

**The Royal College of
Emergency Medicine**

**TRAINEES AND HEALTHCARE
ORGANISATIONS:
ROLES AND RESPONSIBILITIES
IN QUALITY IMPROVEMENT
AND AUDIT**

**November
2018**

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Key message

This document is a call to action for healthcare services and those involved in postgraduate medical training to improve the experience and utility of quality improvement and audit work currently carried out by trainees. For many trainees who are required to do audit and Quality Improvement (QI) projects to meet curriculum requirements the experience remains largely negative and a poor example of the powerful force that effective change can have on healthcare.

Several issues make it difficult to effectively utilise trainees in organisational planning including the length of time it takes to effectively implement change in complex settings and the frequent turnover of trainees between departments. Additionally, trainees can have unrealistic expectations of what can be achieved in a 'project' often choosing a defined local audit over involvement in only one part of a larger team or organisational plan.

QI and audit cannot solely be taught in the classroom and practical involvement is essential. In order to ensure effective teaching in this field, organisations should offer opportunities and practical support to engage trainees. Change and improvement is the responsibility of all within healthcare throughout their careers, not just to meet educational requirements. Let's ensure that clinicians who will be our leaders tomorrow are equipped and enthused to lead continuous improvement in the future.

Key recommendations

ORGANISATIONS

- Services and organisations as a whole, must provide appropriate opportunities for involvement in meaningful change projects that include wider team members. Ideally each organisation would develop a strategy for how they will involve trainees in change projects
- Trainees require access to support and facilitation in order to effectively learn skills in this area. Group discussion and interactive learning should be encouraged
- Local data should be made available to trainees, or advice on how they can access such data
- Organisations must ensure that the learning from projects carried out by trainees is utilised and retained with the service to support ongoing change
- Reflection and discussion should be facilitated; this could be formal, informal groups or meetings
- Feedback needs to be delivered in a timely and effective manner



TRAINEES

- Trainees should be willing to engage with other organisational level projects and carry out a part of an audit or QI cycle
- It is not realistic for trainees to effectively implement change without organisational support and integration, and many trainees will have insufficient time to complete a cycle of change



POSTGRADUATE TRAINING

- Trainees should be supported to carry out more than just a 'tick-box' exercise when learning about QI and audit.
- It should be recognised that meaningful change takes time and involves many people, and it is unlikely that trainees will be able to achieve this alone.
- Meaningful involvement in part of a multidisciplinary team audit or QI project should be recognised as appropriate experience, and trainees should not just carry out a full audit or PDSA cycle on a topic of no utility to the organisation or be asked to just do data collection
- Trainees should be offered the opportunity to do root cause analysis, help plan projects and decide measures, identify stakeholders, and work with patients and carers
- Educational supervisors should ensure they have a good understanding and practical experience of the processes involved in QI and audit, or can direct trainees to suitable resources



Introduction

The aim of this guide is to provide pragmatic advice for trainees and their supervisors on how effectively utilise the expertise and data available within hospitals to carry out quality improvement (QI) and audit effectively. Building on the current trainee curricula and other best practice guidance, this guide will outline ways that healthcare organisations can support trainees and where trainees may access support.

The desire for all healthcare professionals to have the requisite skills to plan and implement change is not new. Despite work in this area since the 1960s, effective change remains difficult and many staff do not feel confident or supported to make improvements in their own services. It has been recognised in many publications that clinical involvement and leadership in quality improvement and audit is vital, and so for many years postgraduate curricula has sought to improve the skills and understanding for medical trainees, with varied effectiveness.¹

Postgraduate trainees are an important frontline resource for healthcare organisations that are often under-utilised. This may in part be due to the frequent turnover of trainees in their roles. However, many hospitals have limited specialist staff to carry out all their QI, audit and change needs and trainees, if properly supported could carry out much of this work.

What makes for effective audit and QI? 2, 31

There is significant research on what organisations and individuals can do to ensure that efforts to make improvements in hospitals systems and care are effective and sustained. The reality is that many projects falter or fail to make real change.

The following are positive enablers:

- Having financial incentives and administrative support
- Having a supportive culture within the organisation that is accepting of risk associated with change
- Having an effective system for embedding feedback in a systematic, repeated way and from a credible source
- Having technical support available to provide key tools and data
- Engaging with clinicians and teams who have training in the theory of change
- Having strong leadership
- Linking change projects with organisational objectives as well as service objectives

Departments and job roles within hospitals



Within hospitals there are a range of departments carrying out quality improvement, audit and monitoring safety and effectiveness. There can be confusion for trainees about the roles and responsibilities of these departments, especially as there are no standardised names or roles for these departments between different organisations.

A recent survey of specialist trainees carried out by Royal College of Physicians²⁵ showed only 18% understood what national clinical audit data was, 5% knew how to access the data, a third had used national audit data previously, although 85% had collected data.

Responses on QI were more positive: 78% carried out a QI project and 59% were familiar with QI methodologies. This most probably reflects the inclusion in medical student and core trainee curricula in recent years.

Examples of staff roles involved

Role	Responsibilities
Head of Clinical Audit	Responsible for Trust-wide development of systems and policies to support data collection, analysis and tracking improvement. Monitors compliance with NICE. Works with Medical Directors, clinical leads and patient experience departments.
Clinical Governance Manager / Lead	Identify potential audit topics from existing data, leads a range of audits and QI, presents audit data to management, supports clinical teams, advice on analysis and data interpretation. Can provide audit and QI training for clinical teams.
Clinical Audit Manager / Lead	Can provide training. Monitor and support quality and governance processes, identify areas for improvement, help embed learning from audits, facilitate projects from inception to implementation, support with developing action plans, facilitate patient engagement, support investigating incidents.
Quality Governance Officer	Audit and QI training. Advise on topics, design audit tools, planning audit participation, analysis, interpretation of data, support developing recommendations and action plans.
Clinical Audit Facilitator	Retrieval of relevant case notes, data collection, data entry, simple analysis and reporting
Clinical Audit Assistant	Develop audit tools with the project lead, advise on registration, data entry, basic analysis, monitor audit progress, support and monitor action plans, arrange training.
Clinical Audit Support Officer Clinical Audit Clerk	Can advise on the best data to collect and how to analyse it.
Analyst	

Organisational requirements for QI and audit

Change requirements

There are considerable statutory reporting requirements for healthcare organisations for the purposes of quality assurance, payment, safety and improvement. Hospitals are required to report and explain results to the public via Quality Accounts, and to bodies such as Care Quality Commission which have significant power. It is important that clinicians understand the needs and priorities of the organisations they work in, this will ensure that change is aligned with these key objectives and help the wider organisation.

