

The National Pain Audit for specialist pain services in England and Wales 2010–2014[AQ: 1]

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Abstract

Background

Numerous reports highlight variations in pain clinic provision between services, particularly in the provision of multidisciplinary services and length of waiting times. A national audit aims to identify and quantify these variations, to facilitate raising standards of care in identified areas of need. This paper describes a quality improvement programme cycle covering England and Wales that used such an approach to remedy the paucity of data on the current state of UK pain clinics.

Methods

Clinics were audited over a four year period using standards developed by the Faculty of Pain Medicine of The Royal College of Anaesthetists. Reporting was according to guidance from a recent systematic review of national surveys of pain clinics. A range of quality improvement measures was introduced via a series of roadshows led by the British Pain Society. Results Ninety-four percent of clinics responded to the first audit and 83% responded to the second. Per annum, 0.4% of the total national population was estimated to attend a specialist pain service. A significant improvement in multidisciplinary staffing was found (35% to 56%, $p < 0.001$) over the four year audit programme, although this still requires improvement. Very few clinics achieved recommended evidence-based waiting times, although only 2.5% fell outside government targets; this did not improve. Safety standards were generally met. Clinicians often failed to code diagnoses.

Conclusions

A National Audit found that whilst generally safe many specialist pain services in England and Wales fell below recommended standards of care. Waiting times and staffing require improvement if patients are to get effective and timely care. Diagnostic coding also requires improvement.

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Introduction

Specialist pain services are an established component of healthcare in most nations. The International Association for the Study of Pain (IASP) provides guidance on standards of care that include the approach, infrastructure and treatment content of such services, and recommended waiting times.^{1,2} Treatment should be evidence-based; take into account biomedical, psychological and social factors; be multidisciplinary; and give high priority to safety. Services are further expected to carry out research, evaluation of patient outcomes, and clinical education.

Chronic pain has become a growing public health concern both with respect to its prevalence and to unsatisfactory treatment. Of particular concern are the rising numbers of problems associated with long term opioids for chronic non cancer pain, with the USA declaring this a Public Health emergency in 2017.³ It is essential that pain clinics provide leadership in this area. A recent systematic review of large scale surveys of pain clinics in seven countries described wide variation in standards of care.⁴ Setting standards has also proved problematic.⁵

Quality improvement in pain management services is also recognised as challenging.⁶ Issues are the subjective nature of pain, a lack of consensus on treatment and, in the UK, several government reviews highlighted the paucity of data on specialist pain services, including information on the patient population, the types of treatment offered, and their outcomes.^{7,8} In 2008, both the Chief Medical Officer (CMO) in England and the Welsh Government recommended several interventions to improve the quality of care for people with chronic pain.^{9,10} One recommendation was that all pain clinics should submit data to a national database so that services could be meaningfully compared. National Audits are a recognised way of doing this, aiming to raise the standard of care through engaging clinicians in reporting the quality of their care against agreed standards, and comparing their service with others.¹¹ Further recommendations to improve quality included a consensus pathway of care and better understanding of need through data collection via the Health Survey for England. While there are other examples of quality improvement interventions in other jurisdictions,¹²⁻¹⁴ no attempt has been published involving a whole nation's pain services in a quality improvement programme.

A Quality Improvement Programme was implemented in England and Wales and a National Audit funded to support this from 2010-14. Four reports were published over the lifespan of the Audit which have now been combined into two reports.^{15,16} Some outcomes were reported in the second NHS Atlas of Variation.¹⁷ However, much of the methodology from the audit was not reported and the reports were of each cycle rather than reviewing the whole process. The purpose of this paper is to assess whether a Quality Improvement Programme, based upon government recommendations, which involved the setting of standards for pain clinics, a suite of interventions to improve care, and a re-audit, led to improvement. To achieve this we have reviewed and revised the original data from all four reports, re-presented the data in the format of a recent systematic review of such surveys⁴ and explained the methods used to deliver the audit. Additional data not reported in any report includes the number of patients seen and a more complete dataset from providers as 30 missed the deadline for the Follow up report. The Baseline audit reported by centre rather than by provider which was not

in line with reporting requirements and made it difficult to make meaningful comparisons. This paper therefore looks at the impact and implementation of the audit and allows comparisons with other national surveys.

