Archwilydd Cyffredinol Cymru
Auditor General for Wales

Review of Clinical Coding

Velindre NHS Trust

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The Wales Audit Office team who delivered the work comprised Elaine Matthews and Anne Beegan. The work was supported by Richard Burdon and Helen Dennis from the NHS Wales Informatics Service Clinical Classifications Team.

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Summary report

Introduction

1. Clinical coding is defined by the NHS Classifications Service as '*the translation of medical terminology, as written by the consultant, to describe a patient's complaint, problem, diagnosis, treatment or reason for seeking medical attention into a coded format which is nationally and internationally recognised*'.
2. Clinical coded data is core to the information used by NHS organisations to govern the business and ensure that resources are used efficiently and effectively. Coded data informs decision making and strategic plans. It is also fundamental in reporting quality and performance, including mortality rates.
3. In England, coded data is also used in Payment by Results, the system by which trusts are paid for services they provide. Although NHS organisations in Wales are not paid in relation to activity, all health bodies have now adopted patient level costing as a way of allocating costs to activity, based on coded data. This patient level costing is becoming increasingly important in informing discussions about the transfer of monies between health boards. The linkage between coding and income has meant that many hospitals in England have invested in the clinical coding department. In Wales this has not been the case.
4. Clinical coding featured in the recent Francis Report into the failings at Mid Staffordshire NHS Foundation Trust. Evidence presented to the second inquiry into the Mid Staffordshire care failings pointed to the fact that the Board had convinced itself that the reported high mortality rate was due to the poor quality of the coded data that underpinned it, rather than any failings in the care provided to patients. The readiness to explain away the high mortality rates as being down to coding and data quality ultimately had tragic consequences for many patients at the Trust. The report concluded that executives and independent members needed to be more aware of issues relating to coding, and their relationship to management information that is used to measure performance and outcomes.
5. The focus on clinical coding in Wales has been mainly in respect of the timing to complete the coding process. The Welsh Government had set a target that by the end of each financial year, 95 per cent of hospital episodes should have been coded within three months of the episode end date. Many health bodies have struggled to meet the completeness target with significant numbers of cases waiting to be coded. The main reason for backlogs appears to be staff capacity.
6. In response to the need for accurate and timely clinical coding, the Director of Delivery and Deputy Chief Executive NHS Wales wrote to all Chief Executives in January 2013. He raised the need for a renewed and sustained commitment to coding quality and to seek assurance that required standards for timeliness and completeness would be met and maintained. The targets set by Welsh Government were revised with immediate effect. These included:
   - a requirement for NHS bodies to meet the 95 per cent completion target on an ongoing monthly basis, and not just at year end; and

- a new target that for any given 12 month period, 98 per cent of all hospital episodes should be coded within three months of the episode end date.

7. In setting these targets, the Welsh Government recognised that there was no mechanism in place to continually assess the accuracy of clinical coded data in Wales. Plans were subsequently put in place to develop a national programme of clinical coding audit and a new National Clinical Coding Audit lead was appointed in July 2013 to take forward this work from within the NHS Wales Informatics Service (NWIS).

8. Given the concerns about the timeliness and accuracy of clinical coding across Wales, the increasing application of patient level costing, and the importance of accurate management information, the Auditor General for Wales has decided to undertake a review of clinical coding across all health boards in Wales, as well as Velindre NHS Trust.

9. The review sought to answer the question: '*Do clinical coding arrangements support the generation of timely, accurate and robust management information*?' The work was undertaken in partnership with the NWIS Clinical Classifications Team[1] and is being used by NWIS to provide a baseline position on clinical coding accuracy and management arrangements across Wales. The approach included a particular focus on specialties which account for a significant proportion of hospital activity. The approach taken to delivering the review is set out in more detail in Appendix 1.

Our main findings

10. Our review has concluded that the completion of clinical coding has been timely in the past, but a range of weaknesses in the arrangements and process are impacting on the accuracy of clinical coded data in Velindre NHS Trust (the Trust) and limited resources means that backlogs in uncoded episodes are now increasing. The reason for our conclusion is that:

- Clinical coding has a low profile in the Trust and needs more investment to support a greater focus on quality and accuracy:
  - clinical coding has had a low profile at board level over the past two years with no information on timeliness or accuracy provided;
  - there are mixed lines of accountability for clinical coding to the Board although steps are being taken to improve the integration of coding within the wider informatics agenda, including the links with medical records; and
  - financial resources have decreased and staffing levels are insufficient.

[1] The Clinical Classifications Team provides support and guidance to clinical coders in NHS bodies and forms part of the NHS Wales Informatics Service.

- The quality of clinical coding is weakened by issues with disorganised patient information, managerial and supervisory capacity, staffing levels, and a lack of audit processes:

  policies and procedures are up to date and in line with national standards;

  coders have timely access to both paper based and electronic patient information however the filing structure in Cancer Network Information System Cymru (CaNISC) makes finding the relevant information difficult and dealing with the administration of patient records can be distracting:

  - Timely access to patient information is good although coders spend time supporting the tracking of medical records within the Cancer Centre.
  - Although there are many large folders paper case notes are generally in a good condition however a lack of a consistent and clear filing structure on CaNISC makes accessing electronic information problematic.
  - Coders have good access to clinical information systems which is identified as good practice.

  the approach to coding is positive with staff coding activity relatively quickly;

  staffing levels are under pressure with a significant gap in managerial and supervision capacity;

  there are mixed levels of clinical engagement in the clinical coding process; and

  while the department is managed by a qualified auditor, validation processes and routine audit arrangements are inadequate due to time pressures.

- The Trust is starting to make greater use of clinical coded data which met the Welsh Government standards for 2012-13 but backlogs of uncoded episodes are increasing and although the overall accuracy is good, inaccuracies were identified for inpatient episodes, the implications of which need to be clearly explained across the organisation:

  clinical coded data met the validity and consistency standards for 2012-13, and was completed within the three month window but backlogs are starting to increase and the review identified inaccuracies with the coding of inpatient episodes:

  - The Trust achieved the national validity and consistency standards for data derived by clinical coding.
  - The Trust achieved the Welsh Government target that activity should be coded within three months, however performance is now not being sustained with backlogs in workload starting to increase.

- The NWIS review of coding at the Trust found that the overall accuracy is good but there are some issues with the accuracy of inpatient episodes.

The Trust has plans to make more use of clinically coded data although the implications of quality issues in clinical coding need to be addressed.