What data do they collect?

Appendix 1 shows the process for collecting routine hospital data and how it is utilised to monitor and pay for services. This data is then used to produce a wide variety of different reports that look at key quality indicators, disease activity, clinical and patient outcomes. See Appendix 2 for a list of some community and hospital data available to access.

Trainee requirements for QI and audit

All medical students and postgraduate trainees are now required within current curricula to participate in audit and quality improvement. This is a positive change that can support individuals to understand the healthcare processes in which they work and how it can be improved. The reality for many trainees is that their experiences are less than positive and often involve simply collecting or entering data, rather than learning how to unpick why problems occur and develop solutions.

The details of post graduate curricula requirements for audit and quality improvement are listed within the key resources below and will not be repeated here. However, there is some need to consider how these curricula are interpreted in practice. Training in this area is very different to other forms of medical training, in that gaining and utilising new skills may not automatically give individuals, their services and patients better outcomes, processes or experiences. This can be extremely difficult for driven and result focused individuals, and care should be taken to reward their reflection and learning from this aspect of curricula, rather than only successful or completed project outcomes.

It is important that trainees and supervisors have realistic expectations of what can be achieved by individuals through this type of exercise. More important than successful Plan-Do-Study-Act (PDSA) cycles is gaining an understanding of organisational and individual processes and behaviours, learning to identify underlying causes for issues, engaging and working in teams, and learning how to develop realistic plans for change.

Therefore, greater focus should be on group discussions and reflective practice, and less on purely technical skills. It should be acceptable to show true involvement and learning, even if it is only with part of a change process. See Appendix 3 for the Institute of Healthcare Improvement's 8 domains of QI knowledge.

Training types and their effectiveness 4, 6, 8

There is plenty of research into training techniques and their effectiveness, although less research into what makes effective training on quality improvement. The available evidence does highlight that simple written information or didactic lectures are unlikely to influence individual behaviour. Similarly, purely practical teaching without some classroom support does not develop skills.

The best teaching will incorporate both practical experience alongside training in key skills or methods. It should be structured but allow enough autonomy to support engagement and increase confidence. In addition, generic training that does not fit the requirements of trainee, their level of service and clinical understanding and also applicability to day-to-day work is unlikely to be truly effective.

Particular issues for trainees in this area⁸:

- learning to deal with new responsibilities
- managing uncertainty
- working in multi-professional teams
- experiencing the sudden death of patients
- feeling unsupported.

The aim of training is obviously to change behaviours, especially around decisions, which can be difficult at both an individual and group level. There is evidence however that individuals are more likely to incorporate change if they feel it is important to others and is perceived as a 'norm' in terms of behaviour.

Barriers to effective uptake of training 8, 18

Trainees have a large amount of competing educational and service demands on their time. Quality Improvement requires time and effort to be effective, and short projects completed over a few weeks are unlikely to be a positive experience for trainees in terms of delivery and outcomes. Many education programmes now ask trainees to do an extended project over a year that is structured and allows links with wider service goals.

Organisational barriers include a lack of facilitators, unrealistic expectations, lack of support, competing priorities, scheduling issues and geographical separation of training sites. Positive factors mitigating these barriers include strong leadership and access to service and clinical data.

Crossover between organisational and trainee requirements

Improving the improvement experience ⁸

There is evidence that improving organisational support for trainees impacts on how they perceive their value in the organisation. Despite trainee posts often being transitory, trainees are vital frontline staff, delivering a large percentage of day-to-day care. Failing to engage with these staff members means that hospitals are missing vital feedback and insight on their services.

Improving effectiveness of projects

Better planning, taking time to establish the root causes of issues and engaging with stakeholders are key aspects of quality improvement, equally as vital as collecting data. Trainees should be encouraged to take on these aspects of change projects to gain insight into how complex organisations work and to develop leadership skills.

Finding data

Before planning new and potentially burdensome data collections, have a look for data that is already collected in or about your organisation and could possibly be used. This might include activity or coded data, national audit data or other performance data.

If you know there is a national audit that covers your service area, ask the Clinical Lead or your audit or clinical effectiveness department how you might access this data.

Engaging with organisational objectives

Hospitals have a wide range of assurance processes they are required to fulfil for regulatory bodies such as Care Quality Commission (see Appendix 1). There are whole departments and individuals devoted to fulfilling these requirements, but very rarely are trainees involved in a meaningful way within these processes. Key information about organisational objectives is available already in good publications listed below as resources.

Improving feedback and learning ²⁶

Without reflection and feedback, it is impossible to effectively learn. There should be opportunities and encouragement for all staff involved in change to have a chance to discuss results, what has been learnt and how any results should be acted upon. Too often projects happen and are not communicated widely, preventing long term sustainability and wider change. No change should be reliant on any single member of staff remaining in post to ensure it is implemented.

Key responsibilities for effective change

Organisational responsibility to trainees ³

Organisational responsibilities involve providing suitable conditions to improve clinician motivation. The risk of poor engagement and support from organisations is that trainees have negative experiences of ineffective projects and develop 'change fatigue' and resistance to future projects.

Especially important is to ensure Board emphasis on staff engagement, a positive attitude to change, and a non-blame culture. In addition, incentivisation of QI and audit to be included in staff appraisal can make ensure time and resources are available to this work within departments.

Trainee responsibilities to the organisation

Trainees as employees of their healthcare organisations have a responsibility to engage in efforts to continually improve the service that is delivered to patients.

Supervisors and Postgraduate education bodies

Supervisors form a vital link between trainees and the health organisations. These senior clinicians should encourage trainee involvement in wider, team-based change projects and facilitate a mechanism for linking with audit and QI staff to ensure learning and training is facilitated.

Postgraduate education bodies have a responsibility to continually improve the way that trainees are taught QI and audit and to ensure that they are instilling required skills into the leaders of tomorrow.

About this document

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First published November 2018.

Acknowledgements

RCEM Quality Assurance and Improvement Committee.

Review

Usually within 3 years or sooner if important information becomes available.

Conflicts of Interest

None

Disclaimers

The College recognises that patients, their situations, Emergency Departments and staff all vary. The resources within this document have been developed by the College and other organisations to support healthcare services to implement change. Inclusion within this guide does not imply the College is formerly endorsing the products and it is not an exhaustive list.