Methods

Context:

The National Pain Audit's brief was to look at case mix, service organisation, and outcomes of care including patient safety and patient experience within the National Health Services of England and Wales which both provide care free at the point of delivery but differ in waiting times, targets and system integration. The English NHS is delivered based upon competition and choice of providers whereas the Welsh NHS is integrated in delivery. Controversial National Institute of Clinical Excellence (NICE) guidance was produced on low back pain during this period, emphasising the importance of multidisciplinary care and reducing emphasis on medical treatments.¹⁸

Quality Improvement Interventions

The CMO of England's and Welsh government's recommendations were reviewed and those deemed feasible were implemented as an improvement programme. This was led by the British Pain Society. The programme consisted of feedback of National Pain Audit results to patients, politicians and policy makers through the Chronic Pain Policy Coalition, regular newsletter updates, development of specific best practice pathways,¹⁹ revised speciality standards,^{20, 21} population data on chronic pain from the Health Survey for England,²² a roadshow to all regions in England and Wales, commissioning guidance,²³ a pain summit that brought together many stakeholders²⁴ and linkage of audit results to NHS Choices, the main public source of information on NHS providers and treatments available in England.

A Donabedian approach was taken to examine organisational structures, care processes and clinical effectiveness.²⁵ Structure of services and processes of care were measured by direct questions. Both Departments of Health signed off the approaches and reviewed recommendations made and outcomes were assessed by the National Audit oversight board.

Figure 1 shows the complete Quality Improvement Programme and Evaluation which covered the period 2010-14.

Inclusion Criteria – identification of services

During the Baseline Audit (Phase 1) specialist pain services were initially located through searching England's national administrative hospital admission database (Hospital Episode Statistics - HES) to identify services with the treatment function code 191 for Pain Management, and through British Pain Society newsletters requesting contact. These Services were sent an organisational questionnaire to complete. For the Follow-up audit (Phase 4), the organisational re-audit, the NHS Choices website that hosts all NHS providers in England was searched for mention of specialist pain services, contact was made and a further organisational questionnaire sent. Services were reported by the responsible provider organisation rather than by individual clinics; in line with reporting standards from the Health Quality Improvement Partnership (HQIP).

Exclusion Criteria

Services were excluded if they were clearly non-specialist providers, non-NHS providers, or were unable to self-classify into type of pain facility.¹

Audit Standards

Audit Standards were derived from the Royal College of Anaesthetists' General Provision of Anaesthetic Services guidance chapter on Chronic Pain Services,²⁰ IASP guidelines on pain services and waiting times^{1 2} and, for the Follow up Report, the National Patient Safety Agency (Table 1).²⁶ Clinicians were asked to assign International Classification of Diseases (ICD-10) diagnostic codes to the primary condition of patients completing the Phase 2 questionnaire. For the additional work on coverage of services population data were calculated from Office of National Statistics tables.²⁷

Data Collection

Data for the items given in Table 1 were collected from providers of pain services via an Excel spreadsheet with sign-off by their audit departments. For consistency, services were analysed by provider in line with National Audit guidance. This produced some discrepancies from the First National Audit report where analysis was by individual clinic.

Data Analysis

Reporting recommendations from the systematic review of multidisciplinary chronic pain treatment facilities were followed⁴ and the SQUIRE checklist for quality improvement studies followed.²⁸ The χ^2 test was used to test for significant differences in important variables. Free text diagnoses were mapped to ICD-codes by national pain coding leads.

Data Validation

Data were compared with HES in England. It was not possible to obtain the Welsh equivalent (Patient Episode Database for Wales). Data were also uploaded to a public facing websites and initial outcomes reported to the clinics. Items were cross-referenced for inaccuracies.

Ethical Considerations

As a Quality Improvement Programme National Audits do not require an ethics review. The use of data and the audit, were overseen by HQIP. The evaluation was overseen by a scientific committee and an independent governance group including lay members.

