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Medicines Management in Acute Hospitals

Aneurin Bevan University Health Board

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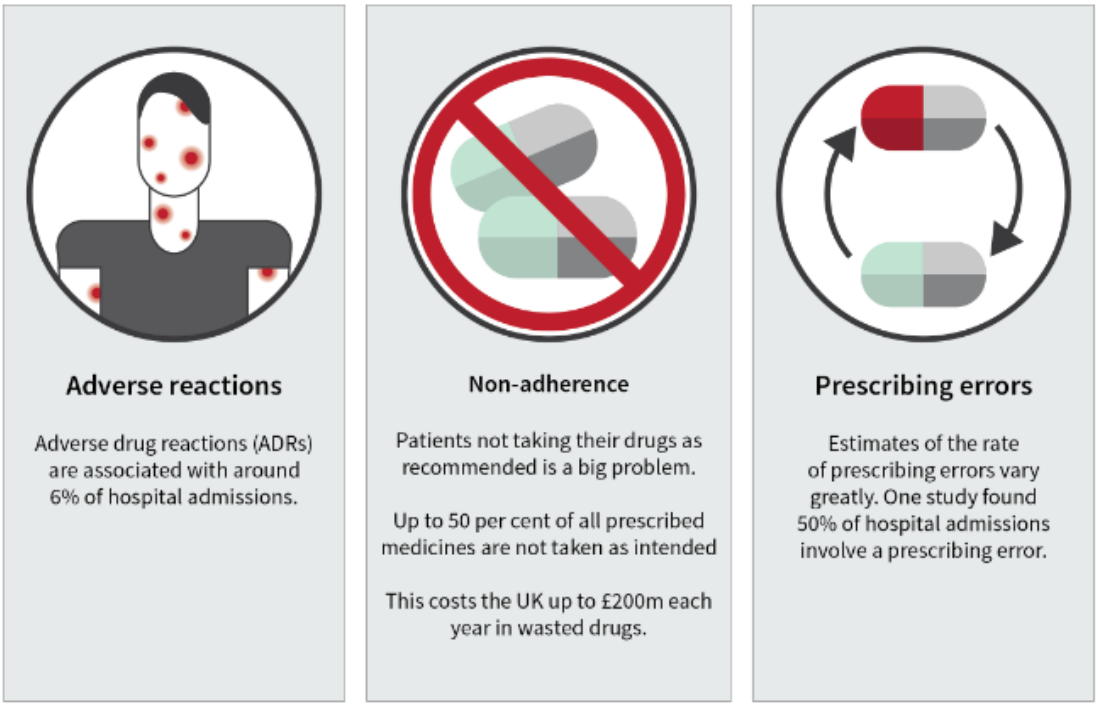
Background

1. The most common therapeutic intervention in the NHS is prescribing of medicines.[1] In 2013-14, Welsh health bodies spent £258 million on purchasing drugs (eight per cent more than 2012-13)[2].
2. 'Medicines management' covers much more than the purchase of drugs. The term covers all the processes and behaviours that influence the clinical and cost-effective use of medicines as well as positive outcomes for patients.
3. Patients' medicines need to be managed well to ensure their treatment and recovery is optimised and to ensure value for money is secured from their medication. Exhibit 1 shows the main sources of harm to patients from poor medicines management.

Exhibit 1: Key facts about the three main sources of harm from medicines



Source: The footnotes contain the sources of data on adverse reactions[3], prescribing errors[4] and non-adherence[5,6]

[1] 1000 Lives Plus – www.1000livesplus.wales.nhs.uk/medicines

[2] Wales Audit Office analysis of NHS financial returns, including expenditure within primary care and secondary care.

[3] Pirmohamed et al, Adverse drug reactions as cause of admission to hospital: prospective analysis of 18820 patients, British Medical Journal, 2004; 329(7456), 15-19.

[4] Lewis et al, Prevalence, incidence and nature of prescribing errors in hospital inpatients: a systematic review, Drug Saf 2009; 32:379-89.

[5] 1000 Lives Plus, Achieving prudent healthcare in NHS Wales, June 2014.

[6] Royal Pharmaceutical Society of Great Britain, From Compliance to Concordance – Achieving Partnership in Medicine-Taking, RPSGB, London, 1997. Shapps, Grant, A bitter pill to swallow: A report into the cost of wasted medicine in the NHS, June 2007.