Useful resources

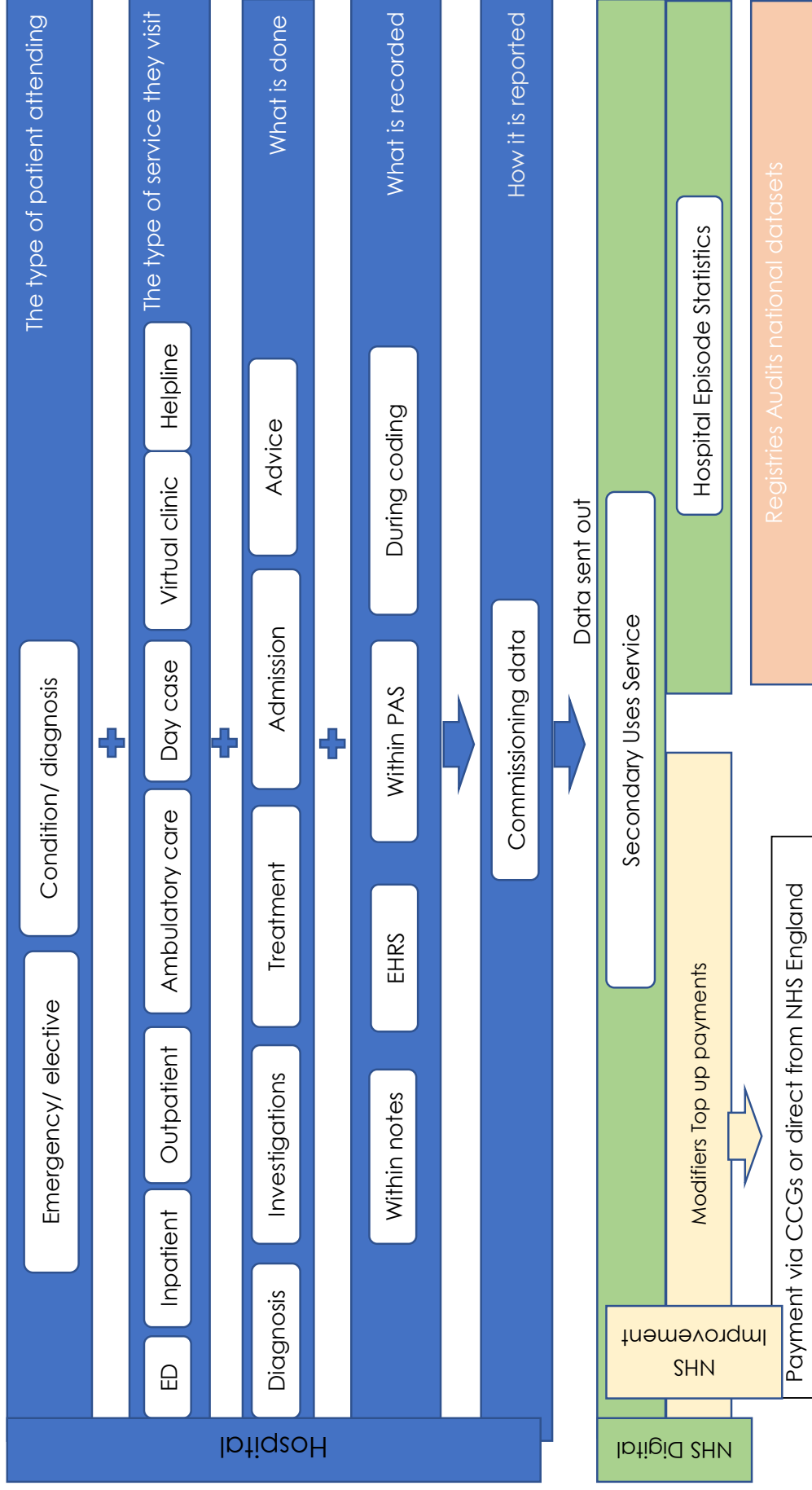
- [Institute for Healthcare Improvement](#)
- [NHS Improvement](#)
- The Health Foundation: [Generation 'Q'](#) and [The Q Community](#)
- Health Education England: [Making every contact count](#)
- [Royal College of Emergency Medicine QI resources](#)
- [Royal College of Physicians QI resources](#)

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Appendix 1 How routine healthcare data is generated, and it's uses



Appendix 2: Types of healthcare data available (last updated Oct'18)

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Ambulance Outcomes						
Ambulance Quality Indicators	NHS England	Ambulance System Indicators and Clinical Outcomes for all eleven Ambulance Services	Open access	Provider	Annually	England
Cancer						
CancerData	Public Health England	Cancer incidence, survival, mortality, outcome and experience measures – Breast, Colorectal, Lung, Prostate	Open access	Provider/ CCG	Last update 2015	England
Cancer e-Atlas	Public Health England	Incidence and mortality statistics for different cancers based on location	Open access	Cancer network, CCG	Data from 2008-2011	UK
Cancer outcome metrics	Public Health England	Outcomes after emergency presentations, stage at diagnosis	Open access	CCG, Cancer alliance	2018	England
Cancer registration statistics	Office for National Statistics	Cancer diagnoses and age-standardised incidence rates for all types of cancer by age, sex and region including breast, prostate, lung and colorectal cancer	Open access	Major cancer network	2016	England
Cancer statistics	Cancer Research UK	New cases, deaths, survival. Preventable cases	Open access	LA	2010-2016	UK
Cancer survival estimates	Office for National Statistics	Survival estimates for cancer	Open access	NHS Region, STP	2011-2016	England
Cancer waiting times	NHS England	Waiting times from GP referral for suspected cancer or breast symptoms, subsequently diagnoses and treated for cancer in NHS	Open access	CCG, Provider	Quarterly	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
National Cancer Patient Experience Survey	Quality Health	Patient experience feedback on service	Open access	CCG, Trust	2017	England
Cardiovascular Disease						
CVD: primary care intelligence packs	Public Health England	Help healthcare professionals make decisions about how to improve local primary care	Open access	CCG	Last published 2017	England
Heart and Circulatory Diseases Statistics	British Heart Foundation	Data on mortality, morbidity and treatment	Open access	National, regional	Annually (2018)	England
National Comparators: Hypertension	Public Health England	Recorded prevalence of hypertension and BP \leq 150/90 mmHg, newly diagnosed with hypertension w. high CV risk who are treated w. statins, average cost of hypertension- compared against all CCGs	Open access	LA, CCG	Last published 2016	England
Children and Young People						
Child Health	Office for National Statistics	Health and well-being including childhood, infant and perinatal mortality; unexplained deaths in infancy; childhood cancer survival; and children's well-being	Open access	National	Last reported 2016	England and Wales
Community Services Statistics for Children, Young People and Adults	NHS Digital	NHS-funded Community Services for children and young people aged 18 years or under using data from the new Children and Young People's Health Services (CYPHS) data set	Open access	Trusts	Monthly	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Key Data on Young People	Association for Young People's Health	Compendium of publicly available data on young people	Open access	National	Last reported 2017	UK
Commissioning						
CCG data packs	NHS Rightcare	CCG level intelligence on activity and spend against outcomes for Mental health conditions, Long term health conditions, where to look packs and Focus Packs	Open access	CCG	Ad hoc, last updated 2017	England
CCG Prescribing Data	NHS Digital	Prescribing data by CCG in community	Open access	CCG	Quarterly	England
Clinical Commissioning Group Outcomes Indicator Set	NHS Digital	Comparative information for CCGs and Health and Wellbeing Boards (HWBs) about the quality of health services commissioned by CCGs and, as far as possible, the associated health outcomes	Open access	CCG	Quarterly	England
Commissioning Intelligence	Dr Foster Intelligence	Online access to HES based data at commissioner level- 16 measures of activity and efficiency	Open access	CCG	2013	England
Stethoscope	Method Analytics	View of outcomes against 6 NHS Domains	Open access	Provider, CCG	Quarterly	England
STP data packs	NHS Rightcare	STP level intelligence on activity and spend against outcomes - Where to look packs	Open access	STP	Ad hoc, last updated 2016	England
Consultant level						