Results

Identification of providers and response rates

Figure 2 shows flow through the audit. For the Baseline Audit the first search methodology found 169 clinics, and responses were received from 159 clinics, a 94% response rate. For the Follow-up Audit the follow-up organisational questionnaire we identified services in England using hand searches of NHS Choices. NHS Wales provided a list. These identified 175 providers of specialist pain care in England and Wales, in a variety of settings both in and out of hospital. 146 providers responded to the Follow-up Audit, a response rate of 83%. Nineteen providers identified as having a pain service did not submit a return (10%), and there was uncertainty over the status of another 10 providers who did not respond and it could not be ascertained if they ran a pain service.

Data validation

HES data (England only) identified 133 providers with outpatient data using the specialty code 191: Pain Management. Twenty six providers in the Baseline Audit were not identified through HES but provided specialist pain services. This may have been due to incorrect coding of the clinics. We were unable to cross-check services in Wales using PEDW however the Welsh government had a record of all services.

Standard 1: Clinics were classified according to IASP classification of Pain Clinics

As reported in Table 2, in the Baseline Audit all clinics were able to self-classify using the IASP clinic type classification guideline. In the Follow-up Audit 19 (13%) did not self-classify their clinic type.

Standard 2: Waiting times should be appropriate and evidence based

Baseline Audit (Phase 1) : 80% of clinics in England in the Baseline Audit reported meeting the Government target for England of 18 weeks to first appointment, and 2.5% explicitly did not meet the standard. In Wales, where targets are somewhat different, 50% of clinics achieved 18 weeks for elective waits, with a lower completion rate of 70%. For clinics failing government targets, the median wait was 20 weeks in England and 33 weeks in Wales.

Follow up Audit (Phase 4) : IASP waiting time recommendations were used in this round² as they have an evidence base for pain and we became aware of the potential consequence of a fine for declaring failing a government target. However, only 49 (38%) of services responded to this. For routine referrals, 25 (43% of those who responded to this question) were able to offer a first appointment within the recommended time of 8 weeks, with a median wait of 15 weeks.

Standard 3: Clinics should be multidisciplinary

The majority of clinics, 111(72%), self-rated themselves as multidisciplinary in the Baseline audit according to IASP criteria, rising to 101 (93%) at the Follow up Audit. (Table 2)

Standard 4: Multidisciplinary pain services per head of population in line with other first world countries

One hundred services, across the range of types of clinic, provided information on numbers of patients seen per annum – an average of 0.25% of the total population in one year in England (Table 3). Adjusting for non-responders (based on the size of the populations they serve and the numbers seen in responding clinics), a rough estimate would be that 0.46% of the population was seen. As only 64% of clinics were multidisciplinary, then 0.25% of the England and Wales population is estimated to attend a multidisciplinary pain clinic every year.

Services also estimated this: 95 services responded to this question, with a mean estimate of 0.3% of the population seen.

Standard 5: Multi-modal Treatments should be available at services

Multimodal treatments are more than one type of treatment being delivered eg physiotherapy and an injection. Ninety three percent of services in the Baseline audit and 97 % in the Follow up audit self-reported they offered multimodal treatment. The types of treatments available are shown in Table 2. Nearly all services provided interventional pain management. In the Follow up audit, 61% reported providing a pain management programme; in the Baseline audit, nearly all services appeared to provide some form of a pain management programme but the question asked about specialist rehabilitation treatments so may be confused with other approaches. Seventy-two percent of those providing pain management programmes had a qualified cognitive behavioural therapy practitioner delivering the programme. Implants (neurostimulation and infusion catheters) were available in 30% of services.

Standard 6: Attributes of pain treatment facilities: Core multidisciplinary staff should be available

It was noted that there was a significant discrepancy between services' self-report and the actual staffing, defined by the audit group comprising at minimum a physician, physiotherapist and psychologist, who together could deliver all major treatment components. Generally, completion rates of questions on staffing levels were high, allowing some understanding of whether staffing levels were matched to need (Table 3). By the time of the Follow up Audit there was significant improvement in the reported availability of the specific multidisciplinary staff needed. Most services held multidisciplinary team meetings, and 14% offered multispecialty clinics aimed at the most complex cases.