Recommendations

11. We make the following recommendations to the Trust.

Management of medical records

R1 Improve the management of both paper and electronic medical records to ensure that the quality of, and access to, medical records effectively supports the clinical coding process. This should include:

- reviewing and exploring the adoption and implementation of the standards of the Royal College of Physicians (RCP) for medical records;
- developing a programme of routine audits of medical records to provide assurance that the quality of medical records is improving;
- reviewing the way that health records are tracked within the Cancer Centre to reduce the time spent on this by the clinical coding team; and
- adopting a standardised approach to the recording of information in CaNISC to support the retrieval of information by e.g. introducing a standardised format for titles of scanned documents.

Clinical coding resources

R2 Strengthen the management of the clinical coding teams to ensure that good quality clinical coding data is produced. This should include:

- increasing the establishment of staff in the clinical coding team to address the quality issues identified in this report;
- reviewing the structure of the team to provide an opportunity for developing a clear career pathway and implementation of the accredited clinical coder qualification;
- establishing a supervisor post to support the Clinical Coding Manager so that she can develop audits and provide other support to the coders to improve quality;
- establishing and maintaining regular team meetings and individual appraisals to provide regular feedback to staff on issues raised through validation and audit; and
- monitoring and managing high levels of productivity to ensure that the need for timeliness does not impact on the accuracy of clinical coding.

Engagement with medical staff

R3 Strengthen engagement with medical staff to ensure that the positive role that doctors have within the clinical coding process is recognised. This should include:

- raising awareness of the clinical coding process adopted by the Cancer Centre through training sessions for medical staff, as well as attendance at appropriate meetings such as audit sessions;
- raising the awareness of all consultants so that they know where the clinical coding team is located; and
- encouraging clinical coding staff to engage clinicians in the validation process and to visit clinical areas.

Board engagement

R4 Raise the profile of clinical coding at Trust Board level to ensure that the implications of clinical coding on performance management, and the wider management processes in the NHS, are fully understood. This should include:

- simplifying lines of accountability for clinical coding to Board to ensure that professional and operational issues are co-ordinated;
- providing short briefing material which clearly sets out what clinical coding is and the implications of poor clinical coding (reflecting timeliness, completeness and accuracy) on key performance indicators;
- ensuring that papers that are underpinned by clinical coding data include a statement which sets out the robustness of the data; and
- providing regular feedback on clinical coding performance against the Welsh Government targets.

Source: Wales Audit Office 2014

Detailed report

Clinical coding has a low profile in the Trust and needs more investment to support a greater focus on quality and accuracy

Clinical coding has had a low profile at board level over the past two years with no information on timeliness or accuracy provided

12. Our observation of boards as part of our Structured Assessment[2] in 2012 suggested that not all boards in Wales were aware of clinical coding issues, or the fact that poor clinical coding performance can adversely affect the robustness of information for strategic decision making and service monitoring.

13. As part of our Structured Assessment in 2013, we surveyed board members across Wales to gauge their understanding of clinical coding within their organisations, and their level of assurance that clinical coding arrangements are robust. We received responses from 10 of the board members in the Trust. The full results from our survey of board members can be found in Appendix 2.

14. The responses to the survey indicate that some board members are confident that they know about clinical coding:

- eight out of 10 board members who responded to the survey reporting that they had full or some awareness of the factors affecting the robustness of clinical coding;
- six out of 10 board members reporting that they were satisfied or completely satisfied that the Trust was doing enough to make sure that clinical coding arrangements were robust; and
- five out of 10 board members reporting that they were satisfied with the information they received on the robustness of clinical coding arrangements in the Health Board.

15. The remaining respondents reported that they were neither satisfied nor dissatisfied indicating that more needs to be done to raise awareness of coding arrangements to provide assurance that arrangements are robust.

16. A review of board papers shows that clinical coding does not feature at full board level because there have been no issues with timeliness. As the board does not receive risk adjusted mortality data the drivers that have influenced other health boards to improve clinical coding are not present in the Trust. Clinical coding did also not feature in the Annual Quality Statement.

[2] The Structured Assessment work examines the arrangements in place to secure efficiency, effectiveness and economy in the use of NHS resources.

17. Clinical coding performance against the Welsh Government targets is reported monthly to the Director, Velindre Cancer Centre. Clinical coding backlogs have started to increase in recent months, with verbal updates on backlog levels provided but the risks to other performance data as a result of these backlogs have not been identified to the Information Governance, Information Management and Technology (IG&IMT) committee, or the Board.

18. In common with much of Wales, there has been no focus on the accuracy of clinical coding at board level as there is currently no mechanism for providing assurance that the resultant clinical coded data is accurate.

There are mixed lines of accountability for clinical coding to the Board although steps are being taken to improve the integration of coding within the wider informatics agenda, including the links with medical records

19. In the Trust the Director of Finance has executive responsibility for clinical coding; however he is not operationally responsible for the clinical coding team. Day-to-day management is by the Clinical Coding Manager, who reports to the Cancer Centre's Head of IM&T who in turn reports to the Director, Velindre Cancer Centre. The Director, Velindre Cancer Centre attends the Board but is not part of the Executive Team. The Head of IM&T does have a professional link to the Director of Finance however the split accountability arrangements may mean that the linkages between operational and professional responsibility are not always recognised at a Director level.

20. Clinical coding should play a key part in the informatics process however integration of clinical coding within the informatics agenda in the Trust is mixed. The Wales Audit Office's review of data quality at the Trust in 2012 found that despite the absence of a formal policy, data quality procedures and processes are well established and effective. The Trust recently presented a new data quality policy to the Executive Management Board and, following consultation across the Trust, was due to be presented for approval at the Trust Board in February 2014. Clinical coding was a feature of the data quality review which was received by both the Trust's audit committee and its IG&IMT committee, which is positive.

21. While the Cancer Centre has an Information Governance Committee there is no management forum where clinical coding is featured. However, the Trust has plans to establish an activity working group to talk through issues and link it to the resource management project which has been established to make use of coded data to support business planning.

22. Until a year ago, the Health Records Manager provided cover for clinical coding, supporting the team when the Clinical Coding Manager was on maternity leave. When she retired, the Trust replaced the Health Records Manager post but separated the two functions. Currently there are no joint meetings between medical records and clinical coding although the new Health Records Manager is keen to set up a Health Records Committee where they can meet regularly to discuss common issues.

Financial resources have decreased and staffing levels are insufficient

23. The extent to which hospital activity is coded to a good quality is partly dependent on the level of resources that an organisation is prepared to invest in its clinical coding function. This is both in terms of staffing levels, but also the arrangements to ensure that staff have access to training and development opportunities which would enhance the quality of clinical coding.