4. In May 2014, an independent review[7] at Abertawe Bro Morgannwg University Health Board, called Trusted to Care (The Andrews Report), highlighted serious problems with administration and recording of medicines. After Trusted to Care, the Minister for Health and Social Services ordered unannounced spot checks at 20 hospitals across Wales. The main findings from the spot checks were the need to improve standards in administering medication, medicine storage and completing medication charts.

5. Trusted to Care also emphasised the importance of all types of healthcare professionals working together to manage patients' medicines. Pharmacy staff are at the centre of medicines management but staff from all disciplines have a major role to play, as set out in guidance from representative bodies[8,9]. Patients also need to be empowered to help them get the best out of their medication.

6. Prudent prescribing of medicines is a key focus within the Welsh Government's 'prudent healthcare' agenda. The principles of prudent healthcare are to minimise avoidable harm, carry out the minimum appropriate intervention and promote equity between people who provide and use services. The key aspects of prudent prescribing are therefore about safe prescribing that minimises adverse drug reactions, conservative prescribing to avoid patients taking medicines unnecessarily, and fully involving patients in decisions about their own care.

7. Medicines management is a quickly changing agenda because of new technologies, new drugs, and the redesign of services. Given that medicines expenditure is one of the highest areas of NHS spending, austerity is also driving change in medicines management, with organisations revisiting treatment pathways to ensure clinically-appropriate and cost effective treatments are provided at the right time. For these reasons we consider it is now a good time to look at the issues across Wales.

8. Our study follows on from previous local audit work we have undertaken on primary care prescribing. It focuses on aspects of medicines management that directly impact on inpatients at acute hospitals. We cover medication information provided by GPs to support admissions, medication reviews that patients receive during their stay, the support patients are given to take their medicines and the arrangements to ensure good medicines management after discharge. We exclude procurement and largely exclude the supply of medicines.

9. In this report we refer to the position at selected hospital sites in Aneurin Bevan University Health Board (the Health Board) and we also present data from a series of ward visits and patient reviews conducted across a sample of wards that were carefully selected as part of our methodology. When reviewing this information it is important to note that our findings relate to specific aspects of medicines management that we audited at a specific point in time. It is also important to note that whilst we surveyed nursing staff, we only received responses from 12 nurses within the Health Board and therefore, we have not reported the results of that survey. Appendix 1 shows full details of our methodology.

10. At the Health Board our review sought to answer the following question: **Are there safe, efficient and effective arrangements for inpatient medicines management at acute hospitals?**

11. The key findings from our work are set out below and are considered further in the more detailed section of the report.

[7] Professor June Andrews, Mark Butler, Trusted to care: An independent review of the Princess of Wales Hospital and Neath Port Talbot Hospital at Abertawe Bro Morgannwg University Health Board, May 2014

[8] Nursing and Midwifery Council, Standards for Medicines Management

[9] General Medical Council, Good practice in prescribing and managing medicines and devices, 31 January 2013

Key findings

Despite low staffing levels and high workload, we identified good relationships on wards together with effective aspects of corporate arrangements and some medicines management processes. The Health Board now needs to develop its strategic approach, address storage issues, minimise some process risks and enhance the way it monitors its services.

Corporate arrangements: The Health Board does not have a strategy for medicines management, pharmacy is not sufficiently involved in key strategic developments and executive involvement in medicines management has mainly focused on financial issues

- While there are clear lines of responsibility in the pharmacy team, executive involvement in medicines management has focused on cost efficiencies. Medical staff involvement in medicines groups appears good but nursing involvement is limited.
- There is no clear, integrated, strategic approach for prescribing and medicines management across primary and secondary care.
- Pharmacy has limited involvement in senior decision-making forums and it is often the case that key service developments do not address the resource implications for pharmacy.
- There is regular monitoring and scrutiny of financial information and the medicines management savings plan is exceeding expectations.
- The pharmacy team spends a typical amount of time supporting and attending individual patient funding request panels although these panels do not fully meet national requirements as there are no lay members.

Workforce: Although services are responsive and relationships are good, pharmacy staffing levels are the lowest in Wales and there is scope to embed pharmacy further within ward teams

- Whilst the pharmacy team has the lowest skill mix and staffing levels in Wales relative to inpatient activity, there is mixed evidence about whether the team's workload is excessive.
- Whilst staff are more positive than average about the focus on medicines-related training, there is no dedicated pharmacy resource to support medical staff training and the level of input to junior doctor induction varies across sites.
- There are generally effective relationships on the wards although a number of clinical pharmacy indicators suggest there is scope to do more to embed pharmacists within ward teams.
- Pharmacy services are generally accessible and responsive although weekday working hours are less than average and there is scope for improvement outside normal working hours, particularly at Ystrad Fawr.