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
MxNHS	NHS	Public facing data on hospitals and consultants. Based on national audit data	Open access	Consultant, provider, CCG	Quarterly	England
Cost and efficiency						
NHS References costs	Department of Health	Tariff costs for procedures and treatments	Open access	National	Annually	England
Dementia						
Focus on dementia	NHS Digital	Information from a variety of sources to provide a compendium of statistics about dementia in England.	Open access	Regions	Last published 2016	England
Recorded Dementia diagnoses	NHS Digital	Part of QOF outcomes framework	Open access	GP	Monthly, annual	England
Devolved Nations						
Northern Ireland/ Ireland						
Fuel Poverty Hub	Public Health Well	Resource which supports a wide range of stakeholders to tackle the unacceptable health inequalities associated with fuel poverty and living in cold and damp housing	Open access	GP, provider, region	Most annually	As above
Primary data sources	Public Health Well	423 primary datasets on obesity, chronic conditions, fuel poverty, rare diseases, mental health and health inequalities. Within the Health Well website	Open access, some aspects require login	GP, provider, region	Most annually	As above
The Chronic Conditions Hub	Public Health Well	Supports policy-makers and practitioners working to prevent and manage chronic conditions	Open access	GP, provider, region	Most annually	As above
The Health Inequalities Hub	Public Health Well	information on health inequalities providing access to a wide range	Open access	GP, provider, region	Most annually	As above

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
		of resources, journal articles, news and tools.				
The Health Well	Public Health Well	26 data resources covering public health topics	Open access	Region	Varied	All Ireland
The obesity Hub	Public Health Well	Free service to the community and aims to support policy-makers and practitioners working to prevent and manage obesity	Open access	GP, provider, region	Most annually	As above
Scotland						
Deaths	Information Services Division	13 secondary data sets on mortality, including alcohol, cancer, perinatal and more	Open access	Provider,	Monthly	Scotland
Drug and alcohol misuse	Information Services Division	Data reports on prevalence, availability of services and mortality	Open access	Provider,	Monthly	Scotland
Emergency care	Information Services Division	Accident and Emergency waiting times, activity and performance, the System Watch tool which monitors and predicts activity and bed occupancy, linking unscheduled care data along patient care pathways, hospital admissions and deaths from unintentional injuries and assaults	Open access	Provider,	Monthly	Scotland
General practice	Information Services Division	Information about GP workforce & Practice populations, estimated numbers of patient consultations, overall and for specific health conditions, the Quality & Outcomes Framework and GP Out of Hours Services.	Open access	Provider,	Monthly	Scotland

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Health conditions	Information Services Division	6 secondary data sets including cancer, GP, hospital care and more	Open access	Provider,	Monthly	Scotland
Heart disease	Information Services Division	Information on heart disease including coronary heart disease (CHD).	Open access	Provider,	Monthly	Scotland
Hospital care	Information Services Division	Trends in outpatient activity, inpatient and day case activity and hospital bed provision	Open access	Provider,	Monthly	Scotland
Prescribing and medicines	Information Services Division	Community prescribing data	Open access	Provider,	Monthly	Scotland
Public health	Information Services Division	Data on material deprivation, on deaths and the Scottish Suicide Information Database (ScotSID), on aspects of inequalities, on the main causes of hospital admission, alcohol, drug use and other public health issues	Open access	Provider,	Monthly	Scotland
Scottish Cancer Registration scheme	Information Services Division	10 primary data sets, including screening, registry and cancer audit data as well as e-atlas	Open access	Provider, region	Annually	Scotland
Scottish healthcare audits	Information Services Division	Data from 12 audits and registries	Open access	Provider,	Monthly	Scotland
Sexual health	Information Services Division	Data on teenage pregnancies, abortion and use of contraception, use of healthcare services and more	Open access	Provider,	Monthly	Scotland
Stroke	Information Services Division	Information on cerebrovascular disease, transient ischaemic attack and stroke.	Open access	Provider,	Monthly	Scotland
Waiting times	Information Services Division	Accident & Emergency, Diagnostics and Stage of Treatment publications	Open access	Provider,	Monthly	Scotland

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Workforce	Information Services Division	Trend data for all staff, vacancy numbers for nursing and midwifery, allied health professions and consultants, numbers of joiners, leavers and staff turnover by job family, number of NHS dentists, usage of bank and agency usage for nursing and midwifery, sickness absence rates and equality and diversity information	Open access	Provider,	Monthly	Scotland
Wales						
Emergency Department Dataset	NHS Wales	Includes summary management information on the percentage of patients attending, time spent and outcome. Part of Wales Informatics services.	Open access	Provider	Started 2009	Wales
Health maps wales	NHS Wales	Includes reports, research and interactive cancer statistics. Part of Wales Informatics services	Open access	Provider, area	Annually	Wales
NHS Wales Informatics Services	NHS Wales	Collect, store, analyse and present national data and statistical information for NHS Wales	Open access	Dependant on resource	Dependent on resource	Wales
StatsWales	Welsh Government	Comprehensive set of information on health, health services and social services, as well as other areas such as census. They cover a wide range of topics including NHS primary and community activity, waiting times and NHS staff.	Open access	Provider, area	Annually	Wales
Welsh cancer intelligence and surveillance unit	Public Health Wales	Includes reports, research and interactive cancer statistics. Part of Wales Informatics services	Open access	Cancer type, area, provider	Annually	Wales