24. Currently, only information relating to hospital admissions (in the form of finished consultant episodes (FCE)), and more recently procedures undertaken in an outpatient setting, are required by Welsh Government to be coded. With additional resources, clinical coding has the potential to respond to a significant gap in intelligence by extending the range of activity that is coded. This could include the coding of GP referrals, all outpatient visits or attendances to emergency departments who are not admitted.

25. The budget allocated for clinical coding in the Trust has decreased. The annual budget for clinical coding for 2013-14 is in the region of £170,000, a fall of 10 per cent on the budget set for the previous financial year (£187,000). This is due to a reduction in staffing levels. Expenditure for the financial year 2012-13 was around £150,000.

26. Staffing accounts for the entire budget. As at 30 September 2013, the Trust's clinical coding department had a total funded establishment of 6.55 full-time equivalents (FTEs) made up of eight staff. Staffing levels have decreased over the last two years as a result of a reduction in the hours worked by the Clinical Coding Manager from full-time to 0.48 FTE.

27. The clinical coding team is 6.07 FTEs (consisting of 4.07 FTEs at Band 4 and 2.0 Band 3 trainees). In accordance with national guidance, the remit of the clinical coding team in the Trust covers all FCEs, plus procedures undertaken as day cases and regular day attenders (RDA). Clinical coders are responsible for all Velindre activity carried out at Velindre Cancer Centre and also at peripheral clinics in health boards.

28. If demand from FCEs continues in line with 2012-13, the required level of core clinical coding staff needed to meet FCE demand would be in the region of 12.1 FTEs[3]. This is based on a recognised standard workload level of 30 FCEs per day per full-time coder. This would indicate a shortfall in the current staffing establishment for the core clinical coding team of a further 6.07 FTE.

29. The NWIS currently provides free access to the foundation training course for clinical coders, along with refresher training and specific training on new versions of the coding classification structures. All staff have either undertaken the foundation training or, in the case of the most recently appointed Band 3, are waiting to start the course. The Trust now requires its clinical coding staff to be accredited on appointment to a Band 4 or to gain accreditation whilst in post if appointed as a Band 3.

30. There is a Trust budget for training and development over and above the training provided centrally, which supports both medical records staff as well as clinical coders. Clinical coders reported that there were only one or two spaces allocated on NWIS refresher courses and workshops each year and more staff would like the opportunity to attend. The frequency of training courses is also limited, which can impact on the ability to get staff trained in a timely manner. Other training that the Trust provides would be to support the unqualified Band 4 staff to complete the nationally recognised accredited clinical coding qualification which is acknowledged would enhance the quality of clinical coding, as well as offering advanced modules of clinical coding trainer and clinical coding auditor. The Clinical Coding Manager is a qualified clinical coding auditor. Initially funded by her previous employer, the Trust has funded ongoing training and support to enable the manager to maintain her auditor qualification.

[3] Calculation based on FCE activity for 2012-13, divided by workload assumption of 30 FCE's per day, divided by a standard availability of 200 working days per year per FTE (excluding bank holidays, leave entitlements and commitments to training and development (including mandatory training and personal development reviews)).

The quality of clinical coding is weakened by issues with disorganised patient information, managerial and supervisory capacity, staffing levels, and a lack of audit processes

Policies and procedures are up to date and in line with national standards

31. The Trust has an up-to-date clinical coding policy and procedures manual which was due for review in February 2014. It sets out the clinical coding structure in the Trust and the processes that should be followed by all clinical coding staff when coding activity. The document is easy to read, and is a useful guide for staff, particularly newly appointed staff, as reference material.

32. When coding activity, it is vital that coders adhere to national standards so as to ensure that clinically coded data is comparable across Wales and is of the highest quality. To support guidance and clarification of national standards, the NWIS Clinical Classifications Team will provide a range of additional documentation such as communications and access to a clinical coding helpline.

33. Implementation of national standards is routinely supported through the central mechanisms such as the NWIS Clinical Coding User Group. These groups provide opportunities to challenge the standards, raise queries and share experiences across Wales. The Trust is proactively involved in these groups through the Clinical Coding Manager. The coding team have access to the Clinical Classifications Team in NWIS through the Clinical Coding Manager, however timely response to queries was identified as being problematic.

Coders have timely access to both paper based and electronic patient information however the filing structure in CaNISC makes finding the relevant information difficult and dealing with the administration of patient records can be distracting

Timely access to patient information is good although coders spend time supporting the tracking of medical records within the Cancer Centre

34. To facilitate the achievement of the Welsh Government target that 95 per cent of coding activity should be completed within three months of the end of the hospital episode, it is important that clinical coders get timely access to patient's medical records.

35. A large proportion of information required by the clinical coders in the Trust is contained in the electronic patient record on CaNISC. Coders have full access to the system so can access the information as soon as the episode of care has been completed. CaNISC however is not used for all patient interactions within the Cancer Centre as inpatient stays are also recorded on paper case notes. CaNISC also has no facility for recording signatures for chemotherapy and other treatments. These are retained in the paper case notes and recorded in a separate system, ChemoCare. This means that coders have to access a mixture of paper and electronic records to look for all the information they need for a particular patient episode.

36. Once a patient is discharged or transferred from the Cancer Centre or any of the outreach clinics, the majority of paper based medical records can be released directly to the clinical coding teams. However, some of these records can find their way to many different departments before reaching the clinical coding department, for example, to medical secretaries for correspondence to be filed. As part of our fieldwork, we undertook a tracking exercise, using the medical records tracking tool[4], to track medical records from the ward through to the clinical coding department to see how quickly clinical coders are able to access medical records.

37. Based on a sample of 40 patients, we identified that it took on average less than one week for case notes to reach the clinical coding team from the point of discharge or transfer. Almost all records from our sample (38 out of 40) reached the coding team in less than two weeks with just two records taking around five weeks. This is good practice and shows that efficient systems are in place.

Exhibit 1: Speed of access to medical records (paper case notes) following discharge or transfer in Velindre Cancer Centre

		Velindre Cancer Centre
Speed of accessing medical records (weeks)	Average	0.8
	Shortest	0.1
	Longest	5.6
Percentage of medical records received by the coding team…..	…within 4 weeks (1 month) of discharge	95%
	…within 8 weeks (2 months) of discharge	5%
	…within 12 weeks (3 months) of discharge	0%

Source: Wales Audit Office 2013

[4] To be able to locate medical records at any given time, NHS bodies use a tracking tool. In Velindre NHS Trust, the tracking tool is part of the CaNISC system.