Facilities: Pharmacy facilities comply with most of the key requirements but there are some issues associated with security and storage in pharmacy and on the wards

- Pharmacy facilities largely comply with the key requirements but there are issues with boundary security and storage at Royal Gwent, as well as out of hours fridge alarms at Ystrad Fawr.
- The Nevill Hall aseptic unit was given a significant risk rating by external inspectors and in common with the rest of Wales, the preparation of injectable medicines on the wards is not regularly audited.
- Storage and security of medication on wards remains problematic although staff said storage has improved in those areas where vending machines have been introduced.

Processes: The Health Board has good processes for supporting discharge but there are issues with medicines reconciliation, allergy status recording, omitted doses and supporting patients to take their medicines properly

- Poor information transfer between primary and secondary care is posing safety risks and inefficiencies.
- The percentage of patients with a timely medicines reconciliation was slightly lower than average and there was variation across sites in the proportion of patients that had a comprehensive medication review.
- Our audit has found issues with the recording of patient allergy statuses and the pharmacy team was required to update patients' allergy statuses much more frequently than across Wales as a whole.
- The Health Board's formulary processes are generally in line with the rest of Wales and a time-consuming manual exercise is required to monitor formulary compliance.
- Electronic prescribing is not yet in use on any acute hospital wards.
- The Health Board needs to further strengthen record keeping and controls in relation to non-medical prescribing.
- The Health Board has taken direct action in response to Trusted to Care although we found a comparatively high proportion of cases where it was unclear if a dose had been omitted or not.
- The Health Board had the highest proportion of patients who needed additional support to take their medication and needs to do much more to ensure that patients' compliance needs are consistently assessed and met.
- The Health Board has the highest rate of electronic discharge summaries and discharge medication reviews across Wales.
- The Health Board is taking a range of actions to improve antimicrobial stewardship, although Royal Gwent is the only hospital with an antibiotics pharmacist.

Monitoring: There is mixed evidence about the effectiveness of learning processes and there is a need to strengthen performance reporting and understand more about the reasons for pharmacy team safety interventions

- Whilst performance reports consider a good range of medicines-related indicators, there is scope to strengthen performance reporting through benchmarking and by improving the consistency and format of reports.
- The rate of medication-related admissions is slightly higher than the Wales average and the Health Board needs to do more work to understand the reasons for the pharmacy team's safety interventions.
- There is mixed evidence about the effectiveness of learning processes.

Recommendations

R1 **Corporate arrangements**: In relation to Part 1 of the report, the Health Board should:

a. Ensure there is specific executive responsibility for all aspects of medicines management, including quality and safety.

b. Revisit membership of the Medicines and Therapeutics Committee to ensure general nursing representation.

c. Write a medicines management strategy to set out a clear, integrated vision across primary and secondary care that is developed in full partnership between pharmacy, medical and nursing staff.

d. Create a standard operating procedure that requires pharmacy to be consulted/involved in the early stages of service change planning, so pharmacy resourcing needs can be assessed and sustainably funded.

e. Ensure individual patient funding request panels have two lay members.

R2 **Workforce**: In relation to Part 2 of the report, the Health Board should:

a. Review the quality and safety implications of current pharmacy staffing levels, and use comparative data provided in this report, to assure itself that pharmacy is providing adequate cover at all acute sites.

b. Evaluate whether sufficient pharmacy resource is dedicated to medical staff induction/ongoing training.

c. Revisit the model of pharmacy services to consider the comparatively high proportion of wards with no visiting service, no wards with a seven-day visiting service, comparatively few named pharmacists and weekday opening hours that are less than average.

d. Review the effectiveness of medicines vending machine services at Ystrad Fawr Hospital.

R3 **Facilities**: In relation to Part 3 of the report, the Health Board should:

a. Develop a costed, time bound action plan to significantly improve boundary security at Royal Gwent Hospital.

b. Minimise the current legal and safety risks associated with bulk storage of intravenous fluids and other bulk items at Royal Gwent Hospital by ensuring items are not publically accessible and are stored in temperature regulated room.

c. Introduce an out-of-hours alert system to monitor pharmacy fridges at Ysbyty Ystrad Fawr.

d. Implement a regular audit programme of the preparation of injectable medicines on the wards.

e. Develop a costed, time bound action plan to address the ward medicine storage issues from Trusted to Care.

