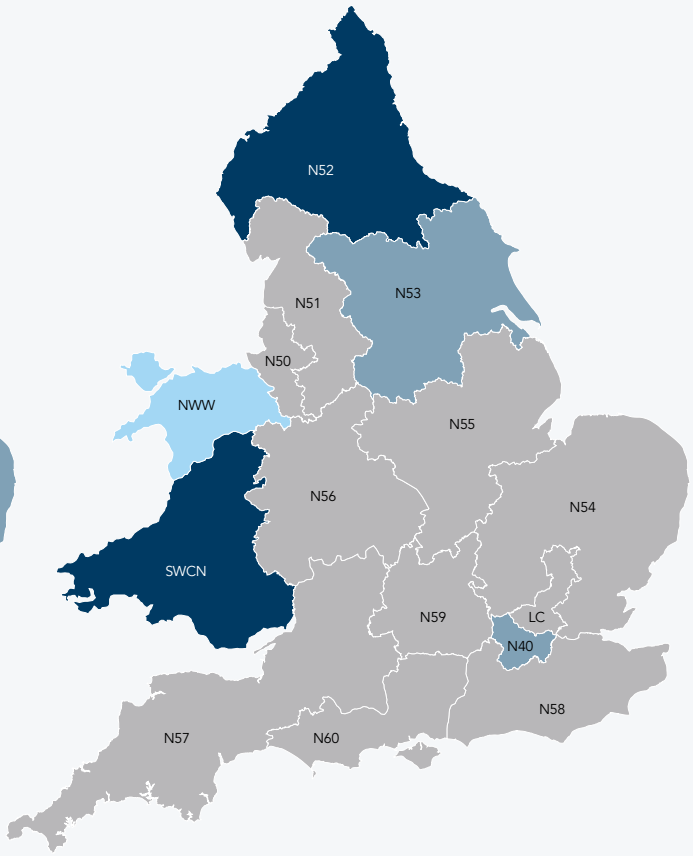
Deprivation

- significantly higher than national percentage of deprivation (first quintile) : (99.0% confidence)
- significantly lower than national percentage of deprivation (first quintile) : (99.0% confidence)



Co-morbidity

- significantly higher than national percentage of co-morbidity (2-3) : (99.0% confidence)
- significantly lower than national percentage of co-morbidity (2-3) : (99.0% confidence)
- fewer than 20 cases recorded with co-morbidity (0-3)



Clinical comment:

When comparing mean age at diagnosis, all SCNs/networks fell within the 99.0 per cent confidence interval.

When considering the presentation of late stage at diagnosis only one SCN/network was outside the 99.0 per cent confidence interval, with a lower ratio of high to low staging – South Wales 72.2 per cent against a mean of 61.0 per cent.

Performance status, when considering the more severely impaired categories (2-4) data showed only three SCNs/networks outside the 99.0 per cent confidence interval, with two showing a significantly higher percentage of poor performance status patients compared to the mean. In Cheshire and Merseyside 27.6 per cent and in West Midlands 23.8 per cent of cases had poor performance status compared to the mean of 18.2 per cent. Whilst in Thames Valley only 8.7 per cent of patients had poor performance status.

The greatest variability between SCNs/networks falling outside either the upper or lower interval was for co-morbidity and deprivation. Co-morbidity compared those with the most severe decompensation (categories 2 moderate and 3 severe). The percentage of cases having this level of decompensation varied from Northern England with 46.0 per cent of cases to Yorkshire and Humber with 19.8 per cent of cases in this category. The all England and Wales figure was 30.4 per cent. Whilst we have previously commented that we have not obtained full submission for co-morbidity, there does appear to be a significant difference based on geography.

In looking at deprivation when considering the lowest deprivation quintile 1 (most deprived), there was again considerable geographic variation, with the highest percentage of cases in the most deprived category occurring in Cheshire and Merseyside – 43.9 per cent, compared to Thames Valley with 6.6 per cent against an England and Wales figure of 24.5 per cent. Six SCNs/networks were significantly lower than the national proportion at 99.0 per cent confidence whilst six were significantly higher.

Recommendation:

The information currently available suggests that of the casemix variables proposed, co-morbidity and deprivation are likely to be the most sensitive predictors. Deprivation is calculated independently from the post code recorded at diagnosis. MDTs are encouraged to focus specifically on developing strategies to ensure the robust collection of co-morbidity data.

Additional analyses:

Casemix Overview at 99.0 per cent Confidence by provider MDT.

Casemix adjustment measures recorded by English diagnosing SCN/network.

4.6.5.1 Post surgical staging

Why is this important?

MDTs should discuss pathological staging in all cases that have undergone surgery. This is both important to accurately define actual stage as well as indicating the need for adjuvant treatment. The MDT provides an ideal environment to capture this key information and recording of accurate stage is a key medical responsibility.

Staging remains a key influence on outcome. All MDTs are strongly encouraged to collect these data set items to facilitate future risk adjustment.

Results:

Tables 4.6.5.1
Summary

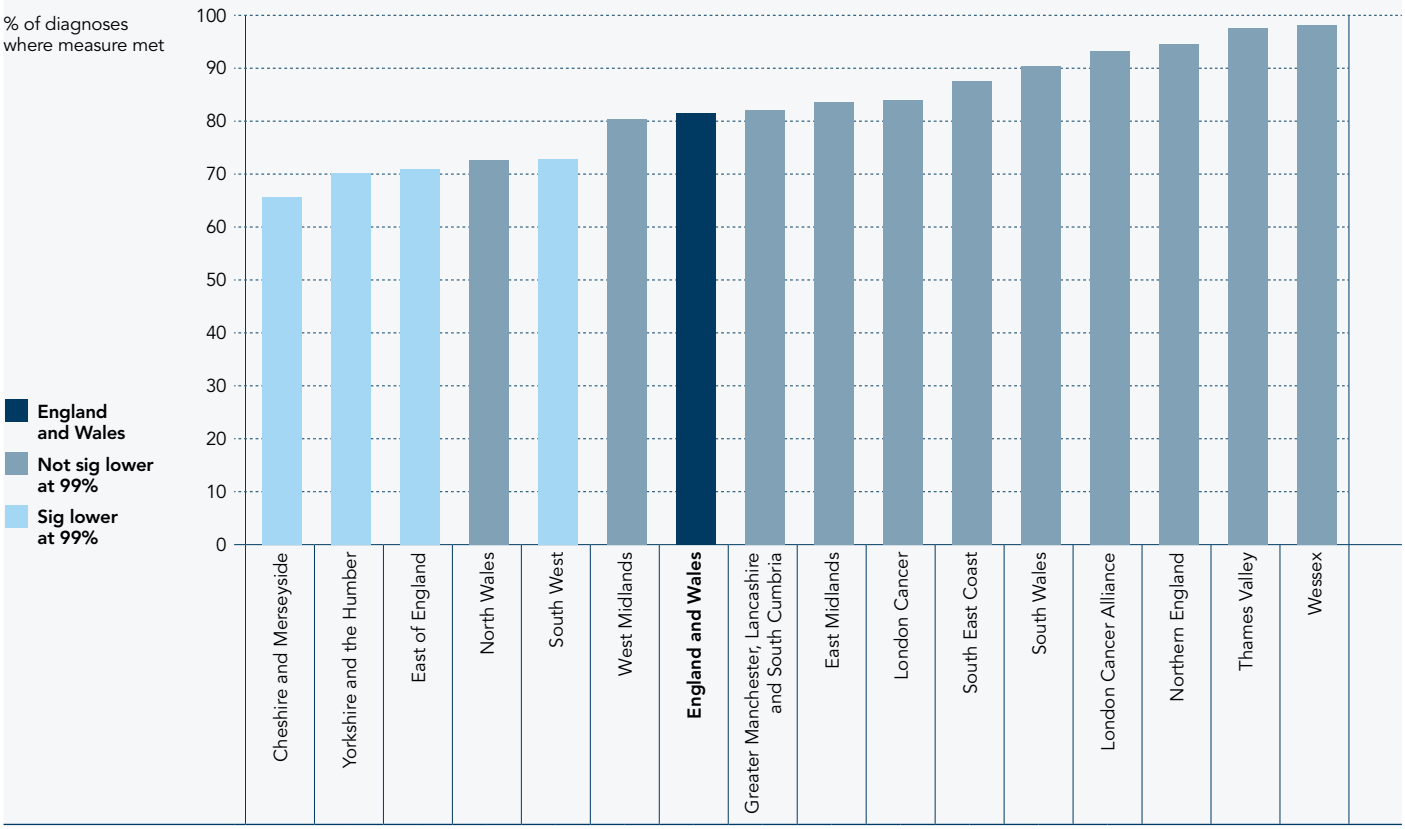
	All cohort	... with surgery **	... ... and path T&N	
	n	n	n	%
Total cases	**6,936**	**3,510**	**2,864**	**81.6**
England cases	6,424	3,301	2,681	81.2
Wales cases	512	209	183	87.6

Historical comparison

	Current Audit Year				Previous Audit Year				Difference			
	All cohort	... with surgery **	... ... and path T&N		All cohort	... with surgery **	... ... and path T&N		All cohort	... with surgery **	... ... and path T&N	
	n	n	n	%	n	n	n	%	n	n	n	%
Total cases	**6,936**	**3,510**	**2,864**	**81.6**	**6,464**	**3,173**	**2,319**	**73.1**	**472**	**337**	**545**	**8.5**
England cases	6,424	3,301	2,681	81.2	5,983	2,962	2,141	72.3	441	339	540	8.9
Wales cases	512	209	183	87.6	481	211	178	84.4	31	-2	5	3.2

** Any surgery, not just first treatment, including palliative intent

Figure 4.6.5.1
Post-resective T and N staging completeness: attainment by diagnosing SCN/Network



Data source: DAHNO

All diagnoses in audit year with pre-treatment T and N recorded (site applicable for TNM staging).

Clinical comment:

The recording of post-surgical stage has risen in England and Wales this year from 73.1 per cent to 81.6 per cent.

Once again there remains variation between the best (Wessex 98.1 per cent) and the worst (Cheshire and Merseyside 65.7 per cent). However, the gap between highest and lowest performing SCNs/networks has significantly decreased. The histogram shows that four SCNs/networks were significantly lower at 99.0 per cent confidence intervals in their recording of post-surgical staging.

Recommendations:

SCNs/networks are to be encouraged to continue their progress in collecting post-surgical stage.

Additional analyses:

Comparison of final pre-treatment stage and post-surgery staging T category

Comparison of final pre-treatment stage and post-surgery staging N category

4.7 Assurance of multi-disciplinary care received by patients

The diverse nature of head and neck cancer and complexity of treatment, emphasises the importance of a MDT approach to care and this has been considered in the report. This section shows progress with elements of care delivered by the wider MDT.

4.7.1 Clinical Nurse Specialist (CNS) support along the head and neck cancer patient journey

Audit question:

Is the CNS present at the breaking of bad news for all patients?

Has the patient seen the CNS before the commencement of treatment?

The date each new head and neck cancer patient first has contact with a Clinical Nurse Specialist should be routinely recorded. (CLE 5)

Patients diagnosed with head and neck cancer should be offered a consultation with the head and neck specialist nurse within one week of diagnosis. (Welsh Standard)

100 per cent of patients should be seen by a specialist head and neck liaison nurse (e.g. Macmillan), whose contact details should be provided to all patients at the earliest opportunity. (BAHNO Standard)

Why is this important?

Patient representatives feel it is imperative that a CNS is available from diagnosis to all patients with cancer. Addressing lack of appropriate professional support should be a priority. For all patients and particularly those undergoing treatment (curative or palliative), the CNS plays an important role in supporting choice of treatment.

The CNS acts as a source of both support and information for patients and their carers, at initial consultation, when bad news of the diagnosis is broken and also offer support throughout treatment. Head and neck cancer patients often come from the lower socioeconomic strata of society with a concomitantly low level of social support and education[37]. Their understanding of complex treatment options and their ability to cope during treatment is often poor. These patients often rely on the CNS to provide further explanations of the implications of their disease and the treatment options. Previous National Cancer Patient Experience surveys clearly identify a positive impact for patients in their overall experience scores following input from a CNS.

Interactions between the patient (and/or their carers) and the CNS are complex and multifactorial, including activities such as information-giving, practical support, benefits advice, psychological support and help with decision-making.

Results:

1. CNS Present at the breaking of bad news

Tables 4.7.1a
Summary

	Current Audit Year			Previous Audit Year	Difference to Previous Audit Year
	Total	CNS Present at bad news		CNS Present at bad news	
	n	n	%	%	%
CNS present at bad news	7,875	3,908	49.6	48.3	1.3

SCN performance summary

	Network Total
	n of n
70+% CNS present bad news	1 of 13
<20% CNS present bad news	0 of 13

SCN 70+% CNS present bad news

	CNS Present at bad news
	%
West Midlands	72.4

2. Patient being seen by the CNS before the commencement of treatment

Tables 4.7.1b
Summary

	Total cases				Difference to Previous Audit Year	
	Current Audit Year		Previous Audit Year			
	n	%	n	%	n	%
Cases undergoing treatment	6,895		6,735		160	
Seen by CNS before treatment	4,337	62.9	4,356	64.7	-19	-1.8

Highest-lowest recording SCN/networks

	Current Audit Year		Previous Audit Year		Difference to Previous Audit Year %	Previous Audit Year		Difference to Previous Audit Year %
	SCN/Network Name	Seen by CNS before treatment %	Cancer Network Name	Seen by CNS before treatment %		SCN/Network Name	Seen by CNS before treatment %	
Highest network recording	South Wales	85.1	Surrey West Sussex and Hants	93.4	-8.3	Wessex	80.9	4.2
Lowest network recording	Cheshire and Merseyside	29.7	Merseyside and Cheshire	34.0	-4.3	Cheshire and Merseyside	34.0	-4.3

SCN/networks recording summary

	SCN/Network Total
	n of n
70+% Seen by CNS before treatment	6 of 15
<60% Seen by CNS before treatment	4 of 15

Figure 4.7.1a
CNS present at breaking of bad news: attainment by diagnosing SCN/network

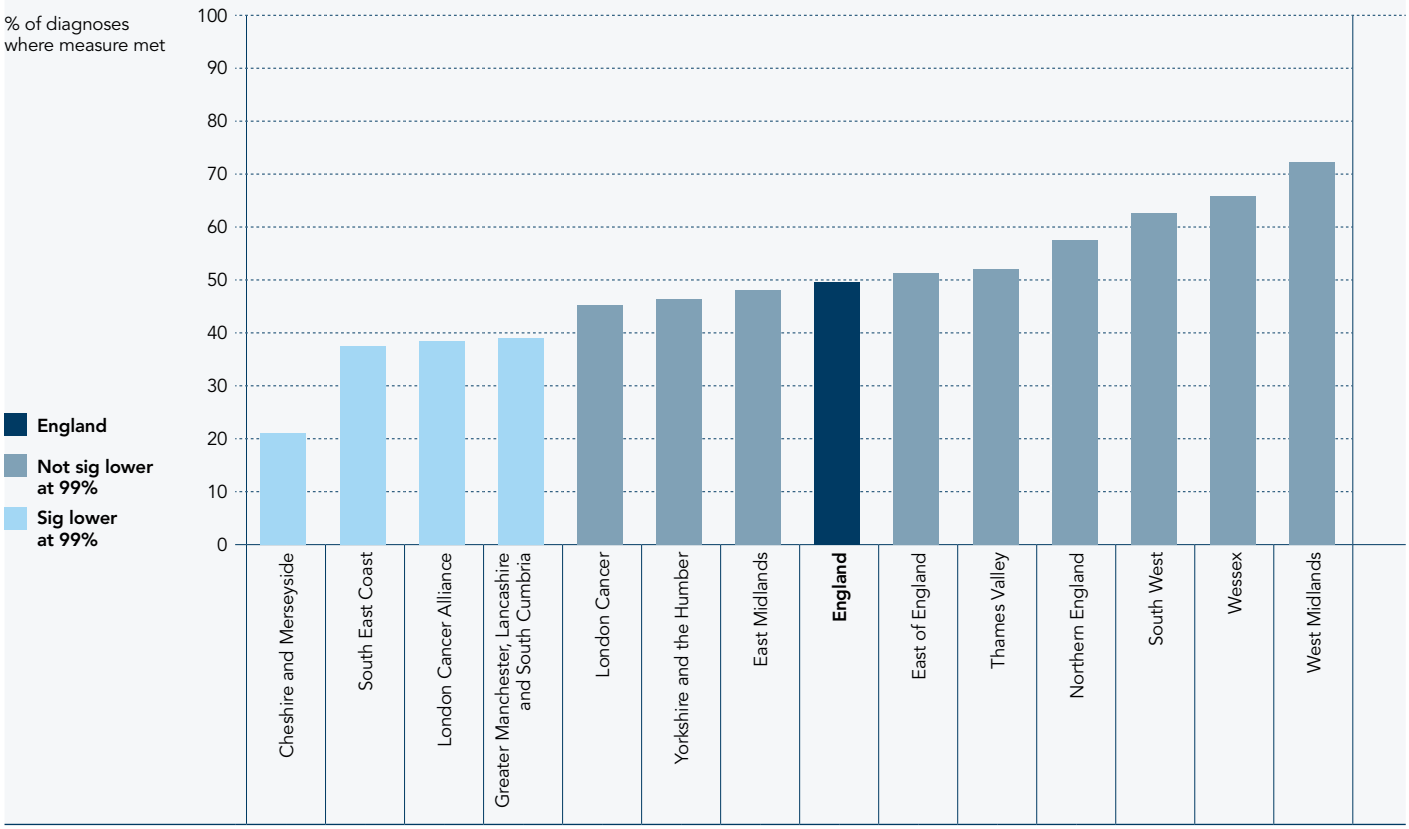
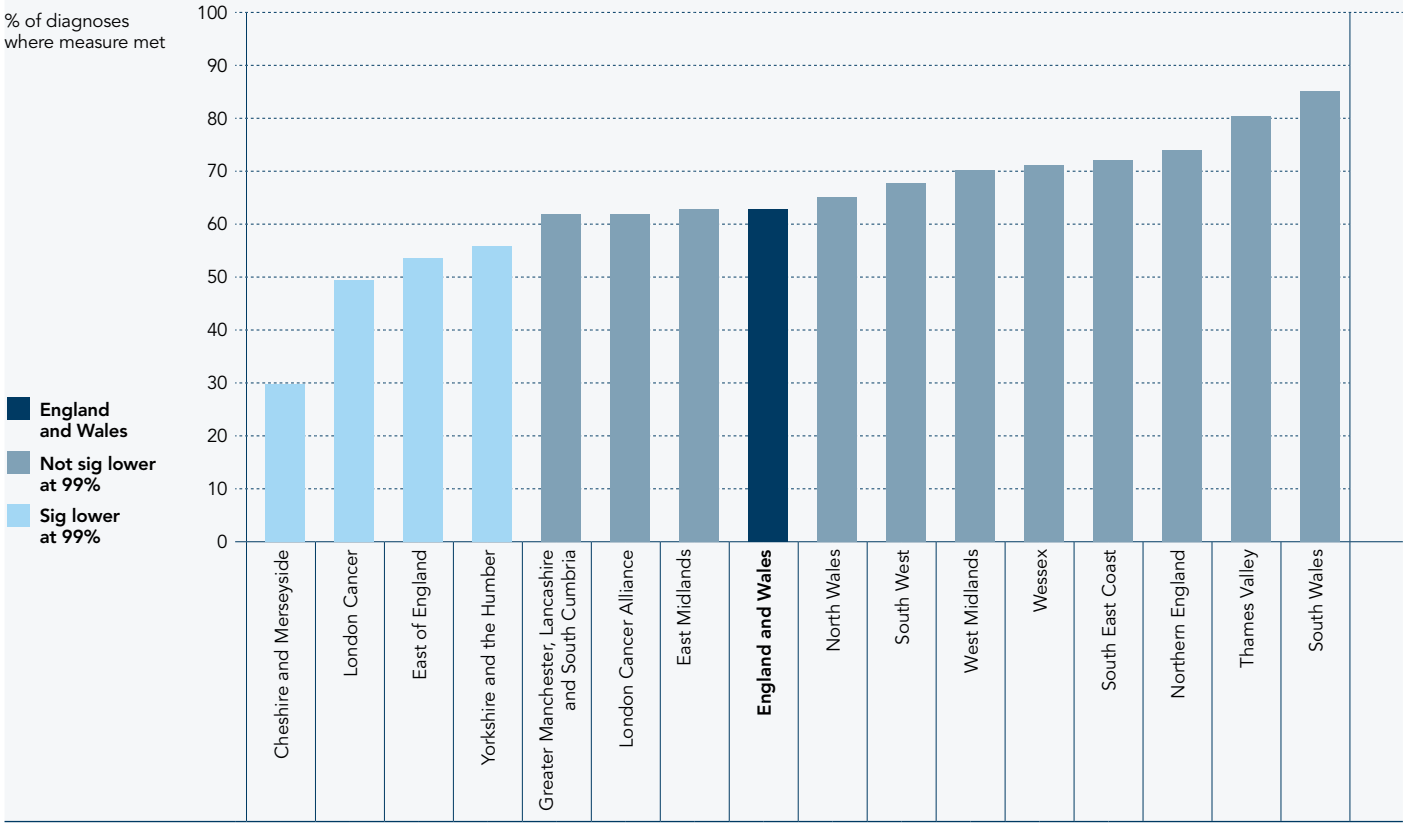