38. To support timely access to medical records, and to reduce the time spent by clinical coding staff tracking down medical records, many clinical coding departments across Wales have appointed support staff who specifically collate, source and locate medical records. These staff are often referred to as 'runners'. The Trust does not employ any staff dedicated to this role.

39. Ward clerks track the case notes from the wards and bring them to the coders' office where they put them onto the correct shelf. Even though case notes are brought in by other staff, a diary exercise undertaken for a period of two weeks indicated that clinical coding staff spent just over seven per cent of their time supporting the tracking of case notes around the Cancer Centre. Half of this time (3.5 per cent) was spent picking up and returning case notes for coding with the rest on tracking case notes, liaison with ward clerks, medical records staff and clinic co-ordinators, locating missing case notes, and supporting other staff to search for case notes. The coding staff reported that they find it distracting to have people coming into their offices many times a day to search through notes that they have not yet coded or have been coded but are waiting to be returned to the library.

Although there are many large folders, paper case notes are generally in a good condition however a lack of a consistent and clear filing structure on CaNISC makes accessing electronic information problematic

40. The quality of patient records can have a direct impact on the quality of coding. Clinical coders rely on the inclusion of key information within the record to enable them to effectively capture all that has happened to the patient. Records therefore need to be of a high quality, in terms of the way the record is ordered and the completeness of the information that it contains.

41. As part of our medical staff survey we asked the opinion of staff of the overall quality of medical records. We found seven out of eight respondents reported that the overall quality of medical records was good or very good with no-one saying they were below average or poor. The full results from our medical staff survey can be found in Appendix 3.

42. Our fieldwork identified that while the Trust has a current records management strategy and procedure there was little awareness of the RCP standards[5] that the Trust could apply to improve the quality of its medical records. This was confirmed in the responses from the medical staff survey undertaken as part of this review which indicated that:
    - one out of eight medical staff was aware of the RCP standards but they were not sure if the standards had been adopted by the Trust; and

[5] In 2008, the Academy of Medical Royal Colleges approved new standards for the structure and content of medical records developed in a project led by the Royal College of Physicians Health Informatics Unit (HIU) and funded by NHS Connecting for Health.

- two out of eight medical staff were aware that other internal standards were being applied to the medical records.

43. One way of improving the quality of medical records is by embedding the importance of medical records in the training of staff. Medical records have not featured in training for medical staff in the Trust for some time, with only two out of eight medical staff reporting that they have received training on improving medical records over the last two years. Junior doctors do not have medical records training although they do receive an induction on how to use the electronic patient record CaNISC[6] when they start at the Cancer Centre.

44. Although information is available electronically, staff reported issues with the way that information is stored on CaNISC. Medical and non-medical staff use different areas for recording information which is not always consistently applied. There is no easy way to retrieve information from CaNISC and the clinical coders have to search through all of the patient's record to find the information they need to code a particular episode of care. Accessing scanned documents is also difficult as it is not always clear what the document contains so the coder has to open all attachments in case any are relevant. The coders also experience difficulties with the software crashing which adds time to the coding process. Because of the difficulties with CaNISC, the NWIS audit highlighted that some short cuts were being taken by coders through 'copying over' the diagnosis from previous episodes. This is not good practice particularly as this can change over time for long term cancer patients.

45. The Trust wants to move towards a totally electronic record system which is positive. Given the problems above, not all clinical teams want to move away from paper records so a combination of systems is in place. This makes it very difficult for the coders to access the information they need.

46. As part of our fieldwork we reviewed a sample of 30 case notes based on 16 of the RCP standards. Compliance with the RCP standards at the Trust was 89 per cent. Many of the case note files are very large and difficult to navigate by clinical coding staff because patients may have treatment over many years at the Cancer Centre. The Health Records Manager has carried out work to ensure that the larger files were repaired and all the information kept together. The Ward Clerks also reported tidying up records containing loose pieces of paper.

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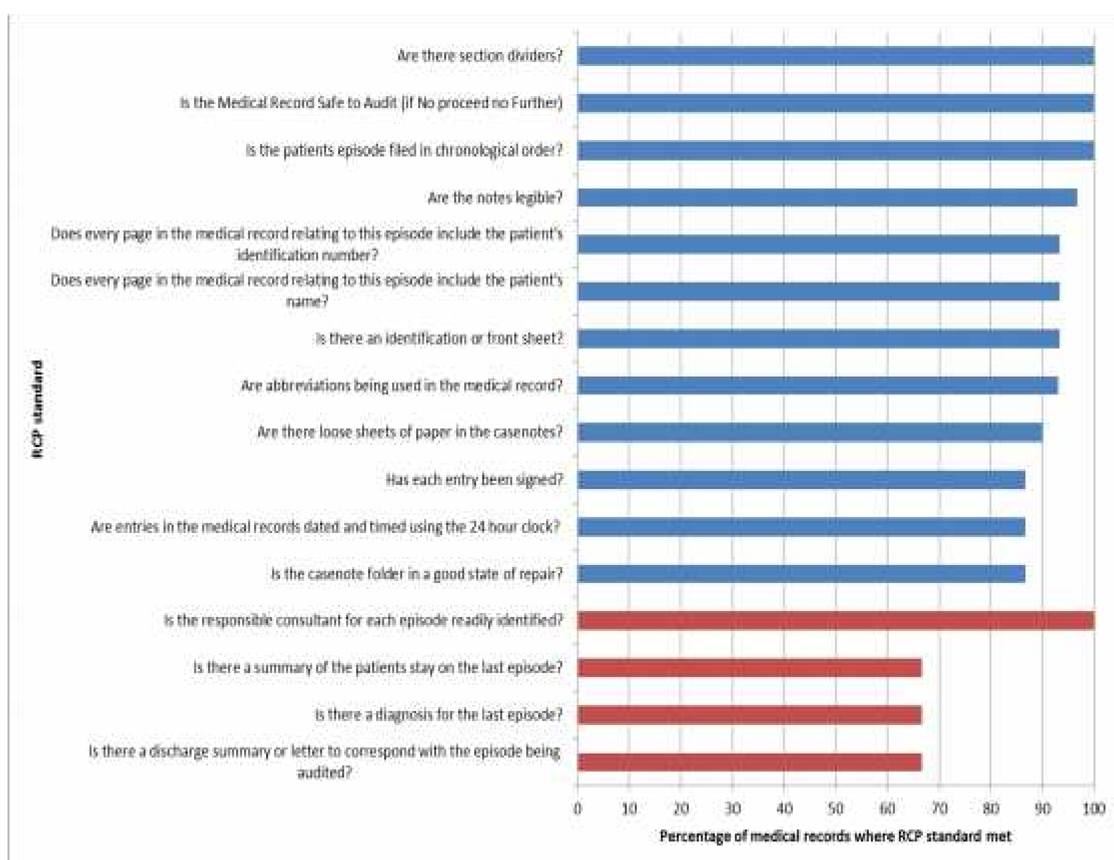
[6] CaNISC is an online computer system holding information from a patient's interactions with health professionals. It was developed by the Velindre Cancer Centre where it has been in use for many years. Since April 2009 NWIS has taken it forward as a national system to be used by other cancer centres, screening and others.