R4 **Processes**: In relation to Part 4 of the report, the Health Board should:

a. Work in partnership with the NHS Informatics Service to set out a clear timescale and funding plan for implementing inpatient electronic prescribing and rolling out access to the Individual Health Record.

b. Maintain a register of non-medical prescribers to monitor whether staff are regularly prescribing.

c. Raise the profile of the medication safety audit results on all wards to promote better medicines management performance and to reduce the frequency of missed doses.

d. Learn from the national work on Prudent Prescribing to develop an action plan to increase pharmacy's focus on identifying patients' compliance needs, educating/counselling patients, improving medicines information and supporting patients to take their medicines properly.

R5	**Monitoring**: In relation to Part 5 of the report, the Health Board should:
a.	Improve the consistency across sites of pharmacy performance reports and work with other health boards to regularly benchmark medicines management performance.
b.	Carry out further analysis of the rate of safety interventions and allergy updates of its pharmacists to identify the root causes and decide whether more resource should be diverted to preventing errors and near misses, rather than correcting them once they have been made.

Part 1

Corporate arrangements for medicines management

The Health Board does not have a strategy for medicines management, pharmacy is not sufficiently involved in key strategic developments and executive involvement in medicines management has focused mainly on financial issues

Leadership and accountability structures

While there are clear lines of responsibility in the pharmacy team, executive involvement in medicines management has focused on cost efficiencies. Medical staff involvement in medicines groups appears good but nursing involvement is limited

12. Effective leadership and clear lines of accountability are vital components of any healthcare service. Medicines management is slightly complicated in that it encompasses services and processes spanning pharmacy, nursing and medical staff. Nevertheless, it is still important that there are clear senior accountabilities and structures.

13. At the Health Board, the interim Chief Operating Officer is the executive with responsibility for the Medicines Management Programme Board while the Medical Director has executive responsibility for Individual Patient Funding Request (IPFR) panels. The focus of the programme board has primarily been on cost efficiencies related to medicines management. We therefore concluded that there is scope to broaden the executive level oversight to all aspects of medicines management, rather than just the efficiency agenda.

14. The Pharmacy Clinical Director has professional, managerial and budgetary responsibility for the pharmacy team. While the Clinical Director does not sit on the Board, we were told during interviews that this has not had an impact on staff management and service delivery. Each division has a lead with responsibility for medicines management. GPs work in Neighbourhood Care Networks, which cover medicines management in primary care and at the interface. There are GP leads for diabetes and antibiotic prescribing.

15. There are associate medical director leads with a focus on medicines management. They include a secondary care consultant who chairs the Medicines and Therapeutics Committee (MTC) and also works with All Wales Medicines Strategy Group (AWMSG) and other prescribing fora. Other doctors with leadership roles in medicines management include the Vice Chair of the MTC; the lead for Scheduled Care; the Family and Therapies lead on the Medicines Management Programme Board (MMPB)and a GP who is Chair of the All Wales Prescribing Advisory Group. These arrangements provide good medical leadership of medicines management.