Figure 4.7.1.b
Seen by CNS pre-treatment: Attainment by diagnosing SCN/network



Data source: DAHNO

1. All England diagnoses in audit year
2. All diagnoses in audit year with treatment recorded (surgery/ chemoradiotherapy /chemotherapy/ radiotherapy). Includes supportive care and palliative treatment.

Clinical comment:

Assurance of the provision of support to head and neck cancer patients along the cancer pathway has declined slightly this year, with a 1.8 per cent fall in confirmation of CNS input prior to the commencement of treatment (62.9 per cent compared to 64.7 per cent in the ninth Annual Report). There has been a 1.3 per cent improvement in confirmation that a CNS was present at the breaking of bad news, with this now occurring in nearly half of cases (49.6 per cent, compared to 48.3 per cent in the ninth Annual Report).

However, considerable challenges remain in a number of SCNs/networks to ensure that these interventions are occurring for all patients. In pre-treatment CNS support, the best performing was 85.1 per cent in South Wales and the lowest was in Cheshire and Merseyside at 29.7 per cent. Five of 13 SCNs/networks in England had over 70 per cent of patients confirmed as having received input from a CNS along their pre-treatment pathway.

For the CNS being present at the breaking of bad news (England only), the best performing SCN/network was West Midlands with 72.4 per cent and the lowest, with 21.1 per cent, was Cheshire and Merseyside. Only a single English SCN/network confirmed that over 70 per cent of patients had a CNS present at the breaking of bad news.

Recommendations:

From the data submitted it appears that MDTs need to concentrate on facilitating the presence of a CNS at the breaking of bad news. This occurs in diagnosing trusts and thus extends beyond those holding a MDT.

Commissioners should support investment in CNS to reduce the variation seen in this report.

Additional analyses:

CNS present at the breaking of bad news by SCN/network

Patient seen by CNS pre-treatment by MDT host

Patient seen by CNS pre-treatment by diagnosing SCN/network

4.7.2 Dental health assessment in head and neck

Audit question:

Are patients receiving adequate dental assessment along their care pathway?

Dental health during and after treatment for head and neck cancer is a significant contributor to patient well-being. MDTs are strongly encouraged to provide information to confirm that care is being provided.

100 per cent of patients should be assessed by a suitably qualified dental practitioner before and after their main treatment. (BAHNO Standard)

Percentage of cases of head and neck cancer confirmed as having any pre-operative/pre-treatment dental assessment. (CLE 7)

Why is this important?

It is important to maintain good oral health both during and following treatment to reduce the incidence of post treatment complications such as osteo-radionecrosis*, and accelerated dental decay. The Expert Panel noted that there are shortages of restorative dentists working with head and neck cancer patients. The importance of these specialists as core members of an MDT is recognised in Improving Outcomes Guidance and BAHNO Standards.

* Necrosis of the jaw caused by reduced blood supply as a consequence of prior radiotherapy, which can lead to pain, chronic infection and pathological fracture of the jaws.

Results:

Tables 4.7.2
Summary

	Total	Pre-treatment dental assessment			
		Current Audit Year		Previous Audit Year	Difference
	n	n	%	%	%
All cohort	6,487	2,285	35.2	32.6	2.6

Primary site

	Total	Pre-treatment dental assessment			
		Current Audit Year		Previous Audit Year	Difference
	n	n	%	%	%
Larynx	1,374	324	23.6	21.3	2.3
Oral cavity	2,073	775	37.4	33.4	4.0
Oropharynx	1,874	813	43.4	42.8	0.6
Hypopharynx	294	105	35.7	30.9	4.8
Nasopharynx	116	47	40.5	39.8	0.7
Major Salivary Glands	410	109	26.6	25.6	1.0
Nasal Cavity and Sinus	239	62	25.9	24.8	1.1
Bone Tumours - Mandible and Maxilla	107	50	46.7	36.8	9.9

Information on imaging of the jaw prior to treatment can be found in section 4.8.3.4

Data source: DAHNO

All England diagnoses in audit year with treatment recorded (surgery/chemotherapy/radiotherapy/chemoradiotherapy).

Clinical comment:

Assurance has been provided that 35.2 per cent of all patients (32.6 per cent in the ninth Annual Report) received a dental assessment prior to the commencement of treatment. There remains variation between anatomic sub-sites, from 46.7 per cent in bone tumours, to 23.6 per cent in larynx. The Expert Panel believes that this measure needs to be revisited. Although it is recognised that all patients should receive a pre-treatment dental assessment, the Audit currently does not record whether a patient is edentulous (without teeth) or not and patients may be being excluded from assessment because of their edentulous status. However, even edentulous patients would benefit from screening to exclude pathology within the jaws that could cause problems, during or after treatment, such as osteo-radionecrosis.

Recommendations:

The Audit needs to understand from dental experts the relevance and recording of the current measure and whether it should be modified in the future.

Additional analyses:

Number of cases having pre-treatment dental assessment by MDT host

Number of cases having pre-treatment dental assessment by SCN/network

4.7.3 Speech and language therapy (SALT) input into head and neck cancer care

Audit questions:

Are all appropriate patients receiving input from a Speech and Swallowing Therapist?

Are all patients receiving pre-operative assessment by a Speech and Language Therapist?

For the subgroup having a laryngectomy:

What is the proposed long term method of communication for the patient?

What normalcy of diet scores do patients achieve following surgery?

Why is this important?

A pre-treatment speech and swallowing evaluation is recommended by a number of national and international guidelines in the work-up to intervention across a range of head and neck cancer sites.

Swallowing status is highly correlated with quality of life outcomes. Little UK information is available on functional aspects of swallowing. The Audit wishes to collate information to both provide a better expectation to patients, as well as looking at the impact of treatment.

In the subgroup of laryngectomy care pathways, all patients should receive pre-operative assessment and information/counselling regarding future communication and swallowing. Although surgical voice restoration (SVR) is the gold standard for post-laryngectomy communication some patients may not be suitable candidates due to sight issues and dexterity. Again minimal research has been undertaken on swallowing outcomes with this specific group of patients.

Results:

All patient treatment groups:

Of 5,731 patients, 1,649 (28.8 per cent) were confirmed as having had a pre-treatment speech and swallowing assessment. This is only a small increase in comparison to the ninth Annual Report (26.7 per cent). In total, 2052 (35.8%) patients were seen for an assessment post-treatment.

There was again considerable variation between SCNs/networks. Northern England had the highest proportion of recorded pre-treatment assessments, providing assurance for 50.0 per cent of patients, whilst one SCN/network recorded fewer than 5.0 per cent patients as having been assessed.

Non-laryngectomy patients:

The tenth Annual Report includes information on swallowing status. Currently, a single outcome measure of a validated diet texture scale (Performance Status Scale; Normalcy of Diet 38) is recorded. At diagnosis just over half of patients were on a normal diet. Patients with laryngeal or nasopharyngeal cancer were more likely to have unrestricted diets (66.7 and 70.4 per cent respectively). Just 2.4 per cent at diagnosis were completely nil by mouth. Patients with hypopharyngeal cancer were the most likely to be in this group. At three months following treatment, 18.6 per cent of patients had unrestricted diet, rising to 32.7 per cent at one year.

11.1 per cent of patients recorded were nil by mouth at three months. This is similar to the figure reported in the ninth Annual Report. The most likely cancer to be nil by mouth was hypopharynx (25.0 per cent).

Of the 18.6 per cent of patients on a full unrestricted diet at three months there was variation by anatomic site and treatment. Just over one third of those with larynx cancers had unrestricted diet, whilst those with oropharynx cancer treated by non-surgical treatment were the least likely to be on a full diet (9.2 per cent)

Laryngectomy patients:

299 patients had a laryngectomy recorded, of which 291 received a primary total laryngectomy, a 14.1 per cent increase from the previous cohort. This does not include salvage surgery patients.

Of these 299 patients, 125 (41.8 per cent) had a recorded pre-operative normalcy of diet score but only 50 (16.7 per cent) patients were assessed as suitable candidates for successful SVR. This figure is low when the literature reports higher success rates; at three months post-surgery more swallowing than communication outcomes were recorded (24.7 per cent and 17.7 per cent of laryngectomies respectively).

At three months post-laryngectomy:

- 14.9 per cent of patients had a normalcy of diet scale of 0 (nil by mouth), an increase from 13.8 per cent in the ninth Annual Report
- 27.0 per cent achieved a normalcy of diet scale of 1-40, meaning the patient had a severely restricted diet, at best being able to manage fluids and non-chewable food textures. 37.8 per cent achieved a normalcy of diet scale of 50-90, meaning the patient has a less restricted diet, ranging from soft, chewable foods only (50) to a full diet with liquid assistance (90)
- 20.3 per cent attained a full diet with no restrictions.

Of 223 larynx laryngectomy patients, 69.0 per cent of the 42 with a recording at three months used SVR as their main method of communication, similar to 61.2 per cent in the previous report. Only 2.4 per cent (one patient) were recorded as using an electro-larynx, with 19.0 per cent mouthing (eight patients) and 9.5 per cent (four patients) using writing/communication aid.

Clinical comment:

The analysis shows a small increase in the overall number of entries for communication and swallowing, providing some indication of pre and post-treatment functional outcomes. Preliminary findings suggest that tumour site and treatment type (surgical vs. non-surgical) may influence diet outcomes. In comparative terms, the Audit for SALT input is relatively young and it should be set in the context of taking ten years to get to acceptable levels of pre-treatment staging.

The data reported here indicate a lower number of SALT assessments compared to findings from recent surveys. For example, a 2013 survey of SALT services and data collection (see Table 4.7.3) found that over a third of SALT services offered pre-treatment assessments to over 85 per cent of their head and neck cancer caseload, but others were still unable to provide this service.

Table 4.7.3:
SALT Survey (2013, unpublished)
Q1 What percentage of patients with head and neck cancer do you see pre-treatment?

Answer choices	Responses *	
	n	%
0-25%	14	27.5
26-50%	7	13.7
51-75%	3	5.9
76-85%	9	17.6
86-95%	12	23.5
96-100%	6	11.8
Total respondents	**51**	

* If the therapist is the only one in the team then the response will be for them as individuals, whereas if they are part of a team then the response is for the Trust.

Therefore, although the Audit is unlikely to be showing a complete picture, this combined evidence suggests that a proportion of head and neck cancer patients do not access a pre-treatment SALT assessment.

Both the nil by mouth and SVR success numbers indicate less optimal outcomes than may be expected in the long term. However, as only primary surgery (and not salvage patients) is included, the timing of outcome measurement is likely to occur at a similar time to adjuvant radiotherapy completion dates. As radiotherapy can affect voice and swallowing and this is the sole outcome capture point for the vast majority of patients, it would be useful to consider future longer interval outcome measures to gain a more representative sample of post-laryngectomy functioning in these areas.

Recommendations:

More work is required to understand reasons for these low rates of recorded SALT assessments. MDTs and organisations are encouraged to continue multi-professional audit by providing support and a voice to SALT colleagues to increase engagement. More accurate information is required on resource allocation for specialist SALT/head and neck cancer services nationally.

Greater assurance of care prior to and following treatment and better understanding of the impacts of treatment are worthy goals that all MDTs should commit to.

4.7.4 Dietetic input into the patient pathway

Audit question:

Are patients receiving appropriate dietetic support prior to and following treatment?

Why is this important?

Dietetic support is important throughout the patient pathway, particularly in those undergoing any form of treatment where treatment induced morbidity can be reduced by appropriate intervention. The intervention commences with a pre-treatment nutritional status assessment, through to providing different types of nutritional support during and beyond treatment.

The date each new head and neck cancer patient first has contact with a dietitian should be routinely recorded. (CLE6)

Dietetic support is important through all parts of the patient pathway, particularly in those undergoing any form of treatment where the morbidity of the treatment can be reduced by appropriate intervention. MDTs are encouraged to confirm the dietetic care provided. 100 per cent of patients should be seen by a dietician prior to the commencement of treatment. (BAHNO Standard)

Tables 4.7.4
Summary

	Ninth Annual Report (Nov 2012-Oct 2013)		Tenth Annual Report (Nov 2013-Oct 2014)	
	n	%	n	%
Number of DAHNO records containing a nutrition record	3,507	53.1	3,568	52.5
Number of DAHNO records of pre-treatment nutrition assessment	1,890	28.6	2,334	34.4
Number of nutrition records with predominant method of nutrition support recorded	2,365	67.4	2,544	71.3

Predominant method of nutritional support

	Ninth Annual Report (Nov 2012-Oct 2013)			Tenth Annual Report (Nov 2013-Oct 2014)		
	n	% of nutrition records	% where support recorded	n	% of nutrition records	% where support recorded
- enteral tube feeding	1,295	36.9	54.8	1,204	33.7	47.3
- oral nutritional support	824	23.5	34.8	955	26.8	37.5
- parenteral nutrition	5	0.1	0.2	19	0.5	0.7
- did not require nutritional support	241	6.9	10.2	366	10.3	14.4
- not recorded	1,142	32.6	-	1,024	28.7	-

Predominant tube type used during treatment							
	Ninth Annual Report (Nov 2012-Oct 2013)			Tenth Annual Report (Nov 2013-Oct 2014		
	n	% of relevant nutrition records	% with tube type recorded	n	% of relevant nutrition records	% with tube type recorded
- gastrostomy	941	28.8	67.7	905	28.3	66.6
- nasogastric	432	13.2	31.1	437	13.6	32.2
- TOFT	16	0.5	1.2	8	0.2	0.6
- IV Feeding	-	-	-	8	0.2	0.6
- not recorded	1,877	57.5	-	1,844	57.6	-

Post-treatment dietetic follow-up						
	Ninth Annual Report (Nov 2012-Oct 2013)			Tenth Annual Report (Nov 2013-Oct 2014		
	n	% of nutrition records		n	% of nutrition records	
Post-treatment dietetic follow-up confirmed	1,206	34.4	-	1,439	40.3	-

Of 6,790 English diagnoses with treatment recorded, 3,568 (52.5 per cent) contained a nutrition record. 2,334 records of nutrition assessment within one month of treatment were recorded. This represents 34.4 per cent of all records in the cohort.

The predominant method of nutritional support during treatment was recorded in 2,544 records (71.3 per cent). The majority of patients required enteral tube feeding (47.3 per cent where nutritional support was recorded), with fewer managing oral nutrition support alone (37.5 per cent). 14.4 per cent of patients required no nutritional support and 0.7 per cent required parenteral nutrition. 28.7 per cent of the nutrition records did not report the predominant method of nutritional support during treatment.

The predominant feeding tube type used during treatment was gastrostomy (28.3 per cent of relevant nutrition records). 13.6 per cent of records sited nasogastric tube as the predominant tube type, trachea-oesophageal fistula tubes (TOFT) featured in 0.2 per cent of nutrition records and 57.6 per cent of records were blank for this analysis.

Of 3,568 nutrition records 1,439 (40.3 per cent) reported a dietetic assessment within six weeks of treatment completion. 162 records (4.5 per cent) did not have post treatment assessment. 55.1 per cent of nutrition records were blank.

There remains great variation between SCNs/networks in assurance on pre-treatment nutritional assessment. SCNs/networks which reported the highest levels of pre-treatment nutritional assessment were Wessex (54.2 per cent) and Northern England (50.9 per cent.). The lowest assurance of pre-treatment assessment was East Midlands. (17.0 per cent).

Data source: DAHNO

Clinical comment:

In 2012, as a response to low levels of submission of nutrition data, the data collection fields were simplified to encourage better completion of nutrition records. The revised data set included:

- pre and post-treatment dietetic assessment,
- requirement for nutritional support before treatment,
- predominant method of nutritional support,
- feeding tube type used during treatment.

Historically, nutrition records within DAHNO have been poorly completed. An unpublished national survey of dietitians was undertaken to assess entry of nutritional data into DAHNO. The survey sought to identify dietetic awareness of the Audit, the barriers to data entry and possible solutions or incentives to increase nutrition data entry. The results highlighted that although 93 per cent of dietitians were aware of DAHNO, only 12 per cent could recall correctly the four questions above and only 37 per cent were responsible for data entry. Barriers to nutrition data record completion were lack of time and inadequate administrative support. These results help understand why submission rates for nutrition data remain low.