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Diagnostics						
Diagnostic Imaging Dataset Reports	NHS England	Data on diagnostic testing and screening	Open access	Provider	Annually	England
Diagnostic themed atlas of variation	Public Health England	Regional variation in diagnostics, as maps	Open access	Region	2017	England
Estates						
Estates Returns Information Collection	NHS Digital	costs of providing and maintaining the NHS Estate including buildings, maintaining and equipping hospitals, provision of services	Open access	ALL NHS Trusts, including ambulance – Trust and site	Annually	England
General						
Charts and Infographics on key health and social care issues	Nuffield Trust	Infographics and NHS in numbers, HES based activity data-expenditure, healthcare workforce, regional differences and other longitudinal data from HES	Open access	National, region	Ad hoc	UK
Quality Watch	The Health Foundation & Nuffield Trust	A joint research programme monitoring how the quality of health and social care is changing over time. Over 270 indicators reviewed	Open access	Commissioning, primary secondary	Monthly	England
Hospital Outcomes						
Accident and Emergency Quality Indicators	NHS Digital	Five A&E indicators: • Left department before being seen for treatment rate • Re-attendance rate • Time to initial assessment • Time to treatment • Total time in A&E	Open access	Provider	Monthly	England
A&E attendances and emergency admissions	NHS England	Total number of attendances in the specified period for all A&E types, the number discharged,	Open access	Provider	Monthly	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
		admitted or transferred within four hours of arrival. Also included are the number of Emergency Admissions, and any waits of over four hours for admission following decision to admit.				
Admitted patient care	NHS Digital	Detailed provider level analysis of acute inpatient care	Open access	Provider	Annually	England
Adult Critical Care	NHS Digital	Adult critical care activity in English NHS hospitals and English NHS-commissioned activity in the independent sector	Open access	Provider	Annually	England
Cancelled elective procedures	NHS England	Unable to split into speciality or consultant level	Open access	Provider	Quarterly	England
Consultant led referral to treatment times	NHS England	Length of time from referral through to elective treatment	Open access	Provider	Annually	England
Critical Care Bed Capacity and Urgent Operations Cancelled	NHS England	Number of urgent operations cancelled, including those cancelled for the 2nd or more time throughout the month. Critical care capacity, including adult, paediatric and neonatal available and occupied critical care beds	Open access	Provider	Monthly	England
Hospital care indicators	NHS Digital	Deaths within 30 days, Emergency admissions, Emergency readmissions to hospital within 28 days of discharge, Returning to usual place of residence, Hospital procedures, Emergency hospital admissions and timely surgery.	Open access	Provider	Annually	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Hospital Intelligent monitoring	Care Quality Commission	The CQC looks at more than 150 different sets of indicators including information from staff, patient surveys, mortality rates and hospital performance information such as waiting times and infection rates.	Open access	Provider	For inspections	England
Hospital Outpatient Activity	NHS Digital	Outpatient appointments recorded in HES data during the 12-month period. A number of breakdowns are provided including by patient's age, gender, whether the appointment was attended or not and by provider. Note that this report counts the number of outpatient appointments rather than the number of patients.	Open access	Hospital Trusts, Country, Independent Sector, Regions	Monthly & Annually	England
Methods Stethoscope	Method Analytics	View of outcomes against 6 NHS Outcomes Domains	Free registration for NHS	Provider, CCG	Quarterly	England
Model Hospital	NHS Improvement	A digital information service designed to help NHS providers improve their productivity and efficiency.	Registration, free for NHS staff	Provider		England
My hospital Guide	Dr Foster Intelligence	Online access to HES based data looking at efficiency, commissioning, weekend and drugs and alcohol	Open access	Provider	2013	England
NHS Benchmarking Network	East London NHS Foundation Trust	Benchmarking data and audits from member Trusts	Members only	Provider	Ad hoc projects	UK wide
NHS Outcome Framework Indicators	NHS Digital	Indicators include potential years of life lost and mortality for certain conditions, one- and 5-year	Open access	Provider, national	Annually	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
		cancer survival, hip fracture, safety incidents and others				
Numbers of operating theatres within a Trust	NHS England	The number of operating theatres and supporting facilities in NHS organisations	Open access	Provider	Quarterly	England
Seven-day services	NHS Digital	Mortality within 30 days of admission, Emergency readmissions within seven days of discharge, Length of stay following an emergency admission	Open access	Provider	Annually	England
Summary Hospital-level Mortality Indicator (SHMI)	NHS Digital	Ratio between the actual number of patients who die following hospitalisation at the trust and the number that would be expected to die on the basis of average England figures, given the characteristics of the patients treated there.	Open access	Provider	Quarterly	England
Mental Health						
Suicide Prevention Profile	Public Health England	Data on suicide, related risk factors and related service contacts, comparison data	Open access	Counties	2016/17 data	England
Mortality						
Compendium mortality series	NHS Digital	Over 30 publications aimed at reducing mortality from specific causes including: all cancer types, chronic disease, birth, accidents, falls and fractures, suicides, avoidable deaths.	Open access	National, region, LA, county	Last published 2018	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Compendium-Years of life lost	NHS Digital	Years of life lost (YLL) is a measure of premature mortality. Its primary purpose is to compare the relative importance of different causes of premature death within a particular population	Open access	National, region, LA, county	Last published 2018	England & Wales
National audit/ registries						
Asthma	Royal College of Emergency Medicine	Moderate & Acute Severe Asthma - adult and paediatric clinical Information	Open access to data and reports	Hospital	2016/17	UK
BAETS National Audit	British Association of Endocrine and Thyroid Surgeons	National database of thyroid and endocrine surgery, including de-anonymised Data from BAETS National Database of Endocrine & Thyroid Procedures	Member and open access data	Consultant, Provider, National	Annually	UK
BAUS Data & Audit Project	British Association of Urological Surgeons (BAUS)	Reports and ongoing data on urological cancer surgery	Member access, NHS administration registration	Consultant, Provider, National	Annually	UK
Biologics and Biosimilars registers	British Society for Rheumatology	4 registers for biologic prescriptions for Rheumatoid Arthritis, Ankylosing Spondylitis, Idiopathic Juvenile Arthritis	Member access, access for research	Provider	Ongoing	UK
Breast and Cosmetic Implant Registry	NHS Digital	Details of all breast implant procedures completed in England by both the NHS and private providers	Member & patient access	NHS and private providers	Ongoing	England
British Spine Registry	Society for British Neurological Surgeons (SBNS)	Monitors the outcomes of spinal procedures, to better understand procedures, techniques and a patient's experience and quality of life.	Member & patient access	Provider, patient	Ongoing	UK