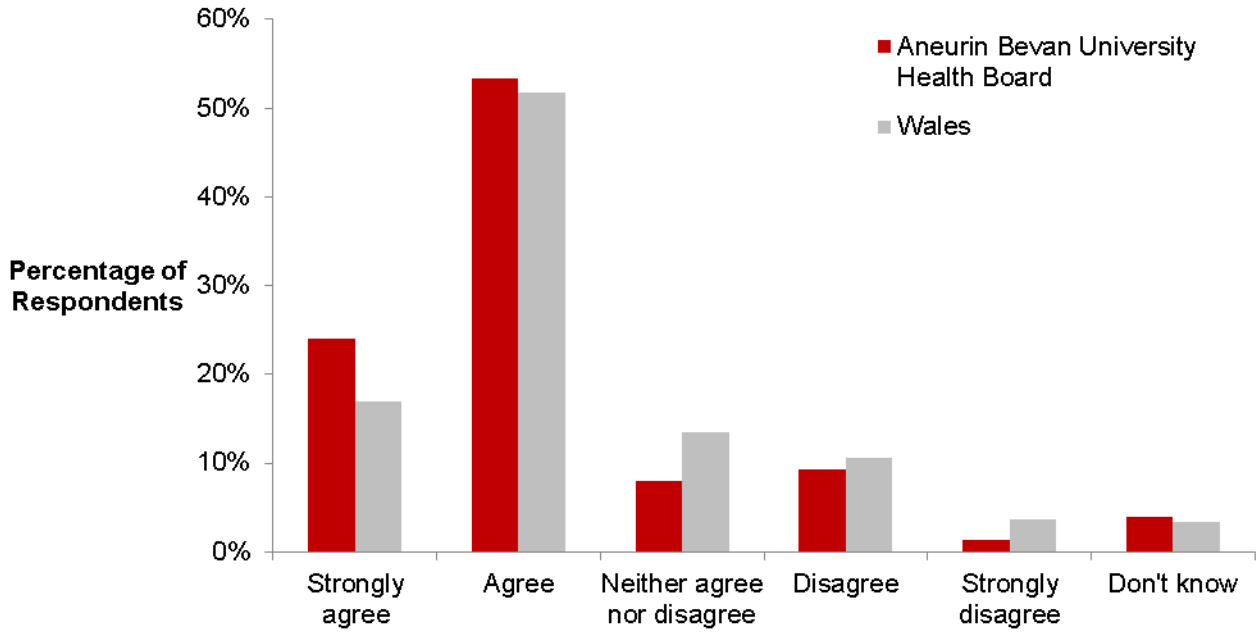
16. Two assistant directors of nursing have some responsibility for medicines management, covering safety, patient experience, workforce and education. There is an assistant divisional nurse for medicines management, leading on behalf of corporate nursing, who is an active member of the MTC and has responsibility for nurse prescribing.

17. Professional Standards for Hospital Pharmacy Services[10] (the Standards) state that the pharmacy service should have clear lines of professional and organisational responsibility. Exhibit 2 shows that

[10] Royal Pharmaceutical Society, Professional Standards for Hospital Pharmacy Services, July 2012

in our survey across Wales, 69 per cent of pharmacy staff agreed or strongly agreed with the statement 'There are clear lines of accountability in the pharmacy team'. The equivalent figure in the Health Board was 77 per cent, suggesting lines of accountability are slightly more clear in the Health Board than in the rest of Wales.

Exhibit 2: Pharmacy staff at the Health Board generally agreed with the statement 'There are clear lines of accountability in the pharmacy team' and there was stronger agreement than across Wales



Source: Wales Audit Office Survey of Pharmacy Staff

18. The Standards also state that health bodies should have a medicines management group as a focal point for the development of medicines policy, procedures and guidance. The MTC provides this function whilst the MMPB provides oversight on cost reduction and efficiency.

19. Medicines management groups should be multidisciplinary to reflect the fact that medicines management is the responsibility of a number of clinical professional groupings. The MMPB provides oversight by engaging divisional budget holders. Medical staff make up 46 per cent of the membership of the MMPB (which is exactly the same as the average figure across Wales). The MMPB has no nursing staff representatives (compared with an average of nine per cent across Wales).

20. The MTC has good pharmacist and medical representation from across primary and secondary care. There is also a primary care nurse member who serves on the Committee as an independent prescriber. There is no general nursing representation.

21. The terms of reference of the MTC also determine that, to maintain a balance between sectors, membership should include six clinician representatives from key areas of secondary care including Unscheduled Care, Scheduled Care and Family and Therapy Services; as well as six others from the Primary Care/Networks Division. The terms of reference also determine that the Chair can represent either primary or secondary care, but that the Vice Chair should always be from the other care sector.

22. In addition to its role in relation to formulary management, the MTC also focuses on patient safety and drug safety. Following the publication of Trusted to Care it was agreed that improvement actions would be taken through the existing Medicines Safety Group.

Strategy for medicines management

There is no clear, integrated, strategic approach for prescribing and medicines management across primary and secondary care

23. The Health Board should have a clear strategic vision for medicines management. Our primary care prescribing report said the Health Board did not have a clear, integrated, strategic approach for prescribing and medicines management across primary and secondary care. This remains the case.

24. We previously indicated that a long-term medicines management strategy will need to be developed which identifies new priority areas linked to local health improvement objectives which in turn should feed through into workforce development and deployment plans and operational delivery plans.

Profile and influence of pharmacy within the wider health board

Pharmacy has limited involvement in senior decision-making forums and it is often the case that key service developments do not address the resource implications for pharmacy

25. If the pharmacy team is to have sufficient profile and influence within the Health Board, it should have adequate representation at the Health Board's senior decision-making forums. We found that Cwm Taf was the only health board where pharmacy was represented on the most senior committee responsible for quality and safety. None of the health boards' pharmacy teams were represented on the most senior committee responsible for clinical governance or risk management.