The tenth Annual Report is the second time that the revised nutrition data has been presented. Whilst the volume of records has not significantly increased, the depth of information has. There has been a rise in the reporting of pre-treatment nutrition assessment; 28.6 per cent in the ninth Annual Report and 34.4 per cent in the tenth Annual Report. Similarly the recording of predominant method of nutritional support during treatment has increased from 67.4 per cent to 71.3 per cent of total nutrition records. There still remains a low submission of data relating to the predominant tube type used during treatment and post-treatment dietetic follow-up arrangements.

Of greatest clinical relevance continues to be the method of nutritional support and tube type. As with the ninth Annual Report, the data reflects a high level of enteral tube feeding in the head and neck population as well as a significant proportion of patients requiring oral nutrition support. This highlights the importance of dietetic support within the patient pathway. Gastrostomy tube feeding is the predominant tube type used during treatment and this remains unchanged since the last report.

Recommendations:

To facilitate ease of data collection in future audit the nutrition parameters used need to be promoted through the British Dietetic Association to its head and neck members.

Particular attention should be paid to the barriers to data entry faced by dietitians and this be addressed by both providers and SCNs/networks.

Additional Analyses

Number of cases having pre-treatment access to a dietitian by MDT host.

4.7.5 Patient Concerns Inventory[33]

Audit question:

Are patients receiving appropriate routine holistic care assessment at their follow up attendances?

Why is this important?

Following completion of treatment it is important that follow-up care recognises, supports and tries to resolve outstanding patient concerns. These concerns will vary between individuals and by cancer site.

The Patient Concerns Inventory (PCI-HN) is a head and neck cancer specific question prompt list envisioned for regular use during follow-up.

The PCI comprises of 56 items in four domains:

- Physical and functional well-being (29 items),
- Treatment related (three items),
- Social care and social well-being (nine items),
- Psychological, emotional and spiritual well-being (14 items),
- Other (free text).

It also contains a list of core and wider MDT members that the patient can ask to see or be referred on to as appropriate.

The PCI enables patients to raise issues and concerns they might have that otherwise can be missed. The PCI facilitates the conversation between patient and the healthcare team and can support routine holistic needs assessment. It provides a standard patient reported head and neck specific measure suitable for national comparison.

Teams were not required to submit individual items identified by patients. However, in the future the number, frequency and pattern of concerns raised could be included to help inform, focus and shape healthcare support for patients and carers regionally and nationally.

Table 4.7.5
Summary

	Total	PCI recorded (Yes/ No/Not applicable)		PCI performed							
				Yes		No		Not applicable		Not reported	
	n	n	%	n	%	n	%	n	%	n	%
Total	4,832	1,973	40.8	539	11.2	754	15.6	680	14.1	2,859	59.2

Data source: DAHNO (England cases only)

Clinical comment:

For the first time the Audit has collated national responses in head and neck cancer to understand in the first instance the use of the PCI. This is a fledgling step to both encourage usage of a holistic needs assessment and also to understand the frequency and geographic use of this type of tool.

In response to 'Has a Patient Concerns Inventory been carried out after treatment and completed within six months of diagnosis?': of 4,832 cases containing a nursing record, 40.8 per cent (1,973 cases) had a field entry (yes/no/not applicable). The overall recorded use of a PCI was 11.2 per cent (539 cases confirmed as yes PCI undertaken), which for the first year of introduction, though disappointing, is not necessarily unexpected.

There is no notable variation by primary site group in response to the PCI question (33.7 to 44.1 per cent) nor in the confirmed use of a PCI (5.6 to 16.2 per cent).

There is wide variation across the 13 SCNs/networks in the question being answered (1.7 to 93.4 per cent).

Of confirmed use of a PCI, the SCN/network with the highest are East of England (39.6 per cent) and West Midlands (34.9 per cent). These two SCNs had almost two-thirds (65.9 per cent, or 355 of 539) of all the recorded PCI cases. There is also wide variation between MDTs in terms of the question being answered (0.0 to 100.0 per cent) and a similar degree of variation in the recorded use of a PCI.

Recommendations:

MDTs should increase their focus on the holistic needs of patients following treatment and use a structured tool to both enable and assess the impact of more focused support.

Additional analyses

PCI recorded and performed by anatomic site

PCI recorded and performed by SCN/network

PCI recorded and performed by MDT host

4.8 Receiving timely care

Timely care reduces psychological distress and contributes to better outcomes for patients. This section shows how long patients are waiting for key aspects along the diagnosis and treatment pathway.

4.8.1 Interval from first symptom to referral and referral pathway

Audit question:

Is there anatomical subsite variation in the interval from first symptom to referral? Are patients being referred using the urgent suspected cancer two week rule referral pathway?

Why is this important?

Early cancer diagnosis is a key aspect of Improving Outcomes, A Strategy for Cancer[34] and is supported by the National Awareness and Early Diagnosis Initiative (NAEDI)[35]. The overall goal of NAEDI is to promote earlier diagnosis of cancer and, through doing so, improve cancer survival rates and reduce cancer mortality.

The National Cancer Patient Experience Survey 2014[13] contained submissions from a cohort of 2,347 head and neck cancer patients. 25 per cent of patients saw their GP more than twice prior to referral, a similar figure to the ninth Annual Report. Increasing public and professional awareness of the symptoms of head and neck cancer is necessary to minimise delays to referral.

A previous audit in primary care showed that between 17 and 18 per cent of subsequently diagnosed laryngeal and oropharyngeal cancer patients made three or more visits to their GP before referral was made[36].

Results:

Tables 4.8.1
Summary

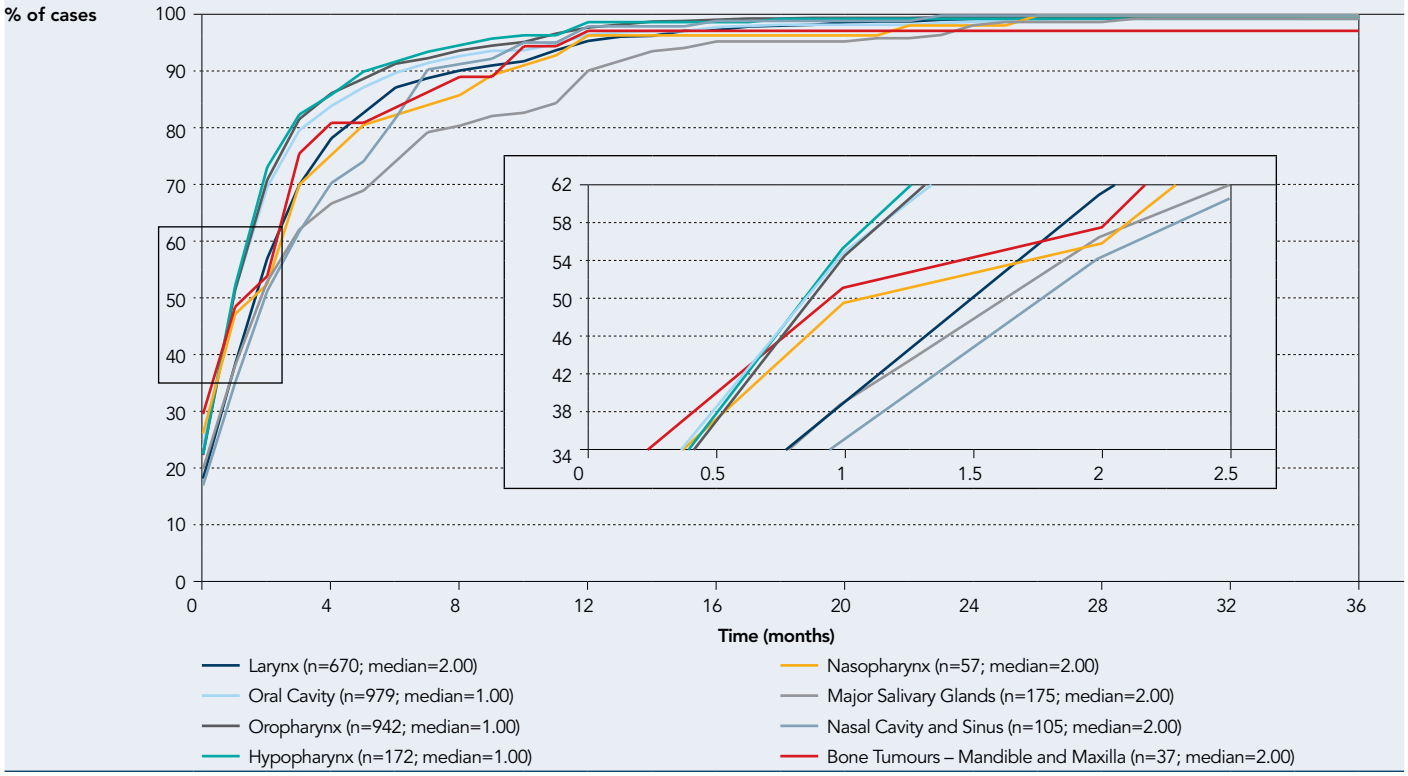
	Total referrals	2 week wait	2 week wait	Urgent	Urgent	2WW or Urgent	2WW or Urgent
	n	n	%	n	%	n	%
Current Audit Year	7,875	4,173	53.0	1,781	22.6	5,954	75.6
Previous Audit Year	7,817	3,963	50.7	1,843	23.6	5,806	74.3
Difference	58	210	2.3	-62	-1.0	148	1.3

2WW = 2 week wait

From a Community Dental Service / General Dental Practitioner

	Current Audit Year			Previous Audit Year			Difference		
	Total referrals	2 week wait	2 week wait	Total referrals	2 week wait	2 week wait	Total referrals	2 week wait	2 week wait
	n	n	%	n	n	%	n	n	%
Oral Cavity	363	156	43.0	387	124	32.0	-24	32	11.0
Oropharynx	62	37	59.7	60	26	43.3	2	11	16.4

Figure 4.8.1
Interval first symptom to referral



Data source: DAHNO

All England diagnoses in audit year.

Clinical comment:

75.6 per cent of patients were referred using an urgent referral pathway, with 53.0 per cent referred using the two week rule pathway, a rise of 2.3 percentage points over that seen in the ninth Annual Report.

There has been a significant increase in use of the two week rule pathway by general dental practitioners for oral cavity and oropharynx patients. General dental practitioners referred 425 patients with cancer of which 193 were referred via the two week rule pathway (45.4 per cent), compared to the overall two week rule referral rate of 53.0 per cent. There was a rise of 11.0 percentage points in oral cavity cancers referred via this route, and of 16.4 percentage points for oropharynx. The increasing use of this pathway by general dental practitioners is welcome.

Recommendations:

Improved public and professional knowledge about the symptoms of head and neck cancer addressed by public and professional education may help reduce delays to referral, but equally may increase false positive referrals.

4.8.2 Interval from biopsy to reporting

Audit question:

Is there evidence of geographical variation in the interval between biopsy and reporting?

Percentage of cases of head and neck cancer where the interval from biopsy to reporting is less than 10 days (CLE3)

Why is this important?

This is a key enabler of care as treatment cannot be planned or delivered until a tissue diagnosis has been confirmed. For specimens where a second opinion is required to achieve or confirm diagnosis, an efficient process to ensure a timely response is needed.

Results:

Tables 4.8.2
Summary

	Total	<=10 day		<=21 day		Blank / Invalid	
	n	n	%	n	%	n	%
England cases	7,875	5,030	63.9	5,684	72.2	1,939	24.6
Wales cases	554	484	87.4	531	95.8	6	1.1
All cases	8,429	5,514	65.4	6,215	73.7	1,945	23.1

	Total	>10 day		>21 day		Blank / Invalid	
	n	n	%	n	%	n	%
England cases	7,875	906	11.5	252	3.2	1,939	24.6
Wales cases	554	64	11.6	17	3.1	6	1.1
All cases	8,429	970	11.5	269	3.2	1,945	23.1

Historical comparison

	Current audit year		Previous audit year		Difference	
	<=10 day %	<=21 day %	<=10 day %	<=21 day %	<=10 day %	<=21 day %
England cases	63.9	72.2	62.6	69.5	1.3	2.7
Wales cases	87.4	95.8	78.2	87.8	9.2	8.0
All cases	65.4	73.7	63.6	70.7	1.8	3.0

	Current audit year		Previous audit year		Difference	
	>10 day %	>21 day %	>10 day %	>21 day %	>10 day %	>21 day %
England cases	11.5	3.2	9.2	2.3	2.3	0.9
Wales cases	11.6	3.1	12.9	3.3	-1.3	-0.2
All cases	11.5	3.2	9.4	2.3	2.1	0.9

Data source: DAHNO

Clinical comment:

The percentage of biopsies reported in less than 10 days has increased from 63.6 per cent in the ninth Annual Report to 65.4 per cent, a small increase. For those reported in less than 21 days the figure has increased from 70.7 per cent last year to 73.7 per cent in the current cohort.

A higher percentage of cases were diagnosed in Wales in less than 10 days, 87.4 per cent, compared to 63.9 per cent in England. The Welsh data is significantly higher in quality, covering 98.9 per cent of overall submissions.

In England there are wide variations between SCNs/networks in the quality of their data submissions, with less than two per cent of missing or invalid entries in Wessex, whilst in South East Coast 58.8 per cent of submissions failed to include this information.

The highest performing SCN/network, Northern England, demonstrated that 90.0 per cent of cases had an interval of less than 10 days against a submission rate of 96.9 per cent of all cases.

The SCN/network with the greatest percentage of cases taking over 10 days for reporting, South West, had 22.6 per cent of cases in this category.

Recommendations:

It is recognised that for many care providers, pathology services remain under strain. Despite this there has been a further slight improvement in the timeliness of reporting, but providers and SCNs/networks should be encouraged to look at innovative methods for further improving the time to reporting. Care providers should seek to demonstrate improvements by increasing the volume of submission.

The failure to provide this data (a Clinical Line of Enquiry) leaves providers unable to assure the timeliness of the pathology service delivered at diagnosis, and this may result in delays to the treatment pathway.

Additional analyses:

Interval from biopsy to reporting <10 days by diagnosing provider

4.8.3 Imaging

4.8.3.1 Imaging of the primary site

Audit question:

How many patients have undergone pre-treatment imaging of the primary site prior to treatment against agreed standards?

> CT/MRI should be carried out in 90 per cent of tumours in all anatomic sites excluding lip, and 100 per cent of tumours of the nose / sinus and ear.
> (BAHNO Standard)

Why is this important?

Appropriate imaging helps to improve the accuracy in defining the extent of disease and thus informs the MDT in the treatment planning process.

Results:

Tables 4.8.3.1
Summary

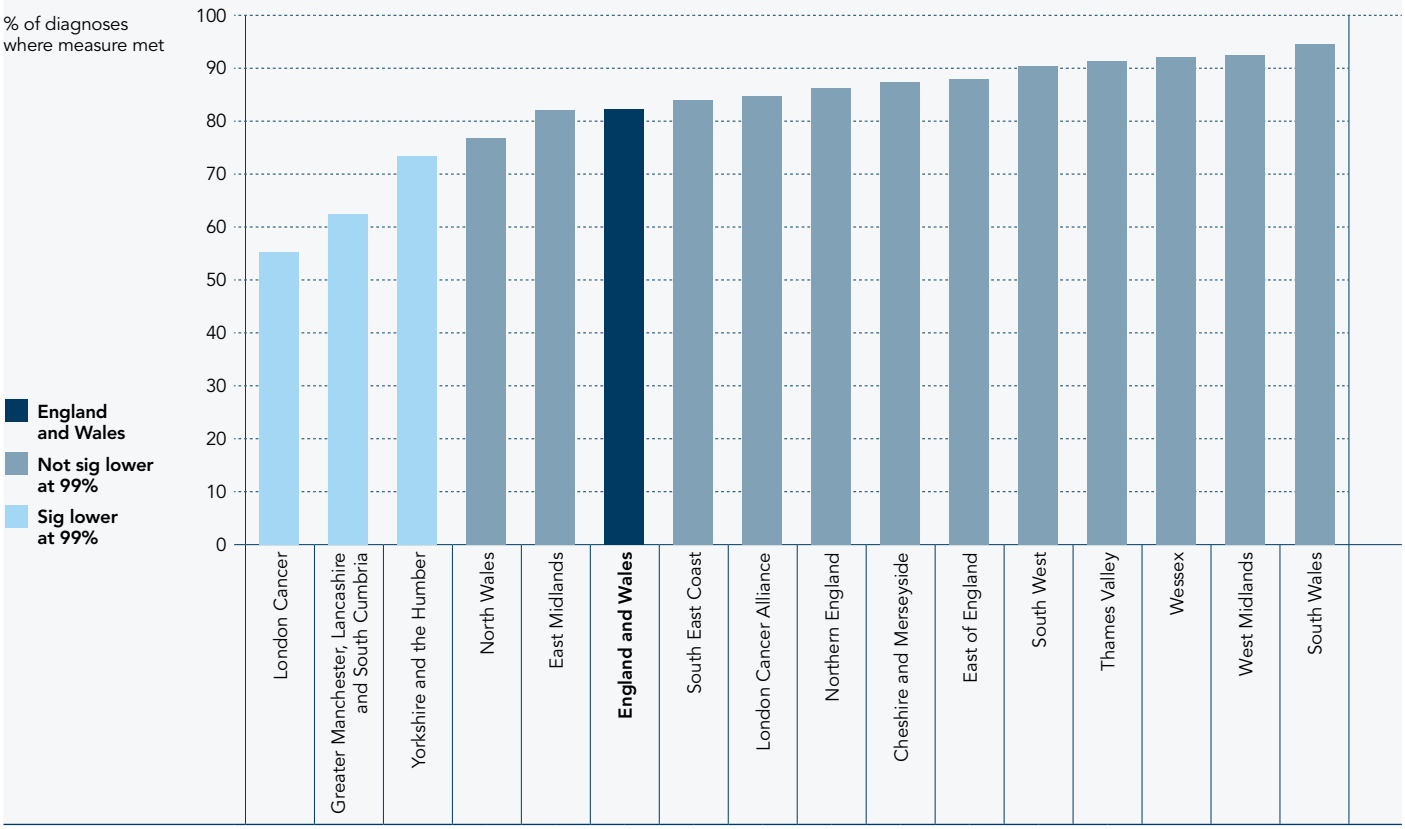
	Total cases										
	All	Having PET-CT		Having CT		Having MRI		Having US		CT, PET-CT, MRI or US	
	n	n	%	n	%	n	%	n	%	n	%
England	6,798	721	10.6	4,598	67.6	3,350	49.3	1,331	19.6	5,550	81.6
Wales	454	24	5.3	347	76.4	245	54.0	295	65.0	413	91.0
England and Wales total*	7,252	745	10.3	4,945	68.2	3,595	49.6	1,626	22.4	5,963	82.2

* Cases assigned to diagnosis SCN/network where no MDT reported

	CT, PET-CT, MRI or US		
	Current Audit Year	Previous Audit Year	Difference
England	81.6	79.7	2.0
Wales	91.0	84.6	6.4
England and Wales total*	82.2	80.0	2.2

* Cases assigned to diagnosis SCN/network where no MDT reported

Figure 4.8.3.1
Imaging - CT, PET CT, MRI or US prior to treatment: Attainment by MDT SCN/Network



Data source: DAHNO

Tables: All diagnoses in audit year seen at English or Welsh MDT with any treatment recorded (including palliative intent).