Standard 7: ICD Codes should be correctly assigned for diagnosis

At the Baseline Audit clinicians were able to assign codes for 6,430 patients (67%). They were unable to code 3,000 patients into diagnostic groups and used free text instead which, when reviewed by the clinical expert group, could nearly all be mapped to a code. It appeared that sometimes clinicians were entering the co-morbidity contributing to chronic pain (e.g. "arthritis") rather than pain as a condition in itself.

Standard 8: Protocols should be in place to manage risk

This was also reported in the Third Report of the National Pain Audit ¹⁶Of the 121 providers that responded, 53 (44%) reported having a suicide risk assessment protocol. Fifty-three (44%) had a clear process for acting on a wrong diagnosis being made: all providers reported this as a serious untoward event. A process for recording prescribing errors was reported by 114 (94%). One hundred and four services (86%) had pain prescribing guidance, with 94 services (77%) having specific opioid prescribing guidance. Of those providing interventional pain therapy, 88% had a process in place for managing accidental misplacement of an injection, with 92% having a process in place to manage adverse events with interventional pain therapy.

Standard 9: Education to non-specialists and quality improvement programmes should be provided

Most providers met this standard. Ninety-three percent provided a clinical teaching programme for health professionals. Eighty-two percent stated that they carried out a regular audit of clinical practice.

Discussion

To the best of our knowledge, this was the first time, worldwide, that pain services have gone through an improvement cycle on a national scale. The National Pain Audit managed to characterise most pain clinics in England and Wales in terms of types of clinics, case mix, processes in place to manage risk, patient experience and clinical outcomes. Outcomes from this audit enabled clearer standards to be published and developed for routine inspection by regulators.²⁹

The quality of service provision improved over the audit period. Sound patient safety procedures are found in nearly every clinic. The proportion of services with reported truly multidisciplinary staffing rose from 32% at Baseline to 56% at Follow up ($p < 0.001$). Hogg in Australia and Peng in Canada, reported that 79% and 39% respectively were multidisciplinary clinics, this was by self-report alone and so it is difficult to draw comparisons.^{30, 31} Multidisciplinary care has been shown to improve general medical inpatient hospital-based outcomes.³¹ Multidisciplinary pain care focusing on self-management skills acquisition has also been found to be effective.³³ This is encouraging and was a key message of the Quality Improvement Programme although may also have been related to national guidance on the management of low back pain. However, professional controversy over the evidence base was not resolved until the production of clinical pathways.

Methodological challenges included difficulties with identifying services: HES data captured many services but at least 11 were missing. Hand searching for clinics on the NHS Choices website and searching for a pain clinic on providers' websites proved to be the best way of identifying clinics. Obligatory use of the relevant specialty code within the national hospital administrative database (HES) would make identification of services much easier. Fashler highlighted the variety of identification methods used by each large pain facility survey; some standardisation is needed to avoid selection bias.⁴ Considerable liaison was needed to verify eligibility and confirm data. Data availability on an open website proved very useful.

For many services, there was significant discrepancy between their self-description as a multidisciplinary clinic and the staffing required to provide multidisciplinary care. Exact staffing depends on feasibility, potential scope of practice and workforce supply.³⁴ At the time only medical staff had a clear, competency-based training programme. No other survey has attempted to assess this and there are no comparators. Given the discrepancy, future surveys ought to ask exactly which staff are present. Using two methods, we estimated that 0.25%- 0.3% of the total population was seen by a multidisciplinary clinic. This is somewhat lower than elsewhere;⁴ the reasons for this require further research.

Government waiting time targets of 18 weeks in England were largely met by services. However, the maximum waiting time recommended by the IASP for routine cases is 8 weeks, as deterioration is found in some cases from 5 weeks onwards.³⁵ A more detailed prioritisation of cases such as that recommended in Norway, based upon condition and complexity may enable clinics to reduce waiting times.³⁶

One major difficulty for clinicians was entering diagnostic codes. Perhaps selecting from the 600 ICD-10 codes for long-term pain is simply too overwhelming. The ICD-11 revision has proposed and tested new codes specifically for chronic pain, which may increase use.³⁷ Treatments were also confusing, difficult to classify and require better information standards.