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Colorectal Stent Registry	Association of Colorectal Surgeons of Great Britain and N Ireland (ACPGBI)	Use of colorectal stents for the treatment of lower bowel obstruction (LBO) due to colonic malignancies	Member only	Provider, National, International	Ongoing	UK, Europe
Consultant Sign-off	Royal College of Emergency Medicine	Data on patient sign-off for four groups of high-risk patients within ED	Open access to report and data	Hospital	2016/17	UK
Fracture Liaison Service Database (FLS-DB)	Royal College of Physicians	Part of falls, fragility, fracture audit programme	Open access to reports	Provider, national	Periodic data collection	UK
Ileal Pouch registry	Association of Colorectal Surgeons of Great Britain and N Ireland (ACPGBI)	Improve standards in ileal pouch surgery through a process of continuous national audit of activity and outcome using an observational registry	Via ACPGBI	Provider	Ongoing	UK
National Adult Cardiac Surgery Audit	University College London	Collects consecutive operation data from all NHS hospitals in the UK that carry out adult heart surgery (Aortic surgery, CABG, Valve repair/ replacement). A number of Irish and UK private surgical units also voluntarily submit data.	Open access to reports	Consultant, Provider, National	Annually	UK
National Audit of Breast Cancer in Older Patients	Royal College of Surgeons of England	All women aged 50 years or older who are diagnosed with breast cancer between 1st January 2014 and 31st December 2017	Open access to reports	Provider	3 year started 2016	England Wales
National Audit of Dementia	Royal College of Psychiatrists	Working with hospitals providing general acute inpatient services to measure care delivery related to	Open access to reports	Provider	Annually	England and Wales

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
		people with dementia admitted to hospital.				
National Audit of Inpatient Falls	Royal College of Physicians	Part of falls, fragility, fracture audit programme	Open access to reports	Provider, national	Last reported 2017	UK
National Audit of Percutaneous Coronary Interventions	British Cardiovascular Intervention Society	Comparative data on the provision of PCI in the UK	Open access to reports	Consultant, Provider, National	Annually	UK
National Audit of Rheumatoid and Early and Arthritis	British Society for Rheumatology	Assessment and early secondary care management of all forms of peripheral joint early inflammatory arthritis in NHS secondary care settings Ran from 2014 to 2016	Open access to reports	Provider, National		England and wales
National Asthma and COPD Audit Programme	Royal College of Physicians	Comprise audits of secondary care, pulmonary rehabilitation and pulmonary rehabilitation sites	Open access to reports	Provider	Some real time, other intermittent	England
National Bariatric Surgery Register	British Obesity & Metabolic Surgery Society	Register monitoring effectiveness of weight-loss surgery	Open access to reports	Consultant, Provider, National	Last report 2017	UK
National Bowel Cancer Audit Programme	NHS Digital	All patients with a diagnosis of bowel cancer admitted for the first time	Open access to reports	Consultant, Provider, National	Annually	England Wales
National Diabetes Audit	NHS Digital	Audits the effectiveness of diabetes healthcare against NICE Clinical Guidelines and NICE Quality Standards,	Open access to reports	GP, Provider, Region, National	Annually	England and wales
National Emergency Laparotomy Audit (NELA)	Royal College of Anaesthetists	Enable the improvement of the quality of care for patients undergoing emergency laparotomy, through the provision of high-quality comparative data from all providers of emergency laparotomy.	Open access to reports	Provider, national	Annually	England, Wales

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
National Head and Neck Cancer Audit	Dendrite clinical systems	Audit of diagnosis and treatment of common head and neck cancers	Open access to reports	Consultant, Provider, National	Annually	England Wales
National Hip Fracture Database	Royal College of Physicians	Part of falls, fragility, fracture audit programme	Open access to reports	Provider, national	Annually	UK
National Joint Registry	National Joint Registry	Data and analyses on hip, knee, ankle, elbow and shoulder joint replacement surgery	Member access	Consultant, Provider, national	Annually	
National Lung Cancer Audit	Royal College of Physicians	Organisational, mesothelioma, clinical outcomes and national reports	Open access to reports	Provider, consultant, national	Annually	UK
National Neurosurgery Audit Programme	Society for British Neurological Surgeons (SBNS)	Audit of elective and emergency neurosurgical activity, started in 2013	Open access to reports	Consultant, Provider, National	Annually	UK
National Oesophago-Gastric Cancer Audit	NHS Digital	Quality of care given to patients with Oesophago-Gastric (OG) cancer and oesophageal High-grade Glandular Dysplasia (HGD)	Open access to reports	Consultant, Provider, National	Annually	England Wales
National Prostate Cancer Audit	Royal College of Surgeons of England	Audit of the care that men receive following a diagnosis of prostate cancer	Open access to reports	Provider, national	Annually	England and Wales
Procedural sedation in adults	Royal College of Emergency Medicine	Safety of administration of sedative drugs to promote calm or sleep for a medical procedure in EDs.	Open access to reports and data	Hospital	2015/16	UK
Sentinel Stroke National Audit Programme (SSNAP)	Kings College London	Clinical audit, acute organisational audit, and post-acute organisational audit in stroke	Open access to reports	Provider, CCG, region, national	Annually	England, Wales, N. Ireland
Severe sepsis and shock	Royal College of Emergency Medicine	Appropriate identification and treatment of sepsis	Open access to reports and data	Hospital	2016/17	UK