47. The medical records team have responsibility for setting up the record and ensuring that it is stored appropriately. However the responsibility for filing information and the quality of the information recorded in the medical records rests with other staff, particularly ward clerks, secretaries and clinical staff. Particular standards that were identified as being problematic in the review of medical records (Exhibit 3) were the responsibility of the clinical staff. These included the recording of a diagnosis for the last episode, and the responsible consultant for each episode being readily identifiable. These are issues that need to be explored with the consultant body.

Exhibit 3: Overall level of compliance against the RCP standards



Note: The first 12 standards are based on 30 case notes for inpatient/day case/RDA while the last four standards focus specifically on inpatient stays.

Source: Wales Audit Office 2013

48. Because the clinical coders need to use both CaNISC and paper case notes to code an episode, the paper case notes contain a pale blue form that the coders should complete and sign setting out what codes have been allocated. However, the Clinical Coding Manger was concerned that these forms were not always completed. When we carried out our audit of the RCP standards we also checked the blue forms. We found that 18 out of the 20 relevant episodes (excluding 10 episodes of radiotherapy which is only reported on CaNISC) had a blue form completed leaving two episodes where the form was not completed. We did not review the accuracy of the codes set out on the blue form.

Coders have good access to clinical information systems which is identified as good practice

49. As well as CaNISC, some information that coders require for clinical coding is also available through other clinical information systems, such as the Radiology Information System (RadIs2). In some instances, it can be deemed appropriate that coders code using only the information contained on the electronic system, thereby reducing the need for them to access patient records. In the Trust, radiotherapy episodes are only coded using CaNISC and RadIs2.

50. It is therefore important that coding departments have appropriate levels of access to all relevant clinical information systems that are in operation. All clinical coding staff in the Trust have access to the relevant range of clinical information systems.

51. It is also important that clinical coders have access to the internet and intranet to allow the staff to access the necessary training and resources available. Clinical Coding Communications from NWIS are also issued by email so having access to an NHS email account is of equal importance. All clinical coding staff in the Trust have full access to internet, intranet and email. This is identified as good practice.

The approach to coding is positive with staff coding activity relatively quickly although this may be at the cost of quality

52. Staff are all located in Velindre Cancer Centre. They code all activity undertaken in the Cancer Centre, as well as activity undertaken in peripheral units. Clinical coding workload can be managed in two ways, either by adopting a general approach so that staff code all specialties, or by allocating coders to specific specialties. Both approaches have benefits:

- A general allocation of work supports an even workload across the staff, as well as a balanced approach to meeting the demand across all of the specialties. However this approach requires staff to have a full understanding of the coding relating to all specialties, some of which may have particular procedures or diagnoses that are complex to code. This approach can dilute skills and experience and therefore it is important that there is opportunity from within the team for peer support to share experience.

- A specialty allocation of work supports the development of skills and experience in a number of specialties, which in turn can enhance the quality of coding. However some specialties can be more complex to code than others due to the case mix of patients, and consequently can take longer to process. If these are all processed by only one or two members of staff, backlogs can quickly build in these specialties, particularly if staff are also away from the office for a period of time, e.g. on annual or sick leave.

53. The clinical coding team in the Trust work in pairs and use a rota to allocate work. Each pair works on a particular area for four months and then rotates so that they cover all activity over the year. Priority is given to coding inpatient episodes partly as it is complex and takes longer to code but also because the coders do not want to hold onto the medical records any longer than necessary.

54. As part of our review to understand the speed in which coders have access to medical records, we also reviewed the time it takes for the coding process to be completed once the coders receive the medical records. Our audit found that once the records arrived in the coding department:

- 67 per cent of records were coded within three days;
- 90 per cent of records were coded within a week; and
- 100 per cent of records were coded within a fortnight.

55. Because the team are able to code quickly and have been meeting 100 per cent completion there are no issues with the freshness of the information used to code. While the team is very conscientious and keen to deliver 100 per cent completion rate they are putting themselves under a lot of pressure to do so. The Clinical Coding Manager and Head of IM&T say that they have told staff that timeliness is less important than quality but this message is difficult for the staff to take on given that they have been meeting this target for some time and are conscientious. However, our audit does show that there are issues emerging with quality which will be discussed in paragraph 83 and backlogs in coding activity are starting to build up.

56. Clinical coding is carried out using an electronic encoder system called Medicode which is linked to CaNISC. The Trust has experienced some difficulties updating Medicode when new versions come out but the Head of IM&T is addressing this with the CaNISC specialist at NWIS to ensure that they are running the most current version without any bugs.

Staffing levels are under pressure with a significant gap in managerial and supervision capacity

57. With the exception of the Clinical Coding Manager, staffing levels have remained relatively consistent over the last two years although there have been a number of changes to the grade mix within the team. The clinical coding team has one Band 7 manager (0.48 FTE) but no supervisor. In 2011-12 the Clinical Coding Manager's post was full-time but since going on maternity leave (which was not backfilled) the establishment has been cut back. In addition since her return the manager has been taking accrued leave resulting in a lack of management and supervision for the team. Both the manager and the team expressed concern that the manager does not have enough time to resolve coding queries, undertake audits of quality, or carry out management activities such as undertaking appraisals. The manager has requested a Band 5 team leader post but this has been rejected on two occasions.

58. The team is made up of 6.07 FTEs (consisting of 4.07 FTEs at Band 4 and 2.0 FTE Band 3 trainees). Of the clinical coders currently at Band 4, only one is an accredited clinical coder as the other Band 4s were appointed before this requirement applied. Between them they have significant experience of coding with four of them working for the Trust for more than 10 years.

59. The Trust recruited two Band 3 trainees when two Band 4s left because the Trust was unable to recruit at Band 4. The appointment of the new Band 3 trainees took a significant period of time, during which the team were carrying vacant posts. New starters to the department are not classed as supernumerary and are therefore given their own allocation of work early on in their appointment. The Trust's policy indicates that junior coders should be mentored by senior staff, with coding checked and amended before being entered on to the system. However, this mentoring can place pressure on senior staff in terms of time commitments, with the potential that these checks are missed if there are demands on the team from backlogs.