Summary

A Quality Improvement Programme for specialist pain services in England and Wales was successfully delivered and measured. Sound patient safety processes are in place in nearly every service. Improvement in multidisciplinary provision occurred over the time period. However, waiting times did not improve and coding for diagnoses and treatments require improvement. Future programmes should focus on these areas and ensuring multidisciplinary care continues to grow.

References:

- 1 Pain Treatment Services Guideline. International Association for the Study of Pain 2009. <http://www.iasp-pain.org/Education/Content.aspx?ItemNumber=1381> (accessed 28 August 2018)
- 2 IASP Taskforce Recommendations on Waiting Times: www.dgss.org/fileadmin/pdf/Task_Force_on_Wait-Times.pdf (accessed 28 August 2018)
- 3 Roehr B. Trump declares opioid public health emergency but no extra money. *BMJ* 2017;359:j4998
- 4 Fashler, S.R., Cooper, L., Oosenbrug, E.D et al. Systematic review of multidisciplinary chronic pain treatment facilities. *Pain Research and Management* 2016:1-19
- 5 David W. Baker. History of The Joint Commission's Pain Standards. Lessons for Today's Prescription Opioid Epidemic. *JAMA* 2017;317(11):1117–1118.
- 6 Gordon DB, Dahl JL. Quality improvement challenges in pain management. *Pain* 2004;107(1-2):19
- 7 Clinical Standards Advisory Group (CSAG): Services for patients with pain 2000. Department of Health. HMSO London
- 8 Getting to GRIPS with chronic pain in Scotland. NHS QIS 2007
- 9 150 years of the Annual Report of the Chief Medical Officer: On the state of public health 2008: Pain Breaking Through the Barrier. https://webarchive.nationalarchives.gov.uk/20090430160249/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/AnnualReports/DH_096206 Accessed 19/11/2018
- 10 Service Development and Commissioning Directives, Chronic Non-Malignant Pain. Welsh Assembly Government. June 2008.
- 11 Pink D, Bromwich N. National Institute for Clinical Excellence (Great Britain). Principles for best practice in clinical audit. Radcliffe Publishing, 2002
- 12 Kerns R. Improving Care Across Hundreds of Facilities: The Veterans Health Administration's National Pain Management Strategy. In: Joint Commission on Accreditation of Healthcare Organizations. Improving the Quality of Pain Management Through Measurement and Action 2003.
- 13 Cleeland CS1, Reyes-Gibby CC, Schall M, et al. Rapid improvement in pain management: the Veterans Health Administration and the institute for healthcare improvement collaborative *Clin J Pain* 2003;19(5):298-305.
- 14 Hooten WM, Timming R, Belgrade M et al . Assessment and management of chronic pain. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2013 Nov. p 105
- 15 The National Pain Audit Reports 2011, 2012 { HYPERLINK "<https://www.hqip.org.uk/resource/national-pain-audit-reports-from-2011-to-2012/>" } (accessed 19 August 2018)
- 16 The National Pain Audit Third Report https://www.britishpainsociety.org/static/uploads/resources/files/members_articles_npa_2013_safety_outcomes.pdf (accessed 19 August 2018)
- 17 NHS Atlas of Variation volume 2 2011: <https://fingertips.phe.org.uk/profile/atlas-of-variation> (accessed 28 August 2018)