Clinical comment:

There has been an improvement in the reporting of this item in the current Audit cycle. Of 7,252 patients in England and Wales, 5,963 (82.2 per cent) were confirmed as having undergone PET (positron emission tomography) CT, CT (computerized tomography), MRI (magnetic resonance imaging) or ultrasound prior to treatment.

Five SCNs/networks provided assurance in over 90 per cent of their patients that they had received imaging of the primary site and thus met the standard above. The worst performing, London Cancer, provided assurance in only 55.3 per cent of patients that this investigation had taken place. The variation between SCNs/networks and those falling outside of 99 per cent confidence intervals is shown in the histogram above.

Recommendations:

SCNs/networks and MDTs with poor returns should review their processes and either assure themselves, patients and commissioners that patients are being investigated appropriately prior to treatment, or put in place measures to address the issues identified.

Additional analyses:

Number of cases having pre-treatment CT/MRI/US by MDT host

4.8.3.2 Imaging of the chest

Audit question:

Are all patients receiving chest imaging prior to the commencement of treatment?

Why is this important?

Whilst the incidence of synchronous malignancies and metastatic chest disease may be low, their detection prior to the production of a care plan is imperative and teams should ensure that chest imaging has been carried out and reported prior to the agreement of a care plan.

Imaging of the chest in 95 per cent of cases prior to treatment planning (BAHNO Standard)

Results:

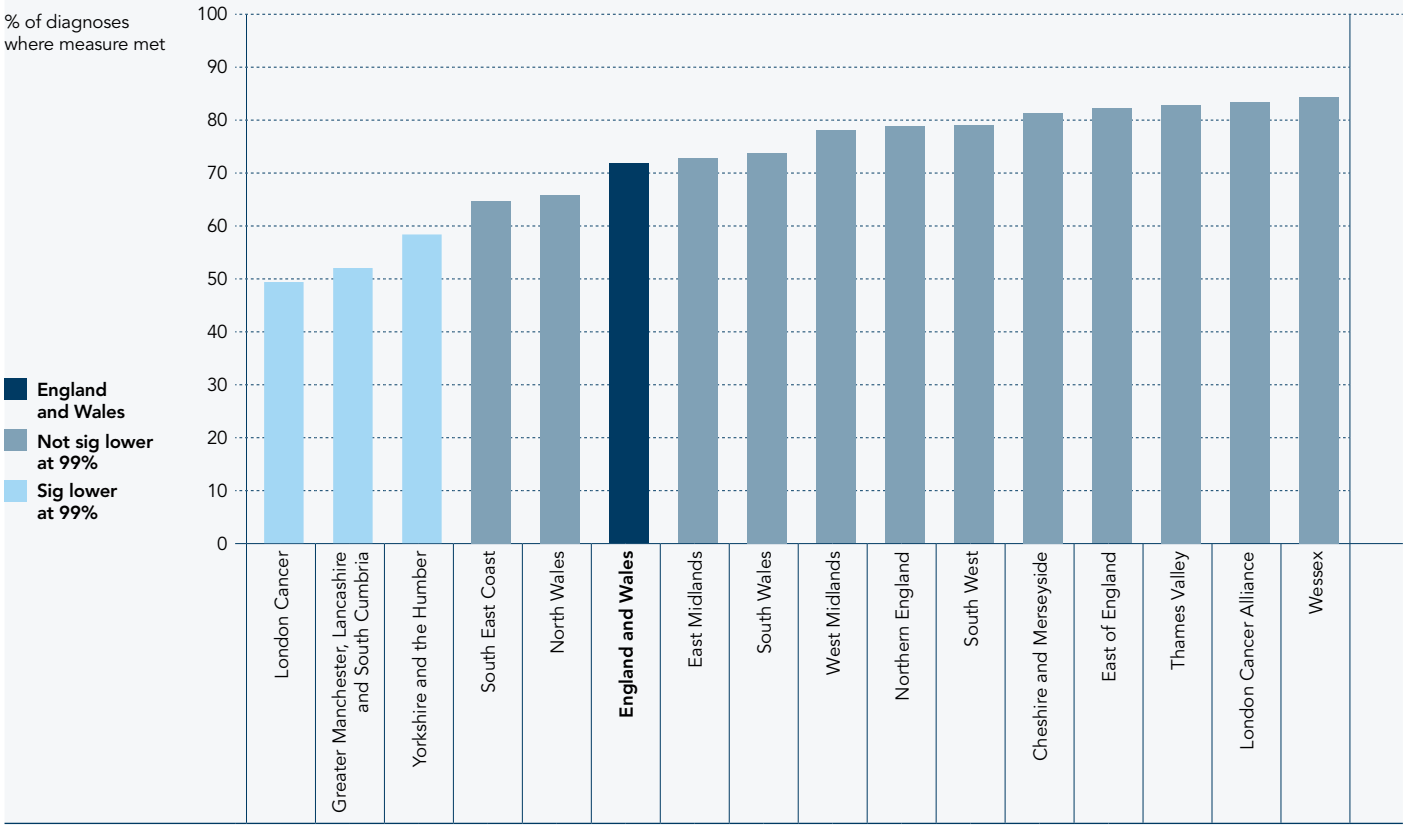
Tables 4.8.3.2
Summary

	Total	PET-CT / CT / X-ray pre-treatment	
	n	n	%
All diagnoses	7,252	5,180	71.4

Summary

	Trusts
95+% pre-treatment chest imaging (Trusts > 5 cases)	20 of 130

Figure 4.8.3.2
Chest imaging: X-ray, CT or PET-CT pre-treatment: Attainment by diagnosing SCN/network



Data source: DAHNO

Cohort: All diagnoses in Audit year with treatment recorded.

Clinical comment:

5,180 patients in England and Wales (71.4 per cent of all diagnoses having treatment) are evidenced as having had chest imaging by chest X-ray, CT or PET CT prior to treatment. The highest performing SCN/network was Wessex, but only with 84.0 per cent of cases, short of the 95 per cent standard. 20 diagnosing provider organisations (with over five cases) provided assurance that in at least 95.0 per cent of their cases chest imaging occurred prior to treatment.

There remains significant variation both within and between SCNs/networks in the level of assurance provided that chest imaging has occurred.

Recommendations:

All diagnosing providers should re-visit both their MDT process and data recording to provide high levels of assurance that this standard is being met.

Additional analyses:

Number of cases with pre-treatment imaging of the chest by SCN/network

Number of cases with pre-treatment chest imaging by diagnosing provider

4.8.3.3 PET (positron emission tomography) Scanning

Audit question:

Is there variation in the requesting of PET CT scans?

Why is this important?

PET uses a combination of CT scanning and injection of a radioisotope (5 FDG), which is taken up by rapidly metabolising cells such as cancer cells. The technique may allow better delineation of disease and has particular relevance in the assessment of otherwise occult disease, either ahead of major treatment, or during follow up. In head and neck cancer the indications for the use of PET CT have not been fully defined apart from in the management of occult disease. Protocols currently vary across SCNs/networks and tend to be locally derived rather than from national guidance.

Results:

Tables 4.8.3.3
Summary

	All Cases	PET scans					
	Total	Audit Year		Previous Audit Year		Difference	
	n	n	%	n	%	n	%
England	6,798	721	10.6	514	7.8	207	2.8
Wales	454	24	5.3	-	-		
England and Wales total	7,252	745	10.3	-	-		

Primary site breakdown

	Total	PET scans					
		Audit Year		Previous Audit Year		Difference	
	n	n	%	n	%	n	%
Larynx	1,515	73	4.8	72	5.0	1	-0.2
Oral Cavity	2,324	106	4.6	79	3.7	27	0.9
Oropharynx	2,106	407	19.3	253	13.7	154	5.6
Hypopharynx	343	53	15.5	38	11.1	15	4.4
Nasopharynx	126	29	23.0	20	16.1	9	6.9
Major Salivary Glands	447	46	10.3	34	8.6	12	1.7
Nasal Cavity and Sinus	277	21	7.6	14	4.8	7	2.8
Bone Tumours - Mandible and Maxilla	114	10	8.8	4	4.9	6	3.9
Total	**7,252**	**745**	**10.3**	**514**	**7.8**	**231**	**2.5**

SCN/network Summary					
	Current Audit Year		Previous Audit Year *		
	SCN/Network Name	PET scans	SCN/Network Name	PET scans	Difference
Highest reporting SCN/ network	Yorkshire and the Humber	151	Northern England	100	51
Lowest reporting SCN/ network	North Wales	5	Cheshire and Merseyside	10	-5

* Data not available from Wales for ninth Annual Report

	Networks	
	Current Audit Year	Previous Audit Year *
>0 PET scans reported in SCN/network	15 of 15	13 of 13
<5 PET scans reported in SCN/network	0 of 15	0 of 13

* Data not available from Wales for ninth Annual Report.

Data source: DAHNO

Clinical comment:

There has been a small rise in the number of PET CT scans recorded this year compared to the ninth Annual Report, with 10.3 per cent of patients in England and Wales recorded as having undergone PET CT prior to treatment. This continues the gradual increase in the use of this technology. The most frequent anatomic sites where PET CT was carried out were for pharyngeal disease, with 23.0 per cent for nasopharynx cases, 19.3 per cent for oropharynx and 15.5 per cent for hypopharynx.

There was wide variation in reported PET CT usage between SCNs/networks, with the highest percentage being in London Cancer Alliance with 120 PET CT scans recorded, equating to 21.9 per cent of new diagnoses in the SCN/network compared to Greater Manchester, Lancashire and South Cumbria where 20 patients were recorded as having PET CT scans (2.9 per cent). The reason for this variation remains unclear and doesn't seem to necessarily reflect the geographical location of PET scanners.

4.8.3.4 Pre-treatment OPG (orthopantomogram) assessment

Audit question:

How many patients received an OPG radiograph prior to treatment?

Why is this important?

An OPG is a radiological assessment of the dentition and jaws that forms an element of the pre-treatment dental assessment. It can also provide an assessment of tumour invasion of the mandible, and additionally, is a useful screening tool for other pathologies of the jaws that could influence treatment.

4.8.3.4
Pre-treatment OPG (orthopantomogram) assessment summary

	Current Audit Year		Previous Audit Year#		Difference	
	Total	Total	Total	Total	Total	Total
	n	%	n	%	n	%
All England and Wales diagnoses	**7,252**					
... having OPG	2,142					
All England diagnoses	**6,797**		**6,620**		**177**	
… having OPG	2,057		1,678		379	
… … with dental assessment	1,305	63.4	1,107	66.0	198	-2.6
… … without dental assessment	752	36.6	571	34.0	181	2.6
All Wales diagnoses	**455**		**-**		**-**	
… having OPG	85		-		-	
… … with dental assessment	-	-	-	-	-	-
… … without dental assessment	-	-	-	-	-	-

Data not available from Wales for ninth Annual Report

Information on pre-treatment dental assessment can be found in section 4.7.2.

Data source: DAHNO

All diagnoses in audit year with treatment recorded.

Clinical comment:

BAHNO is currently reviewing the standard that requires all patients with head and neck cancer to have a pre-treatment OPG.

2,142 patients are recorded as having had an OPG, an increase of 464 compared to the ninth Annual Report. This is a further significant increase in the recording of this investigation, but levels are still relatively low with only 38.9 per cent of oral cavity cancers recorded as having an OPG and 34.4 per cent of oropharyngeal cancers. It remains difficult to determine whether this represents poor data quality or differences in appreciation of the benefits of an OPG.

Recommendations:

Clinicians should carefully consider whether this simple radiographic investigation could add benefit to the management of their patients and use the existing BAHNO Standard prior to completion of the standards review.

4.8.4 The head and neck MDT – are all patients discussed?

It is an accepted standard that all patients should be discussed by the MDT before any treatment is planned and following surgery to plan subsequent treatments. This section shows progress with achieving this.

Audit question:

Are all patients with head and neck cancer being discussed in an MDT meeting?

Percentage of new cases of head and neck cancer discussed at MDT. (CLE 1)

All head and neck cancer patients should be managed by the MDT. (Welsh Standard)

Why is this important?

Improving Outcomes Guidance (IOG) measures in England identify that an MDT discussion should be undertaken for all patients with head and neck cancer. Genuinely multi-disciplinary working and combined decision making benefits patients by increasing the probability that the interventions offered will be those that are most appropriate for them. MDTs whose members can offer the full range of necessary skills, and who have access to a greater variety of facilities, are more likely to provide effective, efficient and comprehensive services for their patients.

MDT meetings ensure that each patient is considered from a range of viewpoints by people with different areas of specialisation, who can pool their expertise and learn from one another.

Results:

Tables 4.8.4
Patients discussed at MDT - Summary

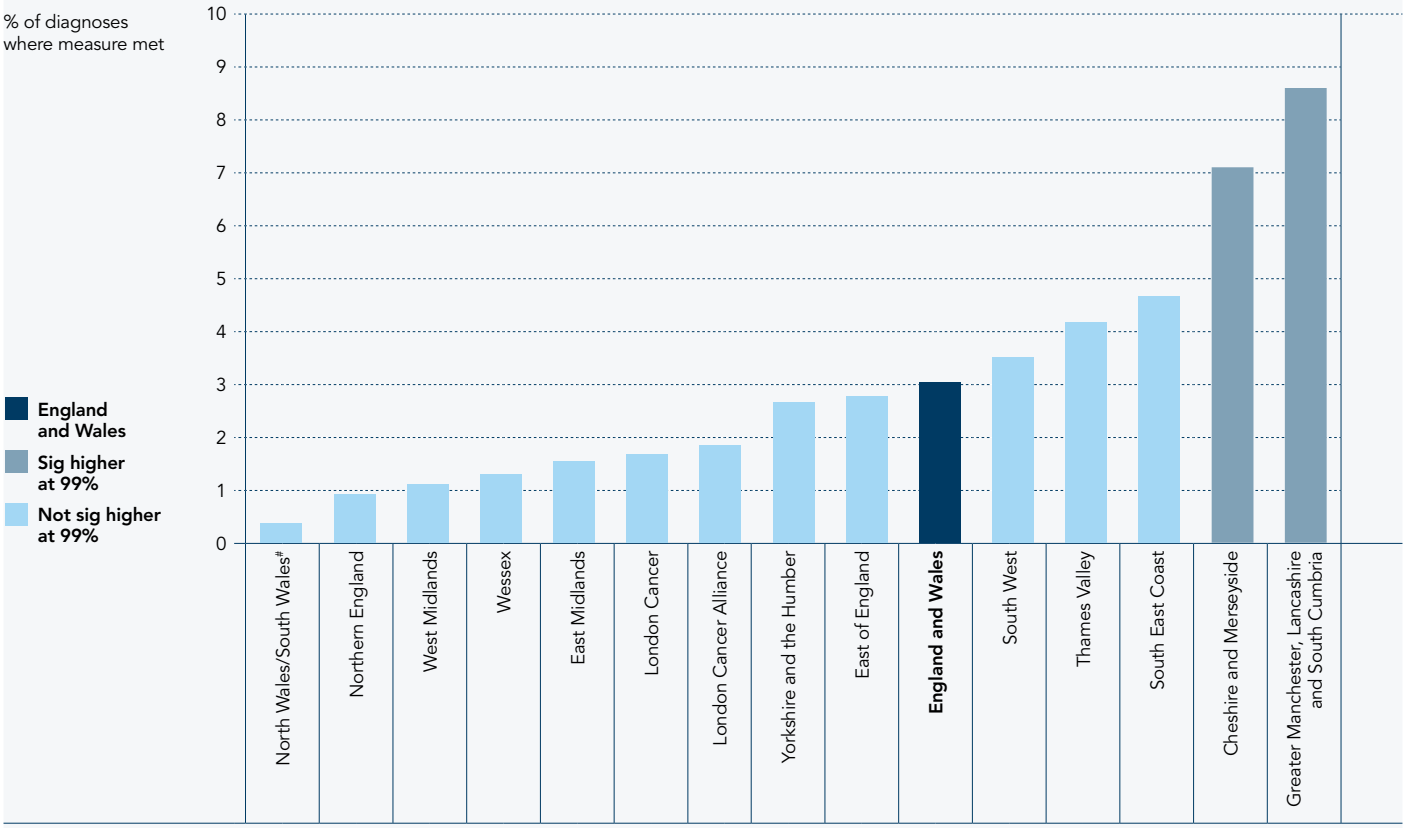
	Total	Recorded Status: Yes		Recorded Status: No	
	n	n	%	n	%
All cohort diagnoses	8,429	8,173	97.0	256	3.0
… in England	7,875	7,621	96.8	254	3.2
… in Wales	554	552	99.6	2	0.4

Historical comparison

	Current Audit Year		Previous Audit Year		Difference	
	Yes %	No %	Yes %	No %	Yes %	No %
All cohort diagnoses	97.0	3.0	94.9	5.1	2.1	-2.1
… in England	96.8	3.2	94.6	5.4	2.2	-2.2
… in Wales	99.6	0.4	99.1	0.9	0.5	-0.5

Diagnosing SCN/network summary	
	SCN/networks *
	n of n
>= 15% Recorded: No	0 of 15

Figure 4.8.4
Reported as not discussed at MDT: attainment by diagnosing SCN/Network



To preserve the small number suppression applied on an associated table, the 2 Welsh networks have been combined into one unit (North Wales/South Wales)

Data source: DAHNO

Clinical comment:

There has been further improvement in the percentage of patients discussed at MDT. In Wales, 99.6 per cent of patients were confirmed as discussed at a MDT, whilst in England this has improved to 96.8 per cent. Overall, 256 patients (3.0 per cent) are recorded this year as not discussed at an MDT.

There still remains variation between SCNs/networks in the number of patients who are stated as not having been discussed at an MDT, and this is shown in the histogram above. The SCN/network with the highest number of cases recorded as not discussed was Greater Manchester, Lancashire and South Cumbria with 72 cases (8.6 per cent). When comparing with last year's figures, the three provider organisations that showed very high levels of patients not being discussed at MDT (Lancashire Teaching Hospitals, University Hospitals of Morecambe Bay, and Barking, Havering and Redbridge University Hospital) have all shown significant improvement. This year, a single provider, Stockport NHS Foundation Trust, had a high level of cases not discussed at MDT with 32 (62.7 per cent).

Recommendations:

Where such a large number of patients are recorded as not having their care discussed at MDT, commissioners should investigate the functional arrangements for the delivery of head and neck cancer care.