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Surgical Outcomes Audit	British Association of Urological Surgeons (BAUS)	Outcomes from complex operations including Nephrectomy, Radical Prostatectomy and Cystectomy	Open access to report	Consultant, Provider, National	Annually	UK
The UK IBD Registry	British Society of Gastroenterology (BSG) and Crohn's and Colitis UK	Anonymised IBD adult and paediatric patient data for prospective audit and research purposes	Member access	Provider, National	Ongoing	UK
UK National Flap Registry	British Association of Plastic, Reconstructive and Aesthetic Surgeons (BAPRAS)	Data on all major free and pedicled flap operations	Member access	Provider, National	Ongoing	UK
Vascular Services Quality Improvement Programme	Vascular Society of Great Britain and Ireland	Measure the quality and outcomes of care for patients who undergo major vascular surgery in NHS hospitals. Started in 2013	Open access to reports	Consultant, Provider, National	Annually	UK
Vital signs in children	Royal College of Emergency Medicine	Recording and escalation of abnormal physiological signs in children	Open access to reports and data	Hospital	2015/16	UK
VTE risk in lower limb immobilisation in plaster cast	Royal College of Emergency Medicine	Patients with lower limb immobilised, either in a plaster cast or other forms of splintage. are ambulant and the thromboprohylaxis assessment and prescribing	Open access to reports and data	Hospital	2015/16 (current 2018/19 audit)	UK
Ophthalmology						
General Ophthalmic Services Activity Statistics	NHS Digital	Number of NHS sight tests, NHS optical vouchers	Open access	Area teams, national	Biannually	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Patient experience and outcomes						
Data on written complaints in the NHS	NHS Digital	Data on written complaints in the NHS	Open access	Provider	Quarterly	England
Friends and Family Test	NHS England	Patient experience measures across multiple healthcare organisations	Open access	Provider, GP, ambulance	Monthly	England
Patient-Led Assessments of the Care Environment (PLACE)	NHS Digital	Patient assessment of healthcare environment	Open access	Provider	Annually	England
Patient Reported Outcome Measures (PROMs) Finalised	NHS Digital	Patient reported outcomes	Open access	Provider	Annually	England
Pharmaceuticals and prescribing						
CCG prescribing via iView	NHS Digital	Number of prescription items, net ingredient cost, actual cost, number of records	Open access	CCG	Annually	England
General Pharmaceutical Services	NHS Digital	Information about community pharmacy contractors (community pharmacies) and appliance contractors in England, and the NHS services they provided	Open access	National, regional, local	Stopped 2014	England
Prescribing by Dentists	NHS Digital	Dental-prescribing	Open access	Dental practice	Annually	England
Prescription Cost Analysis	NHS Digital	Details of all drugs prescribed and cost in community	Open access	National	Annually	England
Prescribing Costs in Hospitals and the Community	NHS Digital	Hospital and community - prescribing	Open access	National	Annually	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Primary care						
Learning disabilities Health Check Scheme	NHS Digital	identify all patients aged 14 and over with learning disabilities, to maintain a learning disabilities 'health check' register and offer these patients an annual health check, which includes producing a health action plan.	Open access	GP	Quarterly	England
National General Practice Profiles	Public Health England	Graphical displays of local demography, quality and outcomes Framework domains, cancer services, child health, antibiotic prescribing, patient satisfaction	Open access	GP, CCG	Last updated 2016	England
General Practice (GP) Collections	NHS Digital	Data on GP practices, paid for and non-paid services, immunisations, health checks etc	Open access	GP, CCG, STP	Monthly	England
Patients Registered at a GP Practice	NHS Digital	Numbers of patients registered per practice	Open access	GP, CCG, STP	Monthly	England
Quality Outcomes Framework (QOF) online database	NHS Digital	GP level outcomes voluntary annual reward and incentive programme for all GP surgeries in England.	Open access	GP	Annually	England
Private Healthcare						
The Private Healthcare Information network	The Private Healthcare Information network	Private provider data on all procedures carried out in private care	Patients, hospitals	Provider, Consultant	Quarterly	England
Public Health						
Chronic Kidney Disease	Public Health England	CKD prevalence estimates for local and regional populations	Open access	Local, regional	Last updated 2015	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Prevalence Estimates						
Female Genital Mutilation	NHS Digital	Repository for individual level data collected by healthcare providers in England, including acute hospital providers, mental health providers and GP practices. Prevalence, risk and treatment for drug and alcohol abuse	Authorised healthcare professionals and administrative staff only Open access	Trust, CCG, LA	Quarterly	England
Healthier lives: Alcohol and drugs	Public Health England		Open access	County		England
Healthier lives: Diabetes	Public Health England	Allows comparison of prevalence of diabetes, premature mortality, suicide, Hypertension, NHS Health check, Alcohol and drugs	Open access	GP, CCG	Last updated 2017	England
Health Survey for England, Health Social Care and Lifestyles	NHS Digital	Monitor trends in the nation's health; estimating the proportion of people in England who have specified health conditions, and the prevalence of risk factors and behaviours associated with these conditions. Started 1994	Open access	Region	Annual	England
Local Authority Health Profiles	Public Health England	A snapshot of the overall health of the local population.	Open access	LA	2013,2014	England
Longer lives: Premature mortality	Public Health England	Premature death from cancer, cardiovascular disease, injury, social deprivation- comparison across country	Open access	Counties, Districts	Last updated 2016	England
Musculoskeletal Calculator	Arthritis Research UK	Prevalence estimates for osteoarthritis, and severe osteoarthritis, of the hip and knee	Open access	LA, region	Annually	England
NHS Atlas Series	NHS Rightcare	Benchmarking data on wide array of public health topics, data available to download	Open access	Region	Ad hoc, new atlas topics	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
NHS Health Check	Public Health England	Everyone between the ages of 40 and 74, who does not have heart disease, stroke, diabetes, kidney disease and dementia or has certain risk factors, will be invited (once every five years) for an NHS Health Check	Open access	County	regularly published	England
Non-diabetic hyperglycaemia prevalence	Public Health England	Estimates and analysis of the number of people with non-diabetic hyperglycaemia	Open access	CCG, LA	Last updated 2017	England
Obesity and diabetes prevalence estimates	Public Health England	Estimate of likely impact on diabetes of prevalence of obesity	Open access	CCG	Last updated 2015	England
Registered deaths	Office for National Statistics	Death rates, cause of death data by sex and age	Open access	LA	2017	England & Wales
Sexual and Reproductive Health Services	NHS Digital	Activity taking place in the community at dedicated Sexual and Reproductive Health (SRH) services, including activity at non-NHS service providers where available	Open access	Trusts, independent providers, region	Annually	England
Statistics on Alcohol	NHS Digital	Information on alcohol use and misuse by adults and children drawn together from a variety of sources for England	Open access	Regions, CCG, LA	Annually	England
Statistics on Drug Misuse	NHS Digital	Information on drug use by adults and children drawn together from a variety of sources	Open access	Region	Annually	UK