- 18 NICE Low Back Pain; early management CG88 2009. { HYPERLINK "https://www.nice.org.uk/guidance/cg88" } (accessed 28 August 2018)
- 19 L. A. Colvin and D. J. Rowbotham I. Managing pain: recent advances and new challenges. *Br. J. Anaesth* 2013; 111 (1);1-3
- 20 Royal College of Anaesthetists. Anaesthesia services for chronic pain management 2014. Guidelines for the provision of anaesthetic services. 2014. https://www.rcoa.ac.uk/system/files/GPAS-FULL-2014_3.pdf Accessed 19/11/18
- 21 Raising the Standard: a compendium of audit recipes (3rd edition) 2012 Royal College of Anaesthetists { HYPERLINK "https://www.rcoa.ac.uk/ARB2012" } }
- 22 Bridges S. Chronic pain. Health Survey for England, 2011. { HYPERLINK "https://files.digital.nhs.uk/publicationimport/pub09xxx/pub09300/hse2011-ch9-chronic-pain.pdf%20Accessed%2019/11/2018" } }
- 23 Pain Management Services: Planning for the Future - guiding clinicians in their engagement with commissioners { HYPERLINK "file:///C:/Users/cmp1v07/Downloads/RCGP-Commissioning-Pain-Management-Services-Jan-14.pdf" } (Accessed 19/8/2018)
- 24 Pain Summit Report 2011:
https://www.britishpainsociety.org/static/uploads/resources/files/members_articles_pain_summit_report.pdf. (accessed 28 August 2018)
- 25 Donabedian A. Evaluating the Quality of Medical Care. *The Milbank Memorial Fund Quarterly* 1965;44:3:166-206
- 26 National Patient Safety Agency (Corporate Office) 4-8 Maple Street, London W1T 5HD:[www.npsa.nhs.uk /resources/](http://www.npsa.nhs.uk/resources/) (accessed 28 August 2018)
- 27 Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency.<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/2014-06-26> (accessed 28 August 2018)
- 28 Ogrinc G, Davies L, Goodman D, Batalden P, Davidoff F, Stevens D. SQUIRE 2.0 (Standards for QUality Improvement Reporting Excellence): revised publication guidelines from a detailed consensus process. *BMJ Qual Saf.* 2015. PMID: 26369893
- 29 Core Standards for Pain management Services in the UK. Faculty of pain Medicine Royal College of Anaesthetists 2015. <http://www.rcoa.ac.uk/system/files/CSPMS-UK-2015-v2-white.pdf> . (accessed 28 August 2018)
- 30 Hogg M. N., Gibson S., Helou A., Degabriele J., Farrell M. J. Waiting in pain: a systematic investigation into the provision of persistent pain services in Australia. *Medical Journal of Australia* 2012;196(6):386–390
- 31 Peng P, Choiniere M, Dion D et al. Challenges in accessing multidisciplinary pain treatment facilities in Canada. *Canadian Journal of Anesthesia* 2007;542:977–984
- 32 Fielding R, Kause J, Arnell-Cullen V, Sandeman D. The impact of consultant-delivered, multidisciplinary, inpatient medical care on patient outcomes. *Clin Med* 2013; 13(4):344-8.

33 Pike, Andrew; Hearn, Leslie; de C Williams, Amanda C. Effectiveness of psychological interventions for chronic pain on health care use and work absence: systematic review and meta-analysis. *Pain* 157(4):777-785, April 2016

34 Conway J, Higgins I. Literature review: models of care for Pain Management.
<http://www.health.nsw.gov.au/PainManagement/Documents/appendix-3-literature-review.pdf>
(accessed 28 August 2018)

35 Lynch ME, Campbell F, Clark AJ et al. A systematic review of the effect of waiting for treatment for chronic pain. *Pain* 2008;136(1-2):97-116.

36 Hara KW, Borchgrevink P. National guidelines for evaluating pain - Patients' legal right to prioritised health care at multidisciplinary pain clinics in Norway implemented 2009. *Scandinavian Journal of Pain* 2010 1(1):60-3.