Additional analyses:

Number of cases discussed by the MDT by provider organisations

4.8.5 The head and neck MDT - are all patients with resective pathology discussed?

Audit question:

Are all patients who undergo surgery having their resective pathology discussed at an MDT?

Why is this important?

Improving Outcomes Guidance (IOG) measures in England identify that an MDT should undertake postoperative review of histopathological findings on all patients who have undergone surgery. This allows both interaction between the pathologist and surgeon, to agree interpretation of adequacy of margins and consideration of the need for adjunctive treatment. From these discussions an overall agreed integrated stage should be documented and available for future comparisons.

In Wales it is considered good practice to discuss resective pathology at an MDT, but it is not a formal measure.

Tables 4.8.5
Summary

	Resective Pathology Discussed						
	Total	Yes		No		Unknown	
	n	n	%	n	%	n	%
All cohort	4,152	3,221	77.6	641	15.4	290	7.0
… in England	3,949	3,032	76.8	627	15.9	290	7.3
… in Wales	203	189	93.1	14	6.9	0	0.0

Historical comparison

	Resective Pathology Discussed								
	Current Audit Year %			Previous Audit Year %			Difference %		
	Yes	No	Unknown	Yes	No	Unknown	Yes	No	Unknown
All cohort	77.6	15.4	7.0	61.3	28.2	10.5	16.3	-12.8	-3.5
… in England	76.8	15.9	7.3	59.6	29.4	11.1	17.2	-13.5	-3.8
… in Wales	93.1	6.9	0.0	94.1	5.9	0.0	-1.0	1.0	0.0

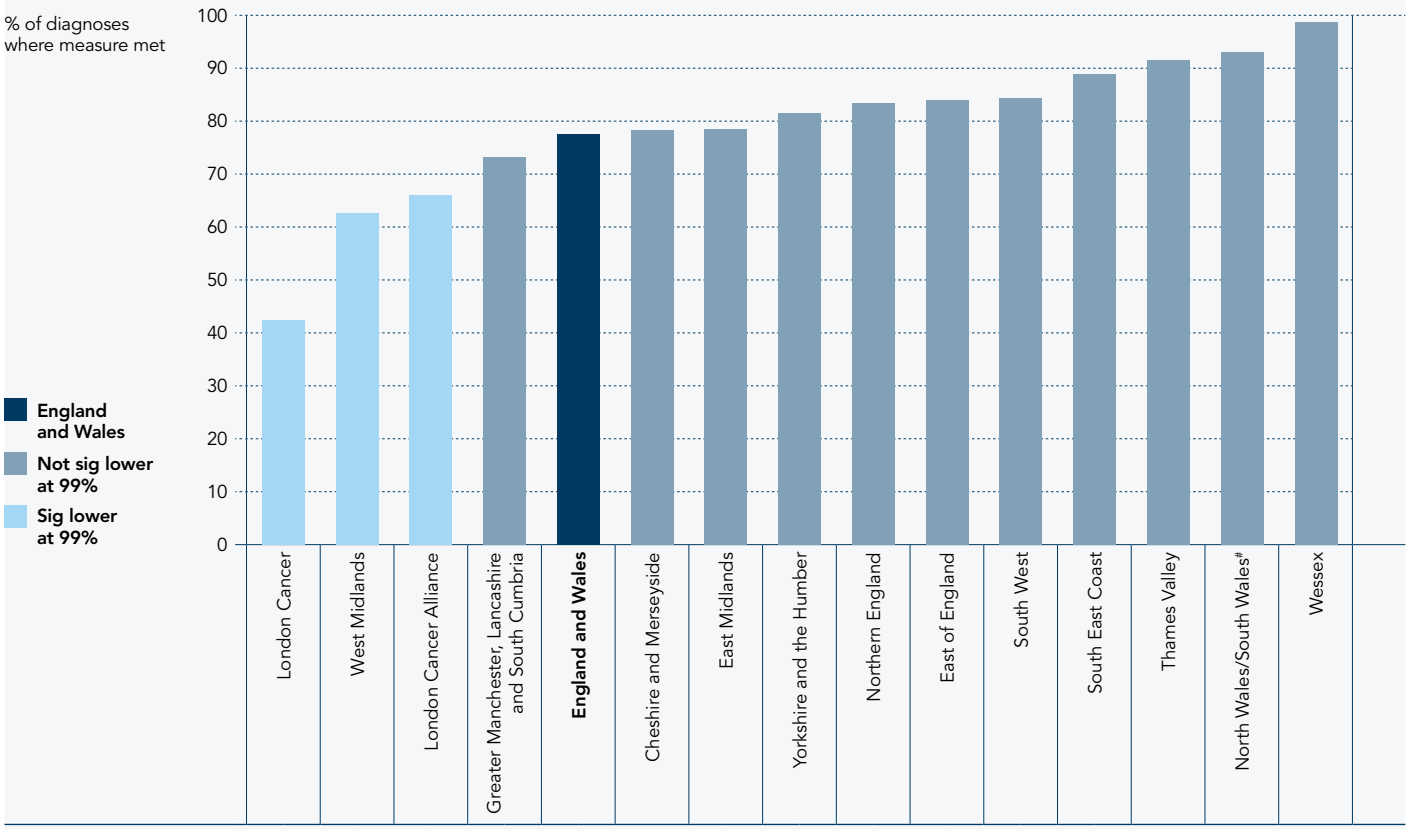
Intervals: Surgical resection to reporting:
Summary

	LQ reporting interval			Median reporting interval			UQ reporting interval		
	Audit Year	Previous Audit Year	Difference	Audit Year	Previous Audit Year	Difference	Audit Year	Previous Audit Year	Difference
All cohort	6.0	6.0	0.0	9.0	9.0	0.0	15.0	15.0	0.0

Intervals: Surgical resection to reporting:
By primary site

	Surgery episodes	Reporting Interval > 48 days	
	n	n	%
Larynx	648	12	1.9
Oral Cavity	1,737	29	1.7
Oropharynx	856	11	1.3
Hypopharynx	93	3	3.2
Nasopharynx	17	0	0.0
Major Salivary Glands	338	10	3.0
Nasal Cavity and Sinus	157	5	3.2
Bone Tumours - Mandible and Maxilla	78	3	3.8
Total	**3,924**	**73**	**1.9**

Figure 4.8.5
Discussion of resective pathology: attainment by treating SCN/Network



To preserve the small number suppression applied on an associated table, the two Welsh networks have been combined into one unit (North Wales/South Wales)

Data source: DAHNO

All diagnoses in audit year with surgery as first treatment (excluding palliative intent) by first treating provider organisation.

Clinical comment:

There has been a significant overall improvement in the discussion of resective pathology in both England and Wales, with 77.6 per cent of patients recorded as discussed, a 16.3 per cent improvement. Wales maintained their high level of recording at 93.1 per cent.

The median interval for the reporting of resection specimens remains unchanged at nine days. The reporting of specimens that took more than 48 days was 1.9 per cent, consistent with 2.0 per cent last year.

A number of MDTs are to be congratulated for fully meeting this standard with 100 per cent of their cases having resective pathology discussed at MDT. The variation between SCNs/networks is shown in the histogram above.

Recommendations:

MDTs are encouraged to provide evidence that all cases with resective pathology are discussed at their MDT. The three SCNs/networks with statistically poorer results, London Cancer Network, West Midlands and London Cancer Alliance, should ensure that their patients are receiving appropriate multi-professional discussion of their results.

Additional analyses:

Post resective pathological staging where final pre-treatment staging is recorded by diagnosing provider

Multi-disciplinary discussion of resective pathology in those patients undergoing surgery

4.8.6 Interval from diagnosis to first treatment

Audit question:

Are there delays in the interval from diagnosis to treatment between SCNs/networks and MDTs?

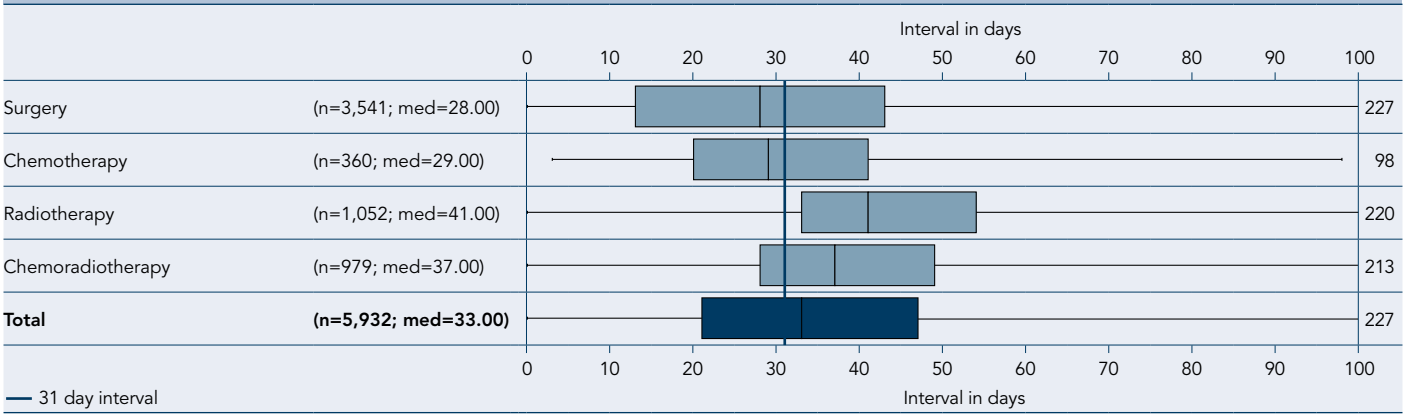
Why is this important?

The work-up of a head and neck cancer patient is a complex pathway requiring input from multiple professional groups and support services. The timely delivery of care requires significant coordination often at a time of significant anxiety for patients and their families.

Intervals from diagnosis to first definitive treatment by SCN/network and provider organisation with the longest and the shortest median waits for surgical and non-surgical treatment can be found in the additional analyses.

Results:

Figure 4.8.6
Interval from date of diagnosis to start of first definitive treatment



Tables 4.8.6
Median diagnosis - first definitive treatment (days)

	Current Audit Year n.n	Previous Audit Year n.n	Difference n.n
All first treatments	33.0	34.0	-1.0
… surgery only	28.0	28.0	0.0
… chemotherapy only	29.0	27.0	2.0
… radiotherapy only	41.0	42.0	-1.0
… chemoradiotherapy only	37.0	39.0	-2.0

Longest SCN/network waits - surgery

		Median diagnosis - surgery (days)
Longest median wait	North Wales	46.0
2nd longest median wait	South Wales	35.0
3rd longest median wait	Northern England	34.0
	South East Coast	34.0
	Thames Valley	34.0

Longest SCN/network waits - chemoradiotherapy

		Median diagnosis - chemoradiotherapy (days)
Longest median wait	North Wales	59.0
2nd longest median wait	East Of England	45.0
	West Midlands	45.0

Longest SCN/network waits - radiotherapy

		Median diagnosis - radiotherapy (days)
Longest median wait	North Wales	68.0
2nd longest median wait	South Wales	49.0
3rd longest median wait	South West	47.5

Data source: DAHNO

All diagnoses in year with treatment – excluding palliative intent; treatment date within one year of diagnosis.

Clinical comment:

The median interval this year has reduced to 33.0 days compared to 34.0 days in the ninth Annual Report (32.0 in the eighth Annual Report). Looking at treatment types, surgery has remained at 28.0 days, radiotherapy has reduced to 41.0 days from 42.0 days, and chemoradiotherapy has reduced to 37.0 from 39.0 days in the ninth Annual Report.

The chart shown above this uses a box and whisker format, where the vertical line within the box indicates the median value and the right and left edges of the box reflect the upper and lower quartile values (75.0 per cent and 25.0 per cent of patients). The number of patients and the median value are shown on the left hand side of the chart.

In examining the interval to radiotherapy the upper quartile value is 54 days, meaning that a quarter of patients are waiting 54 days or more from diagnosis to start their treatment. The English cancer waiting times target to the start of treatment is 31 days from the agreed decision to treat, which will form part of the measured interval. The evidence supplied this year indicates that a very significant number of patients are likely to be waiting well beyond this target to start their radiotherapy.

There remains a wide variation both between and within SCNs/networks in the median interval from diagnosis to first treatment.

The SCN/network with the longest median wait to surgery is North Wales at 46.0 days, and the treating organisation with the longest median wait is again Norfolk and Norwich University Hospitals NHS Foundation Trust (ninth Annual Report 57.0 days), and Betsi Cadwaladr University Health Board at 54.0 days.

For chemoradiotherapy, the longest median interval is North Wales at 59.0 (ninth Annual Report 57.0 days) followed by East of England and West Midlands at 45.0 days.

For radiotherapy, the longest median interval is North Wales at 68.0 days (61.5 days in the ninth Annual Report), South Wales at 49.0 days and South West at 47.5 days.

Within North Wales there appears to be a persistent difficulty in patients accessing all aspects of treatment in a timely fashion.

Current practice for head and neck cancer patients is to offer, where appropriate, Intensity Modulated Radiotherapy (IMRT). This offers patients the possibility of reduced treatment side effects but requires more complex and time consuming planning and work up, which may contribute to a delay to the start of treatment.

Geographical variation may also be influenced by the ease and speed of access to this treatment modality.

Recommendations:

SCNs/networks and treating organisations should continue to review the timeliness of their treatment pathways to remove any unavoidable delays. Whilst the head and neck pathway is complex, the wide variation seen between SCNs/networks and treating organisations providing similar care pathways suggests that further improvement opportunities exist.

SCNs/networks and commissioners should continue to monitor the provision of radiotherapy services to ensure patents are not disadvantaged by access difficulties.

Additional analyses:

Interval from date of diagnosis to start of first definitive treatment (surgery) by treating SCN/network

Interval from date of diagnosis to start of first definitive treatment (radiotherapy) by treating SCN/network

Interval from date of diagnosis to start of first definitive treatment (chemoradiotherapy) by treating SCN/network

Interval from date of diagnosis to start of first definitive treatment (surgery) by treating provider

Interval from date of diagnosis to start of first definitive treatment (radiotherapy) by treating provider

Interval from date of diagnosis to start of first definitive treatment (chemoradiotherapy) by treating provider

4.8.7 Surgical length of stay LOS

Audit question:

What is the variation between SCNs/networks and treating organisations in post-operative length of stay?

Why is this important?

"Improving Outcomes, A Strategy for Cancer"[34], highlighted that the majority of cancer patients wish to be in hospital for as short a time as possible. With the pressures on hospital beds, this analysis can help plan the inpatient requirements for hospitals in dealing with their caseload by ensuring that adequate resources are available, and has the potential benefit of freeing up NHS resources. By analysing the median length of stay, better planning of discharges with integrated social care and community support can be achieved in a timely fashion.

Results

Tables 4.8.7
Summary of cases having surgical treatment and date of discharge recorded

	Total	
	n	%
Total cases	**8,429**	
... with surgical treatment	4,267	50.6
... ... with 1 surgery record	3,823	89.6
... ... with 2+ surgery records	444	10.4
Total surgery records	**4,741**	
… with a date of discharge	4,038	85.2

Overall median length of stay

	Median LOS - All
All records with surgery and discharge date	3.0

Median length of stay by primary site and stage (all and inpatient only)

	Cases (with known LOS)			Median LOS			
	All	Day Case	Inpatient	All	Difference: All – ninth Annual Report	Inpatient	Difference: Inpatient - ninth Annual Report IP
All Larynx	661	241	420	1.0	0.0	11.5	5.5
... Early Larynx	349	192	157	0.0	-1.0	1.0	0.0
... Late Larynx	232	26	206	15.0	1.0	17.0	2.0
... Unknown Larynx	80	23	57	2.5.0	-0.5	12.0	0.0
All Oral Cavity	1,811	262	1,549	6.0	0.0	8.0	0.0
... Early Oral Cavity	1,015	185	830	2.0	-1.0	5.0	-1.0
... Late Oral Cavity	552	22	530	12.0	0.0	13.0	0.0
... Unknown Oral Cavity	244	55	189	4.0	1.5	8.0	2.0
All Oropharynx	870	189	681	2.0	0.0	3.0	0.0
... Early Oropharynx	180	55	125	1.0	0.0	2.0	0.0
... Late Oropharynx	546	111	435	2.0	0.0	3.0	0.0
... Unknown Oropharynx	144	23	121	2.0	0.0	2.0	-1.0
Hypopharynx	88	11	77	19.5	6.5	23.0	6.0
Bone Tumours - Mandible and Maxilla	76	0	76	11.0	1.0	11.0	1.0

Longest median length of stay - treatment centre (where >=5 cases)

	Median LOS - All	Cases (with known LOS) - All
Central Manchester University Hospitals NHS Foundation Trust	13.0	85

Data source: DAHNO

All diagnoses in audit year with a discharge date between 0 and 365 days after an existing procedure date.

Clinical comment:

85.2 per cent of surgical records had a date of discharge recorded.

Excluding day cases, the median length of postoperative stay in England and Wales was five days (five days in the ninth Annual Report), with a mean of 10.3 days (ninth Annual Report 10.0 days). The mean may be skewed by a small number of patients with extremely long length of stay.

The median varied by SCN/network, with the highest median in Thames Valley and North Wales at ten days, against the shortest median in Cheshire and Merseyside at two days. This level of variation is not that surprising as casemix, type of procedure and distribution of anatomic sites will vary between organisations. Other external factors such as ease of discharge for complex patients will have a bearing as will supra regional referral of complex cases.

It is recognised that the discharge of patients from acute care can be influenced by many factors, but is used here as a proxy for the development of complications during treatment. To understand this complex area would require cross matching to many other data items, currently not collected.

The highest median length of inpatient stay by anatomic sub site was seen in hypopharynx, which has risen to 23.0 days (ninth Annual Report 17.0 days), late stage larynx at 17.0 days (ninth Annual Report 15.0 days), and late stage oral cavity at 13.0 days, unchanged from the ninth Annual Report.

In the absence of data on post-surgical complications it has been suggested that length of stay should be used as a proxy for complications. However, the presented data suggests this would be a poor discriminator of the quality of delivered care.

Recommendations:

Organisations should monitor their length of stay and where these are extended, use a case review process to understand the reasons behind this.

Treating organisations and SCNs/networks should use the available information to support resource and discharge planning as well as making peer comparisons to see if learning opportunities for reduction in length of stay can be identified to meet patients' desires to leave hospital as soon as practical.

The head and neck community should examine the process by which the recording of surgical complications could be standardised to both assure patients and commissioners of the quality of services and to facilitate learning from adverse outcomes. This would enable future audit to look into causation of complications and potentially develop avoidance strategies.

Additional analyses:

Length of stay for surgical patients by SCN/network and treating provider

4.8.8 Interval to adjuvant radiotherapy

Audit question:

Are patients being delayed receiving adjuvant radiotherapy following primary surgery?