60. Our diary exercise indicated that just one per cent of the time was spent on mentoring and checking the work of others. As there is no supervisor and the manager has many demands on her time, mentoring and checking of work sits with the Band 4 role although the more established Band 3 was also providing mentoring and checking of peers' work. It is important to ensure that resources are in place to train and support these individuals to ensure that they have solid foundations to code accurately.

61. The Trust will need to recruit again as the more established Band 3 (who had just completed her exams) is leaving to take up post at another Health Board at a much higher pay rate. While the Trust will support recruitment to this post at a Band 4 it is unlikely they will be able to recruit at Band 4 due to a shortage of trained coders in Wales. They are expecting to appoint again at Band 3 with all the pressures on productivity that this brings. The team will also be short staffed while the recruitment process takes place putting more pressure on the team.

62. The coding team for a period of two years has also suffered from periods of sickness amongst staff members over the last two years, which has placed pressure on the team and particularly their ability to maintain compliance with the Welsh Government target.

There are mixed levels of clinical engagement in the clinical coding process

63. Clinical engagement has been described as the single most valuable resource to a coding department. The main source of information for clinical coders is that derived from the medical record, and it is clinicians that act as the local resource in helping coders understand the clinical information relating to diagnoses and treatment. It is therefore important that clinicians and coders engage to improve record keeping, confirm codes and provide clinical leadership in identifying and coding co-morbidities.

64. Within the Trust there is limited clinical engagement with clinical coding. Three of the eight medical staff responding to our survey reported that they were generally satisfied with their understanding of clinical coding with the same number saying they were satisfied they understood the purpose of coding. Our diary exercise found that there is some interaction between the clinical coders and the clinicians with three of the coders having allocated time to liaison with individual clinicians.

65. Where a clinical coding team is based within a hospital can be an important factor for clinical engagement. The team at the Cancer Centre is co-located on the same corridor as the medical secretaries and some consultants' offices which encourages coders to raise queries with consultants based in that part of the building. Six out of eight medical staff reported in the survey that clinical coding staff sought clarification from them on episodes of care or patients they have been responsible for.

66. As is the case with medical records, up until August 2013 clinical coding has not formally featured in induction training for junior doctors, nor has it featured as part of general training for medical staff through forums such as specialty audit meetings. None of the medical staff responding to our survey said that they had received any form of training on clinical coding in the last two years. Only two identified that they would like to receive training to provide them with an understanding of its importance and what it is used for; the clinicians' part in making it accurate and reliable; and what data is out there and how to get it.

While the department is managed by a qualified auditor, validation processes and routine audit arrangements are inadequate due to time pressures

67. To ensure that the clinical coded data submitted centrally is of good quality, it is important that NHS bodies have appropriate mechanisms in place to verify and validate the data as it is processed. The encoder system Medicode provides some automated validation of coding as it is input onto the system; however there are currently no other routine validation checks carried out. The Clinical Coding Manger wants to set up validation checks as she is aware that throughput is too fast, but has been unable to access the technical support from the Trust's information department to generate the necessary reports.

68. One of the identified models of good practice is to engage clinicians in the validation process. This provides an opportunity for clinicians to support the clinical coding process, but also allows them to be reassured about the validity of the clinical coding data which is often used to inform their own appraisals. This process can involve individual clinicians but can also be facilitated through attendance by coding staff at clinical meetings.

69. Our fieldwork identified that consultants recognise the importance of accurate clinical coding as coded data is used for clinical audit and is used as part of their appraisal and revalidation. The findings of the medical staff survey support this with:

- four consultants reporting that a representative from clinical coding attended a meeting that they had been present at to provide input into the discussions;
- issues relating to coding featured in specialty meetings for five out of eight consultants; although
- only one out of eight consultants reported that they had been engaged in validation of clinical coding over the last two years.

70. As well as routine validation, one way of providing assurance of the quality of clinical coding is to undertake detailed audit reviews. Although the Clinical Coding Manager is a qualified clinical coding auditor, she has been unable to undertake an audit due to constraints on her time. The Trust did however commission D&A Consultancy to undertaken an external review of coding accuracy which reported in March 2013. This reported a number of quality issues and recommended an increase in clinical coding staffing numbers and the recruitment of a supervisor to support the manager. It also recommended implementing regular internal and external audits. The report was presented to the IG&IMT Committee in October 2013 and an action plan has been developed to address the recommendations although little progress had been achieved at the time of our fieldwork in November.

71. Other than the information provided from the audit by D&A Consultancy, there is no process for feeding back any errors to the clinical coding staff. The Clinical Coding Manager has recently set up regular team meetings to share information and learning although they are proving difficult to schedule due to different working patterns of the team. Appraisals did not take place over the previous year due to the Clinical Coding Manager's absence on maternity leave but a timetable of appraisals is now in place. Once properly established the two mechanisms of regular meetings and staff appraisals will provide staff with more support to improve quality.

The Trust is starting to make greater use of clinical coded data which met the Welsh Government standards for 2012-13 but backlogs of uncoded episodes are increasing and although the overall accuracy is good, inaccuracies were identified for inpatient episodes, the implications of which need to be clearly explained across the organisation

Clinical coded data met the validity and consistency standards for 2012-13, and was completed within the three month window but backlogs are starting to increase and the review of accuracy identified inaccuracies with the coding of inpatient episodes

The Trust achieved the national validity and consistency standards for data derived by clinical coding

72. In 2008, Welsh Government set out the need for NHS bodies in Wales to adhere to 32 data validity standards relating to admitted patient care[7]. The validity of all admitted patient care data submitted to the Patient Episode Database for Wales (PEDW) is now routinely monitored against these standards on a monthly and annual basis. These data validity standards were the first phase of a series of updated monitoring mechanisms aimed at improving the quality of data in NHS Wales. A number of the data validity standards relate to data derived through the clinical coding process. For the financial year 2012-13, the Trust met all of the data validity standards which relate specifically to clinical coded data.

[7] Admitted patient care is the dataset submitted to the PEDW which contains the data relating to finished consultant episodes.

73. Further data quality indicators relating to data consistency have also since been introduced. Data consistency refers to whether related data items within the same dataset are consistent with one another e.g. a record that indicates a male patient has given birth would be considered inconsistent. There are 27 data consistency indicators which are applied to admitted patient care, a number of which similarly relate to data derived through the clinical coding process. For the financial year 2012-13, the Trust met all of the data consistency standards which relate specifically to clinical coded data.