37 Treede RD; Rief W; Barke A et al. A classification of chronic pain for ICD-11. *Pain* 2015; 156(6):1003–1007

Figure 1 Audit Cycle Undertaken by the National Pain Audit 2010-14

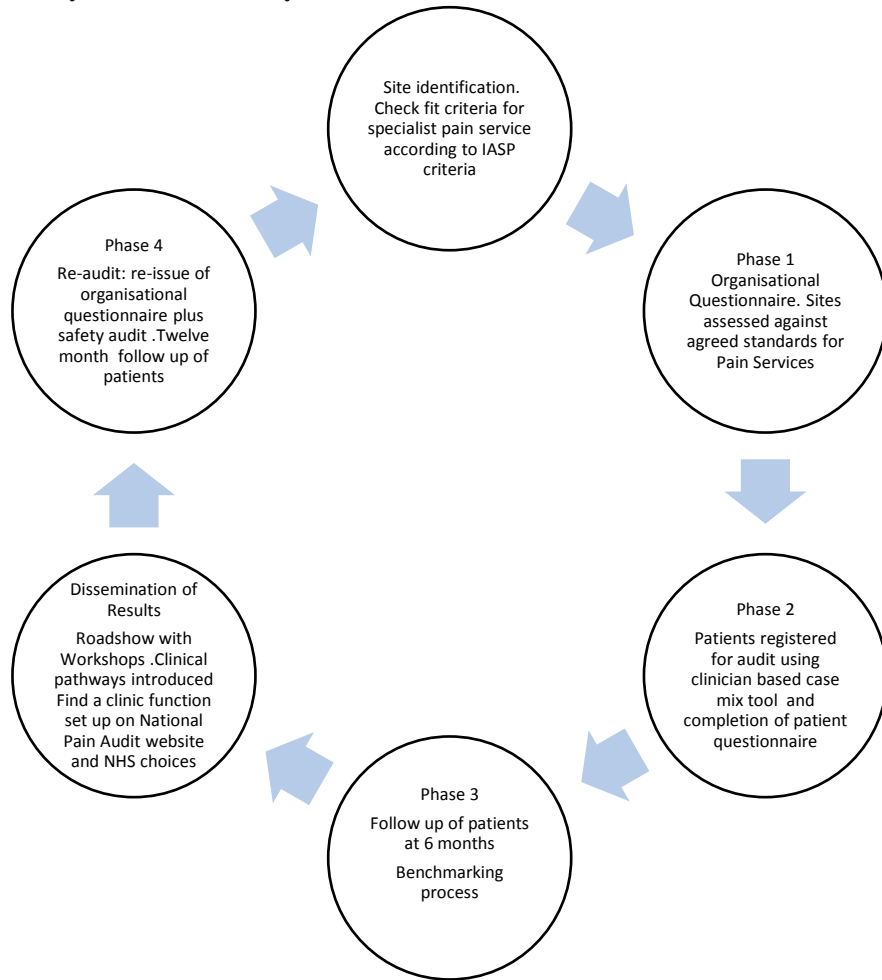


Figure 2: Data Collection Flow through the audit

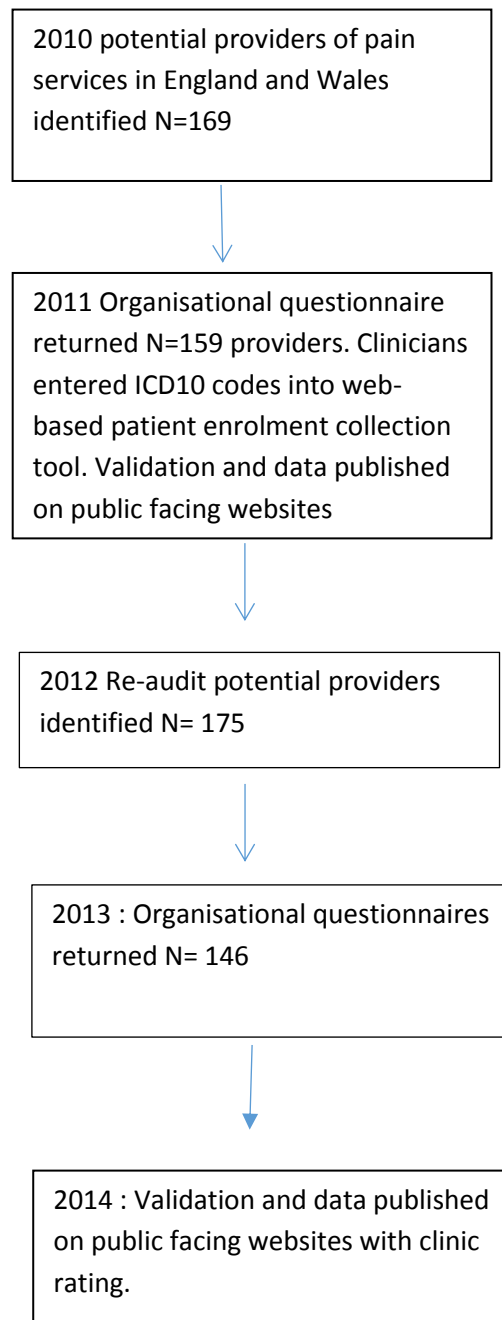


Table 1: Audit Standards assessed by the first National Pain Audit

	Standard	Indicator Type	Justification	Reference
1	Type of Clinic (IASP definition)	Structure	Evidence for multidisciplinary care	International Association for the study of pain guidance ¹
2	Waiting times	Outcome	Key performance indicator nationally Evidence for waiting times impact on health	18 week Referral To Treatment Times (Baseline Audit) IASP waiting time standard ² (Follow-up)
3	Multidisciplinary staffing	Structure	Internationally Recognised Standard for Pain Services	IASP treatment facilities guidance ¹
4	Availability of pain services per head of population	Structure	Key concern worldwide	Systematic Review recommendations ⁴ ,
5	Treatments available at Pain services	Structure	Availability of evidence based multidisciplinary care, back up facilities and wider specialist support to the community	British Pain Society Map of Medicine treatment pathways ¹⁹
6	Attributes of Pain Treatment facilities	Structure	Multidisciplinary Care check that personnel match the definition	Systematic Review recommendations ⁴
7	100% patients diagnoses assigned an ICD-10 code	Outcome	Diagnosis Determines Treatment Pathway	NHS Information Standards
8	100% of clinics had protocols in place to manage high risk areas of practice	Process	Standard requirement of NHS providers	National Patient Safety Agency ²⁵
9	Education Programme	Structure	As a specialist service , should be providing best practice on managing pain to non-specialists	IASP treatment facilities guidance ²