26. The pharmacy team should also be able to influence the design of services that involve medicines. This is because when new consultant posts, clinics and services are introduced, this inevitably impacts on pharmacy service delivery. Across Wales we found that some pharmacy teams have limited involvement in such service changes but at Aneurin Bevan, the pharmacy team has no involvement.

27. At interview, we heard it is often the case that service developments and changes are implemented without addressing the resource implications for pharmacy. Our work identified some specific examples. The new hospitals at Ysbyty Ystrad Fawr (Ystrad Fawr) and Ysbyty Aneurin Bevan (YAB) introduced innovative models of care but without funding for a pharmacist. We were told that insufficient pharmacy coverage at YAB is a concern which is recognised on the pharmacy risk register. There has been discussion about whether this issue should be escalated to the organisational risk register if the current business case for more pharmacy coverage is not successful. The issue of insufficient pharmacy cover in Ystrad Fawr has been escalated and a band seven pharmacist has been recruited to start in February to cover the two wards that currently have no pharmacy service.

28. Another example of service change without sufficient consideration of pharmacy was in service planning for the Medical Admissions Unit and Clinical Decision Unit at the Royal Gwent Hospital. Pharmacy was not involved and this issue was identified by the local Trusted to Care report. This resulted in the submission of a business case for pharmacy support.

29. Staff told us that problems with staffing levels in other professional groups, such as nurses and physiotherapists are generally better recognised than in relation to pharmacy. There is no 'red flag' for low levels of pharmacy staffing and we heard that there is an expectation that pharmacists just have to deal with their daily workload.

Financial management of medicines management

There is regular monitoring and scrutiny of financial information and the medicines management savings plan is exceeding expectations

30. Secondary care medicines expenditure is reported and reviewed on a monthly basis through the Medicines Management Programme Board but is not directly reported to Board or executive team. The Pharmacy Clinical Director provides the monthly financial information to the Medicines Management Programme Board via reports covering spend forecasts, savings plan performance and delivery of medicines management work streams.

31. The Health Board planned to make total (ie primary and secondary care) medicines management savings in 2014-15 totalling £3.7 million and is now forecasting savings of £3.8 million. Of this, £3.7 million is described as recurring. In 2013-14 there were planned savings of £5.5 million and the achievement was £7 million, of which £6.7 million was described as recurring.

32. The secondary care medicines budget is overspent by £9.5 million at 28 February 2015 and is projected to be £9.8 million overspent at the end of the financial year. This represents a deterioration against trend compared to the month six report (which indicated a forecast overspend of £8.5m). The projected year end expenditure on secondary care medicines, at £65.7 million represents an decrease of £0.2 million over the 2013-14 outturn of £65.5 million.

33. In interview we heard that the savings target is the top priority for the Health Board. While the prescribing budget line is reported to the Board, they are not sighted of quality and safety concerns. We also heard that the focus is on cost containment and not investment. We were told that it can be very difficult to demonstrate the link between an improved, safer service and any related financial savings. This can, in turn, make it difficult to put together business cases for investment in service developments associated with pharmacy.

34. In response to our survey, 47 per cent of pharmacy staff agreed or strongly agreed[11] with the statement 'Financial savings made in pharmacy services are not impacting on patient outcomes' compared with 38 per cent across Wales. Whilst this reflects only the perception of a sample of staff, it may suggest that the Health Board should reflect on whether its pursuit of savings is impacting negatively on patient outcomes.

Individual patient funding requests

The pharmacy team spends a typical amount of time supporting and attending individual patient funding request panels although these panels do not fully meet national requirements as there are no lay members

35. Individual patient funding requests (IPFRs) are usually requests from clinicians who want health board approval to use medicines that are not normally funded by the NHS. Health boards need robust processes and effective IPFR panels to ensure appropriate decision-making regarding these requests. An all-Wales report from April 2014 recommended that the panels that handle IPFR requests should have at least two lay members, applications should be screened and signed by a clinical lead or head of department in advance of meetings.[12]

36. At the Health Board, the IPFR panel does not have lay members although all IPFR applications are screened before the panel sits and each case is signed off by the division before being looked at by the IPFR coordinator.