The Trust achieved the Welsh Government target that activity should be coded within three months, however performance is now not being sustained with backlogs in workload starting to increase

74. In recent years the Trust has consistently achieved almost 100 per cent completion by day 10 following month end. The backlog was low and at March 2013 the backlog for 2012-13 was 204. Overtime is used to address the backlog. However, as at end November 2013 due to staff absence, completion rate was only 68 per cent which equated to 2,100 episodes uncoded and which was causing stress to the team and concern about how they will complete the backlog given the limited resources.

75. Clinical coders work towards the recognised standard workload of 30 FCEs per day. The clinical coding staff felt under significant pressure to code quickly to meet this target. Both the Clinical Coding Manager and the Head of IM&T said that the target was not being applied to the staff from above but the staff have become used to achieving 100 per cent and so put pressure on themselves to code quickly. However, oncology coding is complex and a different target may need to be developed that realistically reflects the time it should take to code these cases.

76. Overtime is available but is not an attractive option for many part time staff as they have other commitments in the time they are not working. Due to the backlog the team is now prioritising inpatients, chemotherapy patients and day cases. The Clinical Coding Manager is exploring ways to allow coding staff to code radiotherapy episodes at home through overtime payments as a way of responding to backlog in coding activity which is building up. This would help alleviate the backlog although issues of obtaining the necessary laptops and data security would need to be resolved before going ahead.

The NWIS review of coding at the Trust found that the overall accuracy is good but there are some issues with the accuracy of inpatient episodes

77. All health boards in Wales submit data to the benchmarking organisation CHKS which provides an indication of the accuracy of coding. These indicators are:

- use of an invalid primary diagnosis code;
- unacceptable primary diagnosis;
- diagnosis code of ‘non-specific’ provided;
- sign and symptom provided as primary diagnosis; and

- use of an invalid procedure code.

78. As Velindre NHS Trust and Powys teaching Health Board do not provide data to CHKS they do not receive regular feedback on the accuracy of coding.

79. As part of our review, we worked alongside the NWIS Clinical Classifications Team to undertake a review of the accuracy of clinical coding across the Trust. The review was based on a sample of 90 episodes of which 27 were inpatient episodes and 63 were day case/RDA episodes. The review identified two episodes which were unsafe to audit, whereby the medical records did not contain information relating to the episode being audited. A further two episodes were reviewed to maintain the sample size.

80. The methodology used to undertake the review was based on audit methodology used in NHS England. The nationally recognised standard used to measure the accuracy of coding is set at 90 per cent. This relates specifically to four coding groups: primary diagnosis, secondary diagnosis, primary procedure and secondary procedure.

81. The review indicated overall rates of accuracy to be good, particularly in relation to the primary and secondary procedures. However, when looked at in detail, the rates for inpatient primary diagnosis, secondary diagnosis and primary procedure all fall below the recommended levels. This is an area that the Trust needs to recognise is an issue that it needs to address. The NWIS team acknowledged that coding oncology is highly complex and so will take longer than other specialties to code. The high level results of the review are set out in the following exhibit, with further detail set out in the separate report issued directly to the Trust from the NWIS Clinical Classifications Team.

Exhibit 5: Results of the review of the accuracy of clinical coding undertaken by the NWIS Clinical Classifications Team

	Percentage of codes recorded correctly		
	Inpatients	**Day cases / Regular day attenders**	**Overall**
Primary Diagnosis	76.92	96.88	91.11
Secondary Diagnosis	76.64	90.77	86.25
Primary Procedure	85.71	95.31	92.94
Secondary Procedure	94.44	91.04	92.39

Source: NWIS Clinical Classification Team

The Trust has plans to make more use of clinically coded data although the implications of quality issues in clinical coding need to be addressed

82. Clinical coded data should typically be used for statistical purposes only and to underpin a number of management processes within the NHS such as health needs assessment and performance management. With key patient outcomes measures such as the Risk Adjusted Mortality Index (RAMI) coming increasingly into the public domain, it is important that the status of the clinical coded data that underpins these measures is visible to the reader or user.

83. The main route for reporting the Trust's performance to the Board is through the Integrated Quality and Performance Storyboard (IQPS). This report does not routinely report on the timeliness or quality of clinical coded data. Even so, the most recent report (December 2013) refers to a review of coding for complex radiotherapy techniques to ensure that activity is being captured accurately. This shows that Trust is becoming more aware of the need to improve the quality of clinical coding.

84. The Trust has not produced performance data based on coded data but is developing its capability in this area. The Resource Management Project is bringing together information from CaNISC, RadIS and elsewhere into an accessible business information system available on staff computers. This will provide important information on activity by consultant linked to finance. It will drive improvement in the area of clinical coding if it is not timely and appears to have errors.

85. Our survey of Board members identified that six of the 10 board members who responded would find it helpful to have more information on clinical coding and the extent to which it affects the quality of key performance information.

86. Clinical coded data has many purposes but it is not intended to support the clinical management of an individual patient as the coding classification structure can be misleading to a patient. As such, clinical coded data should not be used for that purpose. As part of our medical staff survey, we asked if they would routinely use clinical coded data when communicating with patients. The results of the medical staff survey would suggest that three out of eight said that they would. Our review of medical records however did not find any evidence that this was taking place.

Appendix 1

Methodology

Our review of clinical coding is scheduled to take place across Wales between July 2013 and March 2014. The review at Velindre NHS Trust took place in November 2013. Details of the audit approach are set out below.

Document review

In advance of our fieldwork, we requested and analysed a range of Trust documents. These documents included clinical coding policies and procedures, organisational structures, internal and external clinical coding audits, papers to senior management forums, workforce plans, minutes of meetings and training material.

Board member survey

A survey of board members was included in our Structured Assessment work for 2013 across Wales. The survey included a number of questions specifically focused on clinical coding, and was issued in August 2013 for a period of one month. Responses were received from 10 of the board members in Velindre NHS Trust.

Medical staff survey

A survey covering a broad range of issues relating to clinical coding and medical records was issued to all medical staff in the specialties of general medicine, general surgery and trauma and orthopaedics across Wales. In Powys teaching Health Board, this included all visiting consultants for general surgery and trauma and orthopaedics, and GPs with responsibility for community inpatient beds which are recorded as general medicine for the purposes of PEDW. In Velindre NHS Trust, the survey was issued to all medical staff in the specialty of oncology. The survey was issued electronically in November 2013 for a period of three weeks. Responses were received from 8 consultants in Velindre NHS Trust.

Interviews and focus groups

Our review team carried out detailed interviews and focus groups in the Trust during the week commencing 18 November 2013.