Why is this important?

Adjuvant radiotherapy is a key part of many head and neck treatment plans and ideally should be started within six weeks of surgery. Previous Annual Reports have identified significant delays in accessing radiotherapy services. Where adjuvant radiotherapy is required it can commonly be determined prior to surgery and therefore to reduce delays the forward planning of adjuvant radiotherapy can be helpful.

Results:

Tables 4.8.8
Summary

	Total surgery *	… with post-op radiotherapy **		Median interval (days)
	n	n	%	n.n
All cohort surgery	4,267	872	20.4	50.0

Primary Site Summary - Larynx

	Total surgery *	… with adjuvant radiotherapy		Median interval (days)
	n	n	%	n.n
Early larynx **	343	60	17.5	48.0
Advanced larynx **	263	78	29.7	55.0
Unknown stage larynx **	78	11	14.1	64.0

* Any surgical treatment (not just surgery as first treatment), including palliative intent

** Excluding C32.2, C32.3, C32.3A, C32.3B and C32.3C

	Total laryngectomy *	… with adjuvant radiotherapy		Median interval (days)
	n	n	%	n.n
Early larynx **	16	1	6.3	48.0
Advanced larynx **	180	61	33.9	58.0
Unknown stage larynx **	27	5	18.5	64.0

* Count of cases having any surgery record containing any of the following OPCS procedure codes:
E29.1: Total laryngectomy
E29.2: Supraglottic laryngectomy
E29.3: Vertical hemilaryngectomy

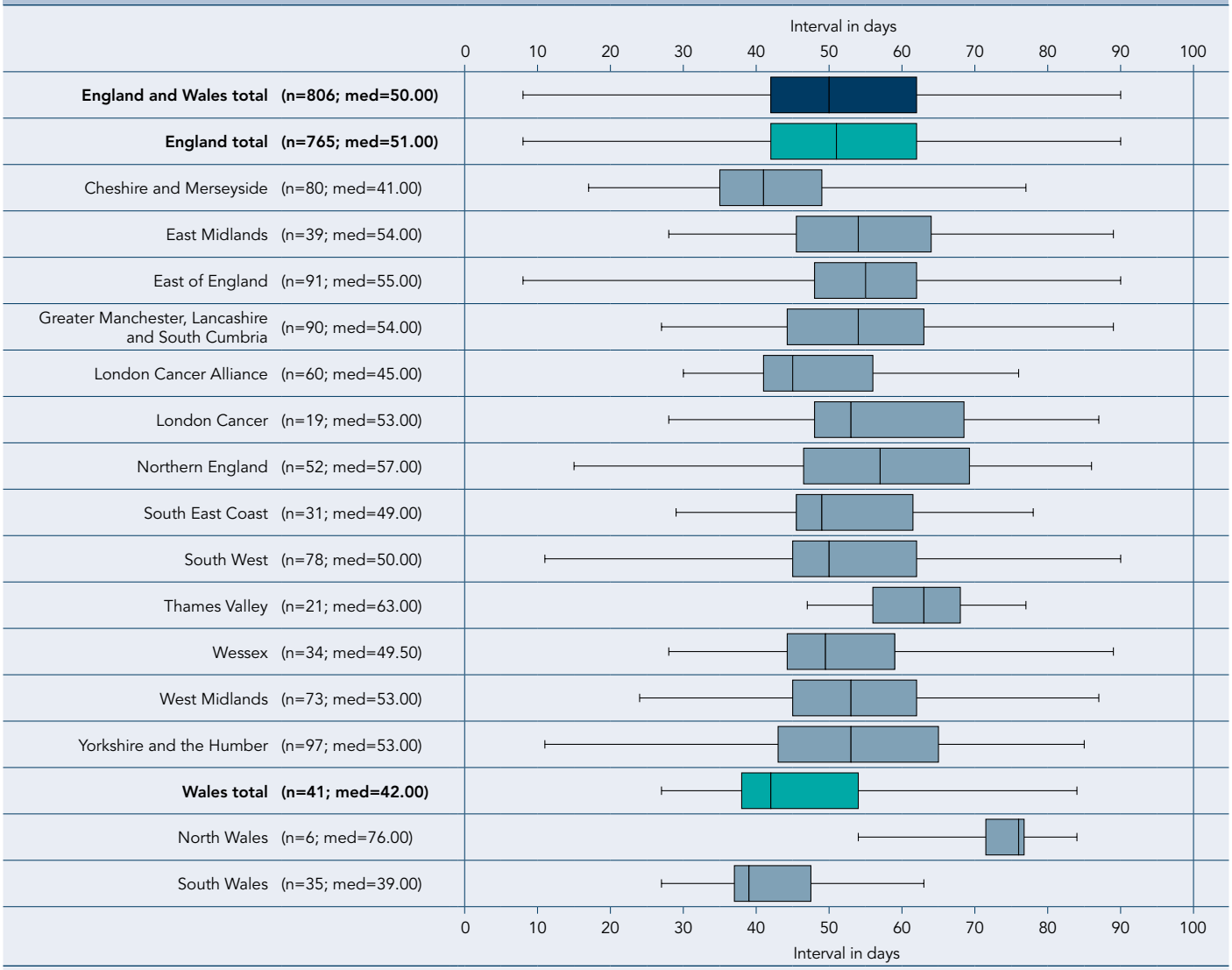
** Excluding C32.2, C32.3, C32.3A, C32.3B and C32.3C

	Unspecified procedure *	… with adjuvant radiotherapy		Median interval (days)
	n	n	%	n.n
Early larynx **	13	3	23.1	27.0
Advanced larynx **	19	3	15.8	55.0
Unknown stage larynx **	5	0	0.0	-

* Count of cases with any surgery recorded (including palliative intent) but no OPCS procedure codes recorded in any surgery record

** Excluding C32.2, C32.3, C32.3A, C32.3B and C32.3C

Figure 4.8.8
Interval from date of surgery to start date of post-operative radiotherapy – by MDT SCN/Network (larynx/OC/*pharynx/MSG)



* Cases where first radiotherapy date (including palliative intent) between 0 to 90 days (inclusive) after the first surgery date (any surgery, including palliative intent)

Data source: DAHNO

Tables: All diagnoses in year with surgery as a treatment

Chart: Larynx / oral cavity / pharynxes / major salivary gland diagnoses in audit year with radiotherapy date >= surgery date and having an MDT

Clinical comment:

The median interval in England and Wales is similar at 50.0 days for all anatomic sites (51.0 days ninth Annual Report, 53.0 days eighth Annual Report, 49.0 days seventh Annual Report). Of 4,267 patients undergoing surgery, 872 had postoperative radiotherapy equating to 20.4 per cent, consistent with the figure seen in the ninth and eighth Annual Reports, despite the expectation of the Expert Panel that this figure would be much higher. This figure has not been supplemented with RTDS data this year, but remains at a similar level to that seen in the ninth Annual Report when RTDS data was included.

Over six Annual Reports, timely access to radiotherapy has not significantly improved (see section 4.2.4). It remains a concern that patients are not receiving timely treatment at a median interval, but also that a significant number of patients beyond the median may be at risk of a poorer outcome from delays in the treatment and earlier diagnostic pathway.

In the subset of patients with larynx cancer treated by surgery in both early and late stage larynx, a reduced number of patients received post-operative radiotherapy. 17.5 per cent of patients in early larynx (19.6 per cent ninth Annual Report), whilst in advanced stage larynx this figure was 29.7 per cent (34.6 per cent in the ninth Annual Report). This could reflect the lack of RTDS data in this report.

In the subset of patients with oral cavity cancer treated by surgery in early stage disease 8.8 per cent of patients received adjuvant radiotherapy, whilst in late stage disease 30.3 per cent received this secondary treatment.

Of 223 larynx patients having total laryngectomy, a higher percentage had post-operative radiotherapy (67 patients, or 30.0 per cent compared to 24.8 per cent ninth Annual report).

In comparing the interval from date of surgery to the start of adjuvant radiotherapy, there is a significant variation in median time between those with the longest interval in North Wales (76.0 days) and Thames Valley (63.0 days) and the SCN/network with the shortest interval (South Wales), with a median of 39.0 days. The interpretation of the comparative data between SCNs/networks should be taken with some caution as the numbers from some are low (e.g. North Wales six cases), reflecting either variation of casemix, limited use of post-operative radiotherapy or poor data quality.

Only two SCNs/networks achieved a median interval less than 42 days, the recommended maximum interval between surgery and post-operative radiotherapy.

Recommendations:

SCNs/networks should review their treatment pathways to see if pre-surgical treatment process planning could reduce this interval in patients where the MDT has agreed post-surgery radiotherapy.

SCNs/networks with low returns of patients with post-surgical radiotherapy should ensure all eligible patients have their data submitted.

4.9 Clinical outcomes in the eighth and ninth Annual Report cohorts

Clinical outcomes are key aspects of this Audit. This section shows progress with measuring survival following diagnosis and after subsequent treatment as well as developments with casemix adjustment.

Audit question:

What proportion of patients are deceased within one, two, three and four years of their diagnosis and does this vary by anatomic sub-site, treatment and SCN/network?

Why is this important?

Death from head and neck cancer has multifactorial causation, identifying trends in different management strategies may help healthcare professionals involved in the delivery of head and cancer care develop the most appropriate pathways of care.

4.9.1 Death

The previous methodology described in the ninth Annual Report was used to supplement the Audit data with information from the Medical Research Information Service (MRIS) of deaths in this cohort. These are deaths occurring less than 12 months from diagnosis and are deaths from all causes equating to crude mortality.

Results:

4.9.1.1 Tenth Annual Report deaths recorded

Tables 4.9.1.1
Summary

	Total *	Deaths within 1 year of diagnosis (in-year)	
	n	n	%
All cohort *	8,408	965	11.5

* Cases where life status (dead/alive) has been confirmed at MRIS (08/12/2014)

	Larynx *	Oral cavity *	Oropharynx *	Hypopharynx *	Nasopharynx *	Major Salivary Glands *	Nasal Cavity and Sinus *	Bone Tumours - Mandible and Maxilla *	Total *
Number of deaths within one year of diagnosis (n)	183	312	233	101	16	43	55	22	965
Total number of cases (n) *	1,759	2,680	2,435	420	151	501	333	129	8,408
Proportion died within one year of diagnosis (%)	10.4	11.6	9.6	24.0	10.6	8.6	16.5	17.1	11.5

* Deaths within 1 year (0 to 365 days inclusive). Only includes cases where life status (dead/alive) has been confirmed at MRIS (08/12/2014)

4.9.1.2 Ninth annual report cohort – deaths within one year of diagnosis

Tables 4.9.1.2
Summary

	Total*	Deaths within 1 year of diagnosis	
	n	n	%
All cohort*	8,497	1,840	21.7

* Cases in tenth Annual Report cumulative extract diagnosed between November 2012 and October 2013 (inclusive). Only includes cases where life status (dead/alive) has been confirmed at MRIS (08/12/2014).

Updated number of deaths (crude death rate) within one year of diagnosis using data from ninth Annual Report, cohort with a date of diagnosis

	Larynx *	Oral cavity *	Oropharynx *	Hypopharynx *	Nasopharynx *	Major Salivary Glands *	Nasal Cavity and Sinus *	Bone Tumours - Mandible and Maxilla *	Total *
Number of deaths within 1 year of diagnosis	309	610	460	211	35	88	87	40	1,840
Total number of diagnoses	1,808	2,715	2,353	467	169	495	380	110	8,497
Proportion died within 1 year of diagnosis	17.1	22.5	19.5	45.2	20.7	17.8	22.9	36.4	21.7
Previously reported proportion deceased in previous Annual Report at close of extraction**	10.8	13.5	12.2	25.7	14.5	12.1	14.9	25.7	13.4

* Cases in tenth Annual Report cumulative extract diagnosed between November 2012 and October 2013 (inclusive). Only includes cases where life status (dead/alive) has been confirmed at MRIS (08/12/2014).

** The in-year death rates for the audit year in the ninth Annual Report are artificially low because only six weeks elapsed between the end of the study (31/10/2013) and the ONS death trace date (11/12/2013), which does not allow sufficient time to assess one-year post-diagnosis mortality.

4.9.1.3 Cumulative survival analysis by cohort

Tables 4.9.1.3
Cumulative four year survival analysis by submission cohort and anatomic sub-site

Primary site group	4-years crude survival (95% confidence intervals)								95% significance
	2008-09				2009-10				
	Total *	Survived *		95% CI	Total *	Survived *		95% CI	
	n	n	%		n	n	%		
Larynx	1,519	927	61.0	(58.5 - 63.4)	1,652	1,003	60.7	(58.3 - 63.0)	No sig diff
Oral Cavity	1,662	936	56.3	(53.9 - 58.7)	1,895	1,072	56.6	(54.3 - 58.8)	No sig diff
Oropharynx	1,523	905	59.4	(56.9 - 61.9)	1,920	1,161	60.5	(58.3 - 62.6)	No sig diff
Hypopharynx	350	111	31.7	(27.1 - 36.8)	387	129	33.3	(28.8 - 38.2)	No sig diff
Nasopharynx	180	108	60.0	(52.7 - 66.9)	197	112	56.9	(49.9 - 63.6)	No sig diff
Major Salivary Glands	413	221	53.5	(48.7 - 58.3)	451	274	60.8	(56.2 - 65.2)	No sig diff
Major Salivary Glands (exc M80703)	314	180	57.3	(51.8 - 62.7)	363	233	64.2	(59.1 - 68.9)	No sig diff
Total	**5,647**	**3,208**	**56.8**	**(55.5 - 58.1)**	**6,502**	**3,751**	**57.7**	**(56.5 - 58.9)**	**No sig diff**

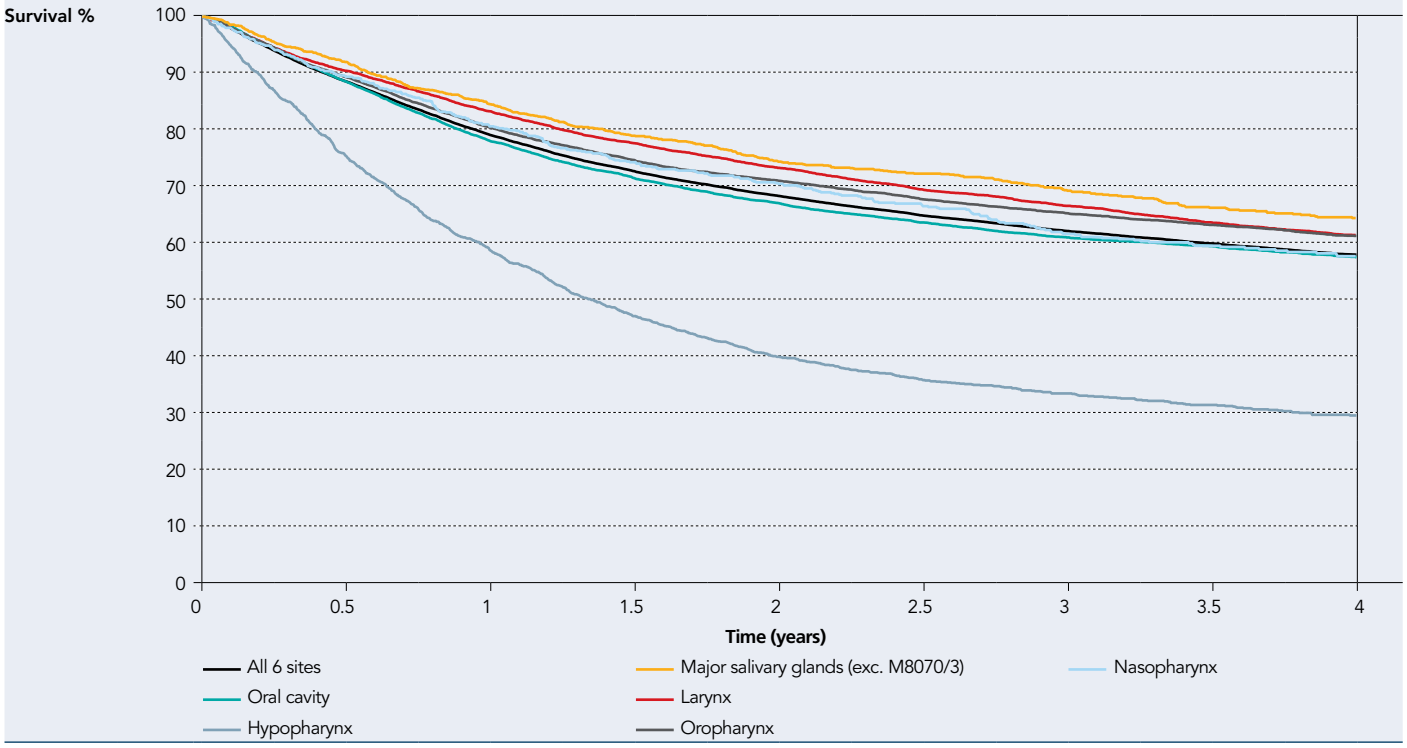
* Cases in tenth Annual Report cumulative extract diagnosed between November and October (inclusive) of the stated audit years. Only includes cases where life status (dead/alive) has been confirmed at MRIS (08/12/2014)

Cumulative four year survival analysis by submission cohort, anatomic sub-site and stage									
Primary site group	**2008-09**				**2009-10**				**95% significance**
Larynx **	**Total ***	**Survived ***		**95% CI**	**Total ***	**Survived ***		**95% CI**	
	n	**n**	**%**		**n**	**n**	**%**		
Early	549	421	76.7	(73.0 - 80.0)	651	489	75.1	(71.7 - 78.3)	No sig diff
Late	442	176	39.8	(35.4 - 44.5)	539	241	44.7	(40.6 - 48.9)	No sig diff
Unknown	503	314	62.4	(58.1 - 66.5)	438	258	58.9	(54.2 - 63.4)	No sig diff
Total Larynx	**1,494**	**911**	**61.0**	**(58.5 - 63.4)**	**1,628**	**988**	**60.7**	**(58.3 - 63.0)**	**No sig diff**
Oral Cavity	**Total ***	**Survived ***		**95% CI**	**Total ***	**Survived ***		**95% CI**	
Early	594	438	73.7	(70.1 - 77.1)	708	500	70.6	(67.2 - 73.9)	No sig diff
Late	565	213	37.7	(33.8 - 41.8)	691	284	41.1	(37.5 - 44.8)	No sig diff
Unknown	503	285	56.7	(52.3 - 60.9)	496	288	58.1	(53.7 - 62.3)	No sig diff
Total Oral Cavity	**1,662**	**936**	**56.3**	**(53.9 - 58.7)**	**1,895**	**1,072**	**56.6**	**(54.3 - 58.8)**	**No sig diff**
Oropharynx	**Total ***	**Survived ***		**95% CI**	**Total ***	**Survived ***		**95% CI**	
Early	149	97	65.1	(57.2 - 72.3)	225	166	73.8	(67.7 - 79.1)	No sig diff
Late	836	495	59.2	(55.8 - 62.5)	1134	663	58.5	(55.6 - 61.3)	No sig diff
Unknown	538	313	58.2	(54.0 - 62.3)	561	332	59.2	(55.1 - 63.2)	No sig diff
Total Oropharynx	**1,523**	**905**	**59.4**	**(56.9 - 61.9)**	**1,920**	**1,161**	**60.5**	**(58.3 - 62.6)**	**No sig diff**

* Cases in tenth Annual Report cumulative extract diagnosed between November and October (inclusive) of the stated audit years. Only includes cases where life status (dead/alive) has been confirmed at MRIS (08/12/2014).