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Statistics on Obesity, Physical Activity and Diet	NHS Digital	Information on obesity, physical activity and diet, drawn together from a variety of sources	Open access	Region, CCG	Annually	England
Statistics on Smoking	NHS Digital	Health issues relating to smoking in England incl smoking prevalence, habits, behaviours and attitudes among adults and school children, smoking-related ill health and mortality and smoking-related costs	Open access	Country	Annually	England
Safety						
HCAI DCS Mandatory surveillance	Public Health England	Epidemiological analyses of mandatory surveillance data on MRSA bacteraemia and C. difficile infection	Open access	Provider	Last done 2014	England
National quarterly data on patient safety incident reports	NHS Improvement	Type and grade of incidents across all organisation types (last updated 2015)	Open access	Provider	n/a	England Wales
Never events data	NHS Improvement	Summary of reported never events across all hospitals	Open access	Provider	Annually	England
NHS Safety Thermometer	NHS Improvement	The NHS Safety Thermometer is a local improvement tool for measuring, monitoring and analysing patient harms and 'harm free' care.	Registration required	Provider	Quarterly	UK
Organisation Patient Safety Incident Reports	NHS Improvement	Summary of patient safety incidents reported to the NRLS	Open access	Provider	Annually	England Wales
Screening programmes						
Breast Screening Programme	NHS Digital	Data on women attending breast screening, since 2006	Open access	GP, CCG, LA	Annually	England

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Cervical screening programmes coverage	NHS Digital	Percentage of women eligible for screening at a given point in time who were screened adequately within a specified period (within 3.5 years for women aged 25 to 49, and within 5.5 years for women aged 50 to 64).	Open access	GP, CCG, LA	Annually	England
Social care						
Health Care system	Office for National Statistics	Information on healthcare spending on private and public care systems	Open access	National	Last reported 2016	England
National Adult Social Care Intelligence Service (NASCIS)	NHS Digital	Outcomes for adult users of local authority-funded social care and support (including carers) for each local authority area	Open access	LA	Annually	England
Workforce						
General and personal medical services	NHS Digital	Numbers and details of GPs, Nurses, Direct Patient Care and Admin/Non-Clinical staff working in General Practice in England, along with information on their practices, staff, patients, and the services they provide.	Open access	GP, CCG, HEE region, STPs	Experimental, quarterly	England
General Ophthalmic services workforce statistics	NHS Digital	Ophthalmic practitioners (Optometrists and Ophthalmic Medical Practitioners) who were authorised, by NHS England regions in England and Local Health Boards (LHB) in Wales, to carry out NHS funded sight tests	Open access	National	Annual	England, wales
GP Earnings and expenses estimates	NHS Digital	Full and part-time GPs in UK for year taxable income	Open access	Regional, national	Annually	UK

Title	Publisher	Detail of information presented	Who can access	Data level	How often refreshed	Area covered by data
Labour market statistics	NOMIS	population, employment, unemployment, qualifications, earnings, benefit claimants and businesses.	Open access	LA, regional, national	Annual	UK
NHS Sickness Absence Rates	NHS Digital	Sickness absence rates for staff at NHS organisations on the Electronic Staff Record	Open access	Trusts, CCGs	Monthly	England
NHS Staff Earnings Estimates	NHS Digital	Estimates of staff earnings per role for staff at NHS organisations on the Electronic Staff Record	Open access	Support organisations CCGs, Trusts	Monthly	England
NHS Workforce Statistics	NHS Digital	Numbers of NHS Hospital and Community Health Service (HCHS) staff groups working in Trusts and CCGs in England (excluding primary care staff)	Open access	Trusts, CCGs	Quarterly	England
Personal Social Services	NHS Digital	people employed (directly and indirectly) by Local Authority adult social services departments	Open access	LA, Ambulance Trusts	Annual	England

Appendix 3: Training knowledge and skills for QI/ audit

Adapted from: [Knowledge domains for Health professional students seeking competency in continual improvement and innovation of healthcare](#), Institute for Healthcare Improvement, 1998

Domain	Knowledge	Skills	Related guidance/ tools
1. Health care as process, system	How people, processes, technologies all come together to deliver healthcare e.g. how the system works	<ul style="list-style-type: none"> Understanding of healthcare processes, coding and data collection 	<ul style="list-style-type: none"> Trainees and healthcare organisations: roles and responsibilities in quality improvement and audit
2. Variation and measurement	Using data to understand variation across and within systems e.g. what is normal and abnormal variation	<ul style="list-style-type: none"> Run charts Statistical process control 	<ul style="list-style-type: none"> National audits Resources for quality improvement planning: Measurement in QI (not yet published)
3. Customer/ beneficiary knowledge	Understanding of who is utilising (or may be in the future) your healthcare service and their needs. This includes outcomes and experience	<ul style="list-style-type: none"> How to engage staff and patients in projects 	<ul style="list-style-type: none"> Resources for quality improvement planning: Effective involvement of patients in your project
4. Leading, following, making changes in healthcare	How to design, test and make changes within complex organisations, such as hospitals. This includes understanding of priorities for stakeholders and potential drivers/ barriers for change	<ul style="list-style-type: none"> Stakeholder identification and engagement Project planning Understanding of barriers and enablers 	<ul style="list-style-type: none"> Resources for quality improvement planning: Deciding your aim and it's measurement Resources for quality improvement planning: Identifying your key stakeholders Resources for quality improvement planning: Planning your PDSA cycles Resources for quality improvement planning:

Domain	Knowledge	Skills	Related guidance/ tools
			Identifying barriers and enablers to your project
5. Collaboration	How to work effectively in groups and utilise skills and perspectives of others	<ul style="list-style-type: none"> • Setting up a project team • Effective communication skills • Leadership 	<ul style="list-style-type: none"> • Resources for quality improvement planning: Forming your project team
6. Social context and accountability	Understand the context within with healthcare is being given e.g. national, local, cultural, financial	<ul style="list-style-type: none"> • Root cause analysis • How data is captured and used 	<ul style="list-style-type: none"> • Resources for quality improvement planning: Understanding the root causes behind your health service issue
7. Developing new locally useful knowledge	Staff that understand the need for new knowledge and ongoing learning and change	<ul style="list-style-type: none"> • Training in QI and audit tools • Training in reflection and feedback 	<ul style="list-style-type: none"> • Trainees and healthcare organisations: roles and responsibilities in quality improvement and audit • Mandatory training slide set on QI and audit (not yet done)
8. Professional subject matter	Using best practice guidance and properly researched standards of care as basis for audit or QI project	<ul style="list-style-type: none"> • Using published guidance as standard against which service is assessed 	<ul style="list-style-type: none"> • RCEM guidelines • NICE guidelines



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Incorporated by Royal Charter, 2008

Registered Charity number 1122689