Interviewees included executive and operational leads for clinical coding, head of information, medical records manager, oncology consultants, ward clerks, and the Clinical Coding Manager. A focus group was held with clinical coding staff.

Trust survey

We asked health boards and the Trust to complete a survey providing details of their clinical coding arrangements. This included data relating to budgets and expenditure, staffing levels, the IT infrastructure supporting the clinical coding teams, as well as supplementary information relating to medical records. The completed Trust survey was submitted on 6 November 2013.

Clinical coding diary

Clinical coding staff were required to complete a diary for a period of two weeks. The diaries were completed during the weeks commencing 25 November 2013.

Case note review

A random sample of 90 coded episodes were identified from PEDW for the three month period ending four months (allowing for the three month window to complete coding) immediately prior to the date of on-site fieldwork. Of these 90 FCEs, 27 were inpatient episodes and 63 were day case/RDA episodes.

These samples were then audited using information available in the patients' case notes and relevant electronic systems (CaNISC, Chemocare) by the NWIS Clinical Classification Team for accuracy of coding, and by our review team for compliance with the RCP standards for medical records. The sample period reviewed for Velindre NHS Trust was 1 April 2013 to 31 July 2013 inclusive.

Medical records tracker

Random samples of 40 coded and uncoded episodes (per speciality and per coding team) were identified from PEDW for the three month period ending four months (allowing for the three month window to complete coding) immediately prior to the date of on-site fieldwork. These samples were then reviewed using the Trust's medical records tracking tool. The sample period reviewed for Velindre NHS Trust was 1 April 2013 to 31 July 2013 inclusive.

Centrally collected data

Data relating to compliance with the data validity and data consistency standards were provided by the Information Standards Manager in NWIS. Data relating to compliance with Welsh Government targets for completeness and timeliness of clinical coding, along with backlog positions were also provided by the NHS Clinical Classifications Team.

Appendix 2

Results of the board member survey

Responses were received from 10 of the board members in Velindre NHS Trust. The breakdown of responses is set out below.

Exhibit A2a: Rate of satisfaction with aspects of coding

	How satisfied are you with the information you receive on the robustness of clinical coding arrangements in your organisation?		**How satisfied are you that your organisation is doing enough to make sure that clinical coding arrangements are robust?**	
	Velindre NHS Trust	**All Wales**	**Velindre NHS Trust**	**All Wales**
Completely satisfied	1	6	1	12
Satisfied	4	43	5	45
Neither satisfied nor dissatisfied	5	36	4	30
Dissatisfied	-	9	-	7
Completely dissatisfied	-	-	-	-
Total	10	94	10	94

Exhibit A2b: Rate of awareness of factors affecting the robustness of clinical coding

	How aware are you of the factors which can affect the robustness of clinical coding arrangements in your organisation?	
	Velindre NHS Trust	**All Wales**
Full awareness	4	36
Some awareness	4	45
Limited awareness	2	12
No awareness	-	1
Total	10	94

Exhibit A2c: Level of concern and helpfulness of training

	Are you concerned that your organisation too readily attributes under performance against key indicators to problems with clinical coding?		Would you find it helpful to have more information on clinical coding and the extent to which it affects the quality of key performance information?	
	Velindre NHS Trust	**All Wales**	**Velindre NHS Trust**	**All Wales**
Yes	-	15	6	74
No	10	75	4	23
Total	10	90	10	97

Exhibit A2d: Additional comments provided by respondents from the Trust

- Always willing to receive updated information.

Appendix 3

Results of the medical staff survey

Responses were received from eight of the consultant medical staff at Velindre NHS Trust. The breakdown of responses is set out below.

Exhibit A3a: Views of clinical coding

	Please choose the response which best describes your views of clinical coding?	
	Velindre NHS Trust	**All Wales**
I have never heard of it	-	3
I am aware of it but it does not have direct relevance to me	1	10
I think it is important but it does not involve me	2	32
I think it is important and I am occasionally involved	5	64
I think it is important and I am regularly involved	-	21
Total	8	130

Exhibit A3b: Rate of satisfaction with aspects of coding

	How satisfied are you that you have a clear understanding of the purpose of clinical coding?	
	Velindre NHS Trust	**All Wales**
Completely satisfied	1	15
Satisfied	2	60
Neither satisfied nor dissatisfied	3	33
Dissatisfied	2	16
Completely dissatisfied	-	4
Don’t know	-	-
Total	8	128

Exhibit A3c: A brief description of the areas that medical staff identified that they would like training to cover

- Importance and what it is used for.
- Our part in making it accurate and reliable. What data is out there and how to get it.

Exhibit A3d: Involvement with clinical coding staff

	Do you have any involvement with clinical coding staff within this organisation?	
	Velindre NHS Trust	**All Wales**
None	2	97
Occasional meetings	6	28
Monthly meetings	-	2
Weekly meetings	-	1
Total	8	128

Exhibit A3e: Engagement with validation and clarification of issues

	Have you been engaged in any clinical coding validation within the past 2 years, for example, checking that clinical coders have interpreted information in medical records correctly?		**Have clinical coding staff sought clarification from you on episodes of care or patients you have been responsible for?**	
	Velindre NHS Trust	**All Wales**	**Velindre NHS Trust**	**All Wales**
Yes	1	25	6	48
No	7	103	2	79
Total	8	128	8	127

Exhibit A3f: Availability of medical records

	Do medical records frequently go missing within this organisation?		Are temporary medical records used within this specialty?	
	Velindre NHS Trust	All Wales	Velindre NHS Trust	All Wales
Never	3	6	1	5
Rarely	5	29	6	15
Sometimes	-	44	-	38
Often	-	21	1	27
Frequently	-	31	-	45
Total	8	131	8	130

Exhibit A3g: Quality of medical records

	Overall, what is your opinion of the quality of medical records in this organisation?	
	Velindre NHS Trust	All Wales
Very good	5	9
Good	2	24
Average	1	50
Below average	-	23
Poor	-	24
Total	8	130

Exhibit A3h: Additional comments provided by respondents from Velindre NHS Trust

- The organisation is gradually moving to being paperless. While this has some advantages the current electronic record (Canisc) has too many places for information to be stored and this makes it very time consuming to use.
- We are provided an excellent service by a very committed team of coders who are thorough really keen to get things right.
- We have an almost fully electronic note system which clinically is excellent. Oncologists requirements for data is highly specialised and requires details, and I am unconvinced that the data collected is validated enough for my use. Attempts to collect high quality data are hampered by lack of IT support – it's all very frustrating and demoralising.

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