** Excluding C32.3 (Laryngeal cartilage) and sub-sites, which are not TNM applicable

Figure 4.9.1.3
Cumulative four year survival analysis by anatomic sub-site (2009-10 to 2013-14)



4.9.1.4 Ninth Annual Report cohort - deaths recorded within one year of date of diagnosis

Tables 4.9.1.4
Summary

	Total *	Deaths within one year of date of diagnosis					
		England and Wales		England		Wales	
	n	n	%	n	%	n	%
All cohort	8,497	1,840	21.7	1,716	21.6	124	22.9

Ninth Annual Report cohort - deaths recorded within one year of date of diagnosis - crude death rate by diagnosing SCN/network

Diagnosis SCN/Network		Proportion died within one year of date of diagnosis (%)								
		Larynx *	Oral cavity *	Oropharynx *	Hypopharynx *	Nasopharynx *	Major Salivary Glands *	Nasal Cavity and Sinus *	Bone Tumours - Mandible and Maxilla *	Total *
N50	Cheshire and Merseyside	26.3	18.3	22.9	50.0	0.0	30.8	46.7	66.7	26.1
N55	East Midlands	16.9	24.9	12.5	41.7	27.8	15.4	31.6	16.7	20.5
N54	East of England	14.5	18.7	17.5	48.5	22.2	18.2	31.3	25.0	19.6
N51	Greater Manchester, Lancashire and South Cumbria	18.0	23.7	24.7	35.3	18.2	20.0	6.5	70.0	23.0
N40	London Cancer Alliance	18.3	19.9	23.0	42.1	0.0	13.3	21.6	27.3	20.7
LC	London Cancer	24.0	18.8	20.7	50.0	50.0	11.8	16.7	0.0	21.4
N52	Northern England	10.2	20.9	15.8	44.0	0.0	11.9	7.7	16.7	17.3
N58	South East Coast	19.8	24.2	20.8	54.2	33.3	26.1	32.0	45.5	24.6
N57	South West	12.1	25.8	15.2	52.0	30.8	25.6	19.4	66.7	20.7
N59	Thames Valley	22.6	21.0	12.8	33.3	28.6	8.7	12.0	18.8	18.0
N60	Wessex	15.8	22.1	13.6	52.8	0.0	13.6	12.5	100.0	20.2
N56	West Midlands	20.5	22.5	24.7	37.5	7.7	15.8	30.3	36.4	23.6
N53	Yorkshire and the Humber	15.9	25.9	19.6	48.4	27.3	15.1	25.8	14.3	23.0
	England total	**17.5**	**22.4**	**19.2**	**45.5**	**19.6**	**17.2**	**22.5**	**36.4**	**21.6**
NWW	North Wales	*	*	31.7	*	*	*	*	0.0	19.8
SWCN	South Wales	*	*	20.9	*	*	*	*	0.0	23.9
	Wales total	**12.1**	**23.5**	**23.4**	**42.1**	**36.4**	**29.2**	**30.0**	**0.0**	**22.9**
	England and Wales total	**17.1**	**22.5**	**19.5**	**45.2**	**20.7**	**17.8**	**22.9**	**36.4**	**21.7**

* (asterisk) in table cell = small number between 1-4 [primary suppression] or another number (including zero) selected for secondary suppression (i.e. to ensure that the primary suppression cannot be derived by subtraction).

4.9.2 Treatment related deaths

Tables 4.9.2
Summary

	Total	Deaths within 30 days *		Deaths within 90 days *	
	n	n	%	n	%
Surgery as first treatment **	4,200	72	1.7	114	2.7
Non-surgical treatment as first treatment ***	2,699	61	2.3	140	5.2
Palliative care as first treatment ****	336	67	19.9	143	42.6
Total	**7,235**	**200**	**2.8**	**397**	**5.5**

* Death within 30/90 days of latest procedure date/treatment start date or Did Patient Die Prior To Discharge = yes. Did Patient Die Prior To Discharge is only collected on surgery records.

** Cases having any surgery recorded as first treatment (including palliative intent)

*** Cases having any chemo/radio/chemoradio recorded as first treatment (including palliative intent)

**** Cases having palliative care start date recorded as first treatment (not including surgery/chemo/radio/chemoradio with palliative intent)

Treatment Intent Breakdown

	Total	Deaths within 30 days *		Deaths within 90 days *	
	n	n	%	n	%
Surgery as first treatment **	4,200	72	1.7	114	2.7
...with curative intent	3,407	54	1.6	81	2.4
...with diagnostic/staging intent	377	8	2.1	16	4.2
...with palliative intent	30	4	13.3	6	20.0
...with neoadjuvant intent	9	0	0.0	0	0.0
...with adjuvant intent	27	1	3.7	1	3.7
...with no intent recorded	350	5	1.4	10	2.9
Non-surgical treatment as first treatment * **	**2,699**	**61**	**2.3**	**140**	**5.2**
...with curative intent	1,814	23	1.3	65	3.6
...with diagnostic/staging intent	0	0	0.0	0	0.0
...with palliative intent	275	23	8.4	48	17.5
...with neoadjuvant intent	215	5	2.3	6	2.8
...with adjuvant intent	73	3	4.1	5	6.8
...with no intent recorded	322	7	2.2	16	5.0
Palliative care as first treatment	336	67	19.9	143	42.6
Total	7,235	200	2.8	397	5.5

* Death within 30/90 days of latest procedure date/treatment start date or Did Patient Die Prior To Discharge = yes, where surgery was first treatment. Did Patient Die Prior To Discharge is only collected on surgery records.

** Cases having any surgery recorded as first treatment (including palliative intent). The treatment intent has been taken from the first surgery record.

*** Cases having chemo/radio/chemoradio treatment recorded as first treatment (including palliative intent). The treatment intent has been taken from the first non-surgical treatment record.

Number of treatment related deaths (to include death within 30 days of surgery and/or within the same admission and within 30 or 90 days of chemotherapy/ radiotherapy/chemoradiotherapy)

	Tenth Annual Report	Ninth Annual Report ****	Eighth Annual Report ****
	n	n	n
Deaths within 30 days of diagnosis			
Number of reported deaths within 30 days of diagnosis or with discharge destination 'death' after surgery as first treatment ***	177	161	169
Deaths following surgery as first treatment *			
Number of reported deaths within 30 days of surgery or with discharge destination 'death' after surgery as first treatment	72	52	54
… following surgery with curative intent as first treatment	54	41	41
… following diagnostic surgery as first treatment	8	4	4
… following surgery with palliative intent as first treatment	4	2	5
…with surgery with neoadjuvant treatment intent as first treatment	0	0	0
…with surgery with adjuvant treatment intent as first treatment	1	1	0
… following surgery as first treatment with no treatment intent recorded	5	4	4
Total number of patients with recorded curative intent as first treatment in surgery table	3,407	3,154	3,089
Deaths following non-surgical treatment as first treatment **			
Number of reported deaths within 30 days of radiotherapy as first treatment ***	36	37	28
...within 90 days of radiotherapy as first treatment	84	96	83
... within 30 days of chemotherapy as first treatment	15	10	13
...within 90 days of chemotherapy as first treatment	31	28	26
...within 30 days of chemoradiotherapy as first treatment	10	6	5
...within 90 days of chemoradiotherapy as first treatment	25	30	22

* Cases having surgery as first treatment (including palliative intent). The treatment intent has been taken from the first surgery record.

** Including cases having radio/chemo/chemoradio as first treatment (including palliative intent).

*** Discharge destination is not collected on non-surgical treatment records, so title changed from last year.

**** It is apparent that the methodology for this measure has changed over the years, so previous results may not be directly comparable with each other.

To enable a direct comparison of mortality counts at the point of data extract, eighth and ninth Annual Report cohort results have been re-calculated from their contemporaneous extracts.

Clinical comment:

Tenth Annual Report cohort:

Of the 8,408 eligible cases, 965 patients were identified as deceased (11.5 per cent) within the tenth Annual Reporting period, with 8 December 2014 taken as the point of analysis. This is death from 0-365 days after diagnosis. Note that the in-year death rate is artificially low because only 6 weeks elapse between the end of the study (31 October 2014) and the MRIS death trace date (8 December 2014), which does not allow sufficient time to fully assess one-year post-diagnosis mortality.

In-year death rates have varied year on year with the ninth Annual Report having 13.4 per cent and the eighth Annual Report 12.5 per cent, so the previously reported plateau appears incorrect.

A comparison across different anatomic sites shows, as expected, the greatest proportion of deaths at almost double the overall rate occurring in hypopharynx cancer (24.0 per cent) and an almost 50 per cent higher rate in nasal cavity and sinuses (16.5 per cent).

There is variation in crude death rates between SCNs/networks with the in-year crude death rate varying from 7.4 per cent to 15.4 per cent with the England and Wales rate being 11.5 per cent.

Examining the three most common anatomic sites (larynx, oral cavity and oropharynx) there was again considerable variation amongst SCNs/networks. Excluding North Wales which has a low number of total cases, larynx crude mortality ranged from 6.0 per cent to 15.6 per cent, oral cavity from 6.9 per cent to 17.6 per cent and oropharynx from 3.0 per cent to 14.0 per cent. A variety of factors are likely to contribute to this variation. To make a true comparison, a robust risk adjustment model needs to be followed, which requires comprehensive submission of the applicable risk factors. The overall improvement in data quality for the tenth Annual Report has allowed risk adjustment mortality modelling for the first time (see section 4.10 below).

Updated crude mortality on the ninth Annual Report cohort:

The ninth Annual Report cohort mortality data was updated by supplementation with MRIS data to allow the consideration of full one year crude death rate, giving a true one year crude mortality rate. The one year rate for the ninth Annual Report cohort is 21.7 per cent for England and Wales, a slight deterioration on the previous two years, 20.3 and 21.6 per cent respectively. Whilst the crude death rate for oral cavity and larynx is very similar to the last report, there has been an increase from 17.8 per cent (confidence interval 16.3 to 19.4 per cent at the 95 per cent confidence level) to 19.5 per cent (confidence interval 18.0 to 21.2 per cent) in oropharynx, which refutes the previous moderate evidence of a trend of improvement in survival. This needs to be considered in light of the absence of casemix adjustment and standardisation. In the remaining anatomic sites the numbers are relatively small and year-to-year variation could be expected.

Two, three and four year survival analysis:

Four year survival is reported for the first time. For the 2008-9 cohort this was 56.8 per cent (confidence interval 55.1 to 58.1 per cent) and for the 2009-10 cohort 57.7 per cent (confidence interval 56.5 to 58.9 per cent). This is further broken down in larynx, oral cavity and oropharynx into cumulative survival by early and late disease. Thus for patients there is a six in ten chance that they will be alive four years after diagnosis.

When comparing two, three and four year survival there is consistency year-on-year in cumulative survival rates. In comparing between two and three year survival, there is approximately a 7.0 per cent reduction in survival between two and three years, and a 4.2 per cent reduction between three and four years suggesting that co-morbidities may be influencing deaths rather than just disease progression. Many of the deaths from disease occur in the first 18 months following diagnosis and therefore the survival figures for those who reach this landmark are considerably better (conditional survival). The NCIN Head and Neck SSCRG is currently producing information on conditional survival to support patients as part of the 'Survivorship' agenda.

When comparing early versus late stage disease in larynx, oral cavity and oropharynx, there is a consistency in four year survival rates between the year cohorts. The importance of stage is demonstrated by, in larynx, a 30.4 per cent difference in four year survival (75.1 per cent early stage and 44.7 per cent late stage). In oral cavity a similar 29.5 per cent difference was seen (70.6 per cent to 41.1 per cent). In oropharynx the effect is less marked with around a 15.3 per cent worse four year survival in late stage disease (73.8 per cent to 58.5 per cent). In larynx, oral cavity and oropharynx similar stage related differences are seen at two and three years.

The consistency within this data allows MDTs and commissioners to have a ready source of expected outcomes data, clinicians can more easily engage patients in discussions about likely outcomes based on early and late stage comparators.

When looking at the ninth Annual Report cohort and comparing deaths recorded within one year of date of diagnosis to formulate a crude death rate by SCN/network, the values produced should be considered cautiously. Crude death rate reflects death from any cause (not just cancer) and cannot be considered in isolation as a marker of the impact of any treatment received, nor of the efficacy of services. No adjustments to the figures have been made and each SCN/network will vary in its casemix and the background health of individuals presenting with cancer. In addition the cancer anatomic sub-sites vary in their mortality rates and thus variation in case distribution by SCN/network will impact on mortality outcomes. Despite these limitations this data provides useful information on the geographic variation in outcome. The submission by MDTs of casemix variables will better allow this variation to be examined and true risk adjusted outcomes defined.

For the tenth Annual Report an overview of casemix has been applied with confidence intervals, looking at the key variables of; significant co-morbidity, poor performance status, advanced age, marked deprivation and a higher proportion of late stage at presentation, which can be found in section 4.6.5.

Treatment related deaths

In considering treatment related deaths within 30 and 90 days, it needs to be recognised that performing complex treatments in a predominately elderly population with significant co-morbidities will inevitably lead to some deaths in the peri-treatment period. Overall head and neck surgery remains safe, with 72 peri-operative deaths, of which 54 were in 3,407 surgical procedures carried out with curative intent (1.6 per cent). 114 patients died within 90 days of surgery (2.7 per cent), of which 81 were with curative intent. The surgical group included a small number of patients treated with palliative intent (0.7 per cent).

For non-surgical treatment, of the 2,699 patients recorded who underwent radiotherapy, chemotherapy or chemoradiotherapy, there were 61 deaths within 30 days (2.3 per cent) and 140 deaths at 90 days (5.2 per cent). The non-surgical group included patients treated with palliative intent (10.2 per cent).

These results show a continued improvement over those seen in the eighth and ninth Annual Reports. The largest decrease in deaths in the non-surgical group was for those having radiotherapy alone, the time frame for this decrease has coincided with the development of acute oncology services.

Additional analyses:

Cumulative survival analysis by submission cohort and anatomic sub-site, three years

Cumulative survival analysis by submission cohort and anatomic sub-site, two years

4.10 Casemix adjusted mortality

Why is this important?

Casemix adjusted mortality ratios provide a more meaningful way to compare outcomes between SCNs/networks. Crude rate comparison is a legitimate first step, but a casemix adjusted comparison allows SCNs/networks to be measured once the characteristics of the patients they have seen are taken into account. SCNs/networks are therefore not penalised for having seen patients more likely to experience poor outcomes due to factors outside their control.

Deriving Models

Logistic regression models to calculate the risk of death within 90 days of diagnosis have been derived from the data for patients diagnosed across three audit years, from November 2011 to October 2014. These models have been used to calculate the expected mortality for diagnosing networks for July 2013 to June 2014. This has then been compared with the observed number of deaths to calculate a standardized mortality ratio (SMR) which has been tested for significance against 99.8% confidence limits. This allows SCNs/networks to be scored as to whether the mortality rate falls outside expected levels.

The following predictive variables were considered for inclusion in the models:

- Histology
  - Squamous carcinoma NOS, Other histology, Unknown
- Final pre-treatment stage
  - Early, Late, Staging not applicable, Unknown
- Initial performance status
  - Normal (PS0), Restricted (PS1), High (PS2-4), Unknown (PS9 or not recorded)
- Comorbidity index
  - None (0), Mild (1), Moderate/Severe (2-3), Unknown (9 or not recorded)
- Age at diagnosis
- Sex
- Audit year

Models were created for larynx, oral cavity and oropharynx primary sites. Backwards elimination was applied to rule out variables which didn't have a significant effect on the outcome. Three variables were consistently significant across the three site models: age, stage, and performance status.

Using these three variables gave good predictive power and a consistent model across the sites. Reducing the variables to these also minimised co-linearity. Co-linearity occurs where two or more variables are related to each other to the extent that they skew the predictive power they each bring independently to the model.

Data where the model outcome is unknown cannot be used in the analysis. Where it was unknown if a patient was alive or dead after 90 days, the record was not used.

Within the November 2011 to October 2014 data used to derive the model there were 20,597 records, 19,164 (93.0 per cent) of which could be used in the modelling. Many of the excluded records were for the final four months of the data period where insufficient time had elapsed to confirm survival at 90 days.

Modelling relies on the predictive variables being as complete as possible. Field completion has improved over recent years, but there still remain a number of records where stage and performance status are classed as 'unknown' for modelling purposes. As data quality continues to rise in future audit periods the quality of models is also expected to improve. Variables not currently significant predictors may prove to become so as completion rates increase, and those that are currently used are likely to see improvements in their predictive power.

The intention was to evaluate the diagnosing SCN/network's 90 day mortality performances over the most recent 12 months of data. As many records in the complete year would need to be excluded due to it being unknown whether the patient died or not, data for the final third of the 2012/13 audit period has been combined with the first two thirds of 2013/14 data, and this has been used for comparative analysis.

Within this data the model can be applied to 99.9 per cent of records; this varies little between primary sites and SCNs/networks.

C statistics give an overall measure of the quality of the models. C Statistic values range from 0.5 to one, where 0.5 corresponds to the model randomly predicting the outcome (and therefore being of no value) and one corresponds to the model perfectly predicting the outcome. The values of the three models used here, all shown in Table 4.10.1 are all over 0.8 indicating a model with good predictive power.

Applying models to SCNs/networks

Models were applied to records of each diagnosing SCN/network from July 2013 to June 2014 to calculate the expected number of deaths within 90 days of diagnosis. The SMR has been calculated by dividing the observed number of deaths by the expected number and multiplying by 100. Each SMR has been compared to the 99.8% Poisson control limits for the corresponding expected value to evaluate whether the mortality for each SCN/network is within the anticipated range. The results for each SCN/network by primary site are given in Table 4.10.1b. Where the expected number is less than five the validity of assigning a band is questionable; as the control limits become very large and the chance of random variation resulting in an observed value of zero increases, which will always result in the SCN/network being deemed to have a mortality rate lower than expected.