37. During 2013-14, the IPFR panel at the Health Board considered 76 applications regarding medicines which was above the Wales average of 60[13]. The Health Board's pharmacists and technicians spent a proportionate amount of time supporting and attending these panels (200 hours compared with the Welsh average of 193 hours). There are around six to eight cases reviewed at each meeting. The Chief Pharmacist prepares for each meeting which takes about a day a fortnight. The chair of the IPFR panel is also the chair of the MTC and we were told in interview that the IPFR process works well.

[11] 20 per cent of staff neither agreed nor disagreed whilst 17 per cent disagreed or strongly disagreed.

[12] National IPFR Review Group, Review of the individual patient funding request process, April 2014.

[13] Betsi Cadwaladr discounted from Wales average: the majority of applications at BCU are not managed through the IPFR panel.

Part 2

The medicines management workforce

Although services are responsive and relationships are good, pharmacy staffing levels are the lowest in Wales and there is scope to embed pharmacy further within ward teams

Staff numbers and skill mix

Whilst the pharmacy team has the lowest skill mix and staffing levels in Wales relative to inpatient activity, there is mixed evidence about whether the team's workload is excessive

38. Pharmacy teams should have the right skill mix, capability and capacity to manage patients' medicines effectively as well as develop and provide broader pharmacy services. Health boards carried out a resource mapping exercise of their own pharmacy teams during late 2014. Exhibit 3 highlights some of the staffing indicators from that exercise and suggests that the Health Board's pharmacy team has the lowest staffing level in Wales relative to inpatient activity[14]. The skill mix ratio is the joint lowest across Wales.

Exhibit 3: The Health Board's staffing profile indicates a smaller pharmacy team than at other health boards across Wales

		Aneurin Bevan	Wales average
Staff numbers and skillmix	Total pharmacists and technicians in post (WTE)	119	148
	Ratio of pharmacists to technicians	48:52	51:49
	Pharmacists and technicians (WTE) per 100,000 bed days	28	37
Staffing costs[15]	Average cost per WTE: Pharmacist	£60,600	£63,600
	Average cost per WTE: Technician	£36,500	£35,900
	Pharmacist and technician: cost per hour	£2,900	£3,800
	Pharmacist and technician: cost per bed day	£13.59	£18.68

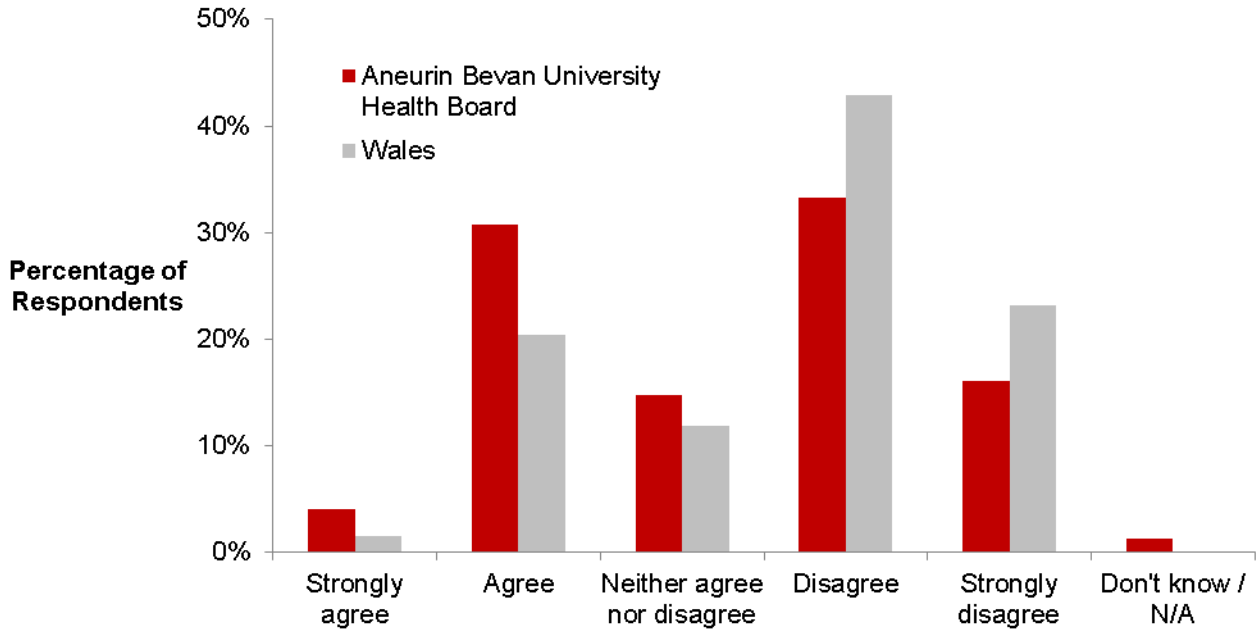
Source: Resource Mapping Exercise carried out by pharmacy teams across Wales (2014), StatsWales 'NHS beds by organisation and site' (2013-14). These data include only acute-based staff and our analysis exclude the time/resource dedicated to primary care and community pharmacy activities.