Table 2: Types of clinics, staffing and treatments available in pain clinics services at each audit round (N=total number of responses for that section*)

	Baseline (2010)	Follow-up (2013)	Chi squared test/P value
Type of Clinic	N (%)	N (%)	
Modality-oriented	11 (7)	3 (3)	N/A
Pain Clinic	33 (21)	5 (5)	N/A
<i>Total Non-multidisciplinary</i>	<i>44 (28)</i>	<i>8 (7)</i>	N/A
Multidisciplinary** Pain Clinic	76 (49)	71 (65)	N/A
Multidisciplinary** Pain Centre	35 (23)	30 (28)	N/A
<i>Total Multidisciplinary **</i>	<i>111 (72)</i>	<i>101 (93)</i>	<0.001
Total Clinic Type	N=155	N=109	
Staffing	N=124 (%)	N=133 (%)	
Psychologist	60 (49)	80 (64)	0.058
Physiotherapist	67 (54)	89 (67)	0.003
Consultant	89 (72)	113 (85)	0.010
Incomplete responses	40 (32)	20 (22)	
True multidisciplinary staffing (minimum)	39 (32)	75 (56)	<0.001
MDT meetings	70 (56)	117 (88)	<0.001
Treatment Modality	N=146 (%)	N= 116 (%)	
Interventional procedures	130 (88)	111 (96)	0.049
Implants	43 (30)	31 (28)	0.626
Pain Management Programme	122 ***(86)	71 (61)	<0.001

* N varied between each section due to missing data returns

** minimum staffing of physician , psychologist and physiotherapist

***May be inaccurate as question asked about specialist rehabilitation rather than distinguishing psychologically based rehabilitation from standard rehabilitation

Table 3. Percentage of patients seen at a pain clinic per total head of population in England (source Office of National Statistics: Population Estimates for UK, England and Wales, Scotland and Northern Ireland 2013)

Region	Number seen in pain clinic	Population	% seen
East of England	18043	5,954200	0.303%
East Midlands	6927	4,598700	0.151%
North West	20456	7,103300	0.288%
London	21849	8,416500	0.260%
South West	11253	5,377600	0.209%
South East	17076	8,792600	0.194%
North East	8431	2,610500	0.323%
West Midlands	8577	5,674700	0.151%
Yorkshire and Humber	10083	5,337700	0.189%
England Total	134223	53,865,800	0.249%