Results:

Table 4.10.1a
C Statistics for model

Primary Site	Data for November 2011 to October 2014				Data for July 2013 to June 2014	
	All Records	Records valid for use in the model	Deaths in valid records *	C Statistic of model	Records scored	Deaths in scored data *
Larynx	5,479	5,114	285	0.835	1,782	94
Oral Cavity	7,996	7,424	409	0.813	2,697	154
Oropharynx	7,122	6,626	324	0.808	2,469	135

* Deaths between 0 and 90 days after diagnosis (inclusive)

Table 4.10.1b
Standardised mortality ratio by diagnosing SCN/network

Primary Site	Code	Diagnosis SCN/network	Case ascertainment *	Records for scoring	Expected deaths **	Observed deaths **	Standardised Mortality Ratio (SMR)	Banding at 99.8% control limits (where expected deaths >= 5.0)
Larynx	N50	Cheshire and Merseyside	>=80%	104	6.9	7	101.3	Expected
	N55	East Midlands	>=80%	120	7.3	8	109.8	Expected
	N54	East of England	<80%	148	8.5	8	94.3	Expected
	N51	Greater Manchester, Lancashire and South Cumbria	>=80%	210	11.9	7	59.1	Expected
	N40	London Cancer Alliance	>=80%	140	6.9	7	102.1	Expected
	LC	London Cancer	>=80%	81	5.4	9	167.4	Expected
	N52	Northern England	>=80%	115	6.0	4	66.8	Expected
	N58	South East Coast	<80%	97	4.7	0	0.0	-
	N57	South West	>=80%	122	6.8	8	118.0	Expected
	N59	Thames Valley	>=80%	53	3.2	2	61.6	-
	N60	Wessex	>=80%	79	3.5	5	142.5	-
	N56	West Midlands	>=80%	188	10.6	17	161.0	Expected
	N53	Yorkshire and the Humber	>=80%	213	9.0	9	100.0	Expected
	NWW	North Wales	>=80%	28	1.9	2	106.4	-
	SWCN	South Wales	>=80%	84	3.0	1	33.0	-
Oral Cavity	N50	Cheshire and Merseyside	>=80%	157	7.5	16	212.7	Expected
	N55	East Midlands	>=80%	184	10.8	10	92.8	Expected
	N54	East of England	<80%	251	13.2	10	76.0	Expected
	N51	Greater Manchester, Lancashire and South Cumbria	>=80%	275	17.1	17	99.2	Expected
	N40	London Cancer Alliance	>=80%	229	11.5	6	52.3	Expected
	LC	London Cancer	>=80%	110	5.7	2	35.2	Expected
	N52	Northern England	>=80%	144	6.9	10	144.6	Expected
	N58	South East Coast	<80%	156	8.3	9	108.0	Expected
	N57	South West	>=80%	218	14.5	15	103.7	Expected
	N59	Thames Valley	>=80%	115	4.6	5	109.7	-
	N60	Wessex	>=80%	129	7.3	8	109.8	Expected
	N56	West Midlands	>=80%	239	11.7	11	94.0	Expected
	N53	Yorkshire and the Humber	>=80%	329	21.2	25	117.7	Expected
	NWW	North Wales	>=80%	40	2.5	2	80.6	-
	SWCN	South Wales	>=80%	121	7.8	8	102.1	Expected
Oropharynx	N50	Cheshire and Merseyside	>=80%	153	7.5	8	107.4	Expected
	N55	East Midlands	>=80%	148	6.3	5	78.8	Expected
	N54	East of England	<80%	243	14.1	14	99.4	Expected
	N51	Greater Manchester, Lancashire and South Cumbria	>=80%	256	12.9	15	116.6	Expected
	N40	London Cancer Alliance	>=80%	146	7.1	11	154.0	Expected
	LC	London Cancer	>=80%	105	4.5	5	111.7	-
	N52	Northern England	>=80%	177	9.0	6	67.0	Expected
	N58	South East Coast	<80%	139	7.2	9	124.9	Expected
	N57	South West	>=80%	216	9.0	16	177.7	Expected
	N59	Thames Valley	>=80%	79	2.6	3	115.3	-
	N60	Wessex	>=80%	121	5.1	7	138.0	Expected
	N56	West Midlands	>=80%	240	12.9	19	147.9	Expected
	N53	Yorkshire and the Humber	>=80%	275	13.1	13	99.5	Expected
	NWW	North Wales	>=80%	29	1.4	2	144.6	-
	SWCN	South Wales	>=80%	142	6.1	2	32.7	Expected

* Case ascertainment for all DAHNO cases (Larynx, Oral Cavity and Oropharynx, plus Hypopharynx, Nasopharynx, Major Salivary Glands, Nasal Cavity and Sinus and Bone tumours - Mandible and Maxilla.

** Deaths between 0 and 90 days after diagnosis (inclusive).

* Case ascertainment for all DAHNO cases (Larynx, Oral Cavity and Oropharynx, plus Hypopharynx, Nasopharynx, Major Salivary Glands, Nasal Cavity and Sinus and Bone tumours - Mandible and Maxilla.

** Deaths between 0 and 90 days after diagnosis (inclusive).

Clinical comment:

In the comparison period no SCN/network fell outside expected range in its crude casemix adjusted outcome. At present the model has some limitations due to incomplete recording of casemix data but this is steadily improving year on year. It is another further important step in casemix adjusted outcomes being applied to the Audit data.

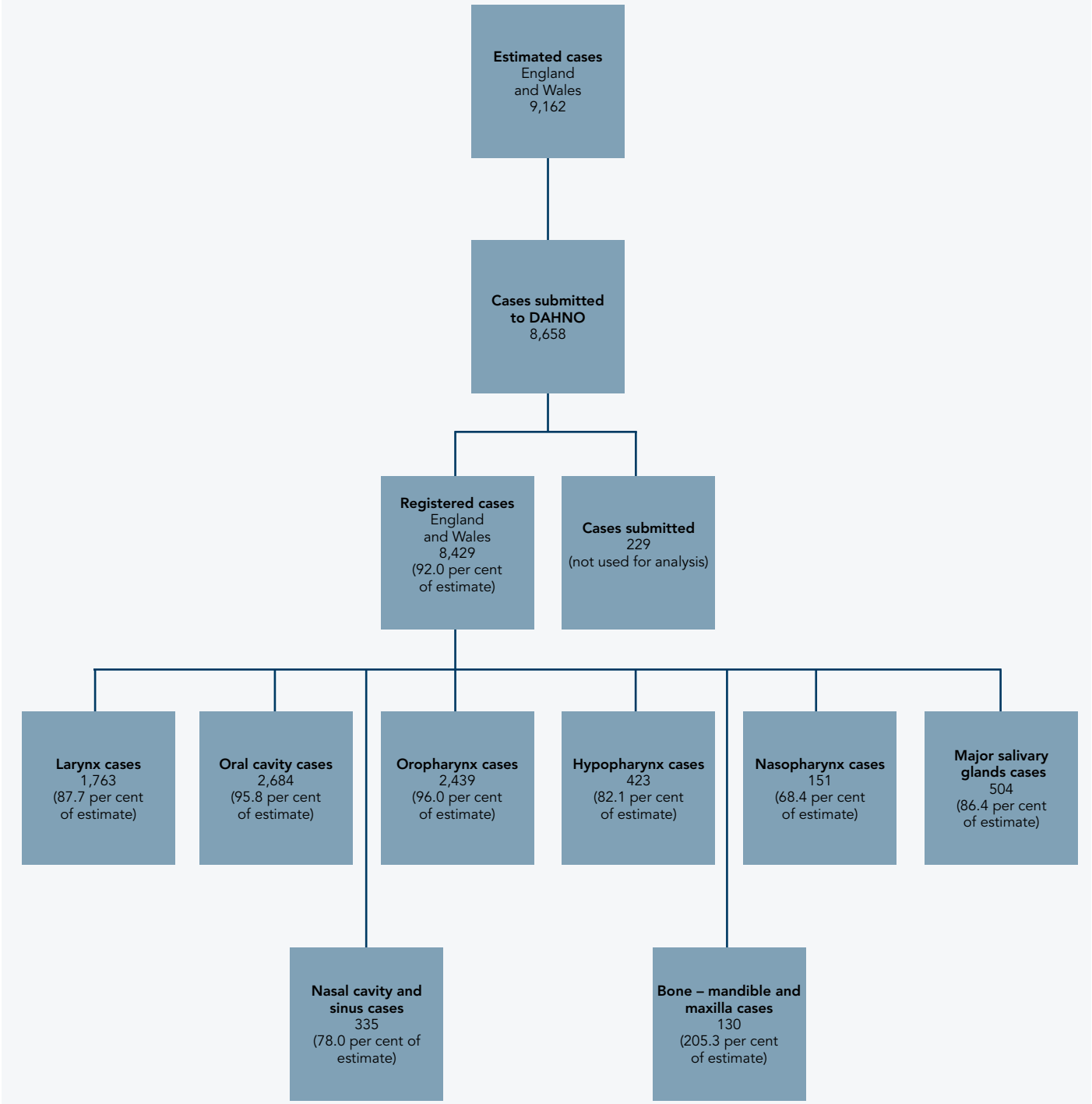
Recommendations:

Regression models can also be derived for deaths within one year of diagnosis. Some exploratory work has been carried out on this, but with the current data more records are excluded due to data incompleteness than for 90 day mortality. As data completeness increases with time it is anticipated that in the future this will be less of an issue and more robust modelling and scoring will be possible.

Models can be derived for other primary sites, but due to smaller numbers of patients the value of scoring over one year's worth of data is limited. Increasing the time period scored may mitigate this and is something to be considered in the future, particularly once further, more complete data is collected.

Appendix 1

Analysis of submitted cases (tumours) against estimate by anatomic group site



Appendix 2

Clinical Lines of Enquiry (2012) and derivation from Audit data fields

The Clinical Lines of Enquiry below are those introduced to support the 2012 / 2013 Peer Review Programme, and were in place during the collection period.

CLE national indicators

1. Percentage of new cases of head and neck cancer discussed at MDT*
2. Percentage of new cases of head and neck cancer discussed at MDT* where recorded T, N and M staging category is evident
3. Percentage of cases of new head and neck cancer* where the interval from biopsy to reporting is less than ten days
4. Percentage of new cases of head and neck cancer* where confirmed as seen by a Clinical Nurse Specialist (CNS) prior to commencement of treatment
5. Percentage of new cases of head and neck cancer* confirmed as having any pre-operative/pre-treatment (includes radio and chemotherapy) dietetic assessment
6. Percentage of new cases of head and neck cancer* confirmed as having any pre-operative/pre-treatment dental assessment

New cases * as denominator are calculated from the Trust submissions with a date of diagnosis in the index period, and where an included anatomic site and valid histological diagnosis are entered.

[*Relates to cancers of the larynx, oral cavity, oropharynx, nasopharynx, hypopharynx and nasal cavity, sinus, bone and major salivary glands matching to DAHNO inclusion criteria.]

Appendix 3: Head and Neck Site Specific Clinical Reference Group Membership

2014 Membership of DAHNO/NCIN Head and Neck SSCRG and Professional and Charitable Bodies Represented		
Chair SSCRG	Richard Wight	National Audit Chair
Cancer Registry	Monica Roche	Public Health England - South East Knowledge and Intelligence Team
NCIN	Nicky Coombes	SSCRG Programme Manager
NCIN - COSD	Trish Stokes	Cancer Outcomes Datasets
Peer Review	Lucy Evans	National Cancer Peer Review Team
HSCIC - DAHNO	Julie Michalowski	HSCIC, Clinical Audit Support Unit
Consumer	Christine Allmark	National Cancer Research Institute
Voluntary Sector 1	Malcolm Babb	National Association of Laryngectomy Clubs
Voluntary Sector 2	Iain Hutchison	Saving Faces
Clinical Psychology	Elspeth Desert	Clinical Psychology
Surgery - ENT	Mark Watson	ENT UK Head and Neck
Nursing	Lynda Farmer	British Association of Head and Neck Oncology Nurses
Oncology – Clinical	Amanda Salisbury	Head and Neck Oncology
Palliative Care	Ged Corcoran	Palliative Care Association
Pathology - Oral	Edward Odell	British Oral and Maxillofacial Pathology Association
Radiology	Julie Olliff	Royal College of Radiologists
Restorative Dentistry	Lorna McCaul	Association of Consultants and Specialists in Restorative Dentistry
BAHNO	Cyrus Kerawala	BAHNO Council Member
DAHNO	Graham Putnam	Vice Chair of National Audit
Surgery - Oral and Maxillofacial Surgery	Austen Smith	British Association of Oral and Maxillofacial Surgeons
Therapies - Dietetics	Rachael Donnelly	British Dietetic Association
Therapies - Speech and Language	Jane Thornton	Royal College of Speech and Language Therapists
Thyroid Sub-group chair	David Chadwick	Thyroid Working Group

Appendix 4

Number of registered new head and neck primaries by subsite			
Site	**Subsite**	**Total**	**Cumulative cases from audit inception**
Larynx	Glottis	970	7,700
	Supraglottis	380	3,404
	Larynx Unspecified	357	2,707
	Subglottis	42	355
	Laryngeal Cartilage	14	229
	Total	**1,763**	**14,395**
Oral cavity	Tongue	1,247	7,736
	Cheek Mucosa	224	1,516
	Floor of Mouth	496	3,172
	Hard Palate	109	811
	Lip Inner Aspect	106	867
	Mouth Unspecified	95	511
	Retromolar Area	169	1,175
	Upper and Lower Gingivae	219	1,411
	Vestibule of Mouth	19	293
	Total	**2,684**	**17,492**
Oropharynx	Base of Tongue	676	4,042
	Lateral Wall	29	184
	Oropharynx Unspecified	244	1,273
	Posterior Wall (Oropharynx)	32	219
	Soft Palate	183	1,127
	Tonsil	1,209	6,544
	Uvula	24	170
	Vallecula	42	175
	Total	**2,439**	**13,734**
Hypopharynx	Aryepiglottic Fold	17	101
	Overlapping Lesion Hypopharynx	123	760
	Piriform Sinus	206	1,374
	Postcricoid Region	53	372
	Posterior Wall (Hypopharynx)	24	210
	Total	**423**	**2,817**
Nasopharynx	Nasopharynx	151	1,170
	Total	**151**	**1,170**
Major Salivary Glands	Major Salivary Glands	504	2,950
	Total	**504**	**2,950**
Nasal Cavity and Sinus	Cartilage and Septum Nose	196	624
	Maxillary Sinus	98	325
	Ethmoidal Sinus	23	65
	Frontal Sinus	3	9
	Sphenoidal Sinus	4	22
	Accessory Sinus	11	37
	Total	**335**	**1,082**
Bone Tumours - Mandible and Maxilla	Bones of Skull and Face	31	99
	Bones of Mandible	99	267
	Total	**130**	**366**
England and Wales		**8,429**	**54,006**

Appendix 5

Head and neck cancer histological diagnoses reported

	M80203 Un-differentiated carcinoma	M80413 Small cell carcinoma	M80703 Squamous cell carcinoma (Not Otherwise Specified)	M80713 Keratinising squamous carcinoma	M80513 Verrucous carcinoma	M80723 Non-keratinising squamous carcinoma	Squamous cell carcinoma variants	M81403 Adenocarcinoma, not otherwise specified	M82003 Adenoid cystic carcinoma	M84303 Mucoepidermoid carcinoma	M85503 Acinic cell carcinoma	M89413 Carcinoma in pleomorphic adenoma (malignant mixed tumour)	Other salivary variants	Other	Blank	Total
Larynx	3	4	1,508	69	4	4	9	1	0	0	1	0	4	19	137	1,763
Oral Cavity	0	2	2,316	84	26	8	4	18	25	30	6	1	17	28	119	2,684
Oropharynx	6	4	2,028	65	4	50	6	9	17	14	4	0	10	16	206	2,439
Hypopharynx	1	1	362	18	0	1	2	0	0	0	0	0	0	2	36	423
Nasopharynx	19	0	84	4	0	12	0	3	3	0	0	0	2	2	22	151
Major Salivary Glands	9	8	97	1	0	0	0	61	46	67	59	32	50	7	67	504
Nasal Cavity and Sinus	17	3	175	9	0	5	1	32	9	1	1	0	7	19	56	335
Bone Tumours - Mandible and Maxilla	0	0	88	2	1	0	1	0	1	5	0	0	2	13	17	130
Total	**55**	**22**	**6,658**	**252**	**35**	**80**	**23**	**124**	**101**	**117**	**71**	**33**	**92**	**106**	**660**	**8,429**

Grouped histologies	
Squamous cell carcinoma variants	M80753 : Adenoid squamous carcinoma; M80743 : Spindle cell squamous carcinoma; M80333: Pseudosarcomatous carcinoma
Other salivary variants	M85003 : Salivary duct carcinoma; M85253 : Polymorphous low grade adenocarcinoma; M85603 : Adeno-squamous carcinoma; M85623 : Epithelial-myoepithelial carcinoma; M81473 : Basal cell adenocarcinoma; M84803 : Mucinous adenocarcinoma; M82903: Oncocytic carcinoma
Other	M09503: No microscopic confirmation, clinically malignant tumour; M09506: No microscopic confirmation, clinically metastatic tumour; M84203: Ceruminous adenocarcinoma; M88903: Leiomyosarcoma; M89003: Rhabdomyosarcoma; M92203: Chondrosarcoma NOS; M92603: Ewings Sarcoma; M92703: Odontogenic, tumour malignant; M92903: Ameloblastic odontosarcoma; M93103: Ameloblastoma, malignant; M93303: Ameloblastic fibrosarcoma; M95223: Olfactory neuroblastoma; M95803: Granular cell tumour of bone, malignant;

Appendix 6: Membership

National Head and Neck Cancer Audit – Expert Panel Membership	
Richard Wight (Chair)	Consultant ENT Surgeon, South Tees Hospitals, NHS Foundation Trust
Graham Putnam	Consultant Oral and Maxillo-facial Surgeon, North Cumbria University Hospitals Trust
Ceri Hughes	Consultant Oral and Maxillo-facial Surgeon, University Hospitals Bristol NHS Foundation Trust
Mark Watson	Consultant ENT Surgeon, Doncaster and Bassetlaw Hospitals NHS Foundation Trust
Stuart Winter	Consultant ENT Surgeon, Oxford University Hospitals NHS Trust
Cyrus Kerawala	Consultant Oral and Maxillo-facial Surgeon, The Royal Marsden NHS Foundation Trust
Joanne Patterson	National Institute for Health Research Clinical Lecturer, City Hospitals Sunderland NHS Foundation Trust
Anne Hurren	Senior lecturer, Speech and Language Therapy, Leeds Beckett University
Rachael Donnelly	Principal Macmillan Head and Neck Dietitian, Guys and St Thomas' NHS Foundation Trust
Pippa Lowe	Head and Neck Oncology Dietitian, Guys and St Thomas' NHS Foundation Trust
Julie Michalowski	Project Manager, Health and Social Care Information Centre
Arthur Yelland	Senior Analyst, Health and Social Care Information Centre

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