[14] Staffing levels and bed days data reflect the acute hospital sites within the Health Board.

[15] Gross costs are based on the mid-point of each pay band and include rota, superannuation and national insurance allowances. Hourly cost is based on calculating the total WTE of pharmacists and technicians in each pay band, then multiplying these figures by the gross cost per hour (assuming 37.5 hours per week for 52 weeks of the year) at the mid-point of each band, then summing the totals across all bands.

39. Our work across Wales highlighted general perceptions of high workload and too few staff. However, in Aneurin Bevan University Health Board pharmacy staff had more positive views than average about their workload and the level of staffing. In the Health Board 46 per cent of pharmacy staff agreed or strongly agreed with the statement 'There are enough pharmacy staff at this organisation for me to do my job properly'. This compares with 24 per cent across Wales. Exhibit 4 shows the extent to which staff agreed with the statement 'I have time to carry out all of my work', and suggests a split in the views of staff. This may mean that some staff are disproportionately affected when vacancies arise and workload pressures increase further.

Exhibit 4: Pharmacy staff generally disagreed with the statement 'I have time to carry out all of my work' although their views were positive than on average across Wales



Source: Wales Audit Office Survey of Pharmacy Staff

40. In contrast to this finding, interviewees told us that there are pressures on secondary care pharmacy teams. They said that Agenda for Change has had an enduring impact on staffing; where staff appeals against grading decisions were successful, they were not funded so money had to be found by re-grading posts down that became vacant. Pharmacy cover is limited to two hours per ward of 32 beds. With six to seven new patients during each visit, at 20 minutes per patient, we were told that only admissions and discharges can be seen. Sometimes patients are not inpatients for long enough to receive professional input from pharmacy.

41. Staff told us that there are particular gaps in services at YAB, in Mental Health services across the Health Board, in the field of antimicrobial pharmacy, and that there is a lack of resources in emergency departments.

Training and development

Whilst staff are more positive than average about the focus on medicines-related training, there is no dedicated pharmacy resource to support medical staff training and the level of input to junior doctor induction varies across sites

42. The Quality Delivery Plan[16] for the NHS in Wales said that health boards should plan to train 25 per cent of their staff in quality improvement methodologies by the end of March 2014. In the Health Board, 14 per cent of secondary care pharmacy staff are trained to at least bronze level in the Improving Quality Together methodology led by 1000 Lives Plus. Across health boards, this figure ranged from 0.7 per cent to 67 per cent. Across Wales as a whole, the total proportion of secondary care pharmacy staff trained to at least bronze level is 24 per cent, considerably higher than the level reported at the Health Board.

43. In our survey, 61 per cent of pharmacy staff in the Health Board agreed or strongly agreed with the statement 'I am getting sufficient training, learning and development'. This compared with 50 per cent across Wales as a whole. Data from the resource mapping exercise shows that pharmacy staff in the Health Board spent, on average, nine per cent of their time on receiving or delivering training, education and personal development over the past year. This matched the average across Wales.

44. Training for nursing and medical staff can be a key success factor in contributing to good, multidisciplinary engagement in medicines management. The Professional Standards for Hospital Pharmacy Services (the Standards) state that pharmacy should support induction and ongoing training of clinical staff. Across Wales, health boards fund an average of 0.7 WTE pharmacy staff to deliver training to medical staff. The Health Board has no staff funded for this role.

45. Due to their relatively limited experience, junior medical staff are one staff group that is in particular need of training in medicines management. At the Health Board, pharmacy involvement in junior doctor induction training varies by hospital site. For example, we were told that in some areas pharmacy staff provide a 15 minute presentation as part of the induction process but at Ystrad Fawr there is no pharmacy input at induction.

46. In addition to local training and induction arrangements, there is pharmacist input to every course of the All Wales Foundation Course for junior doctors. It is run about five times a year and it includes one session on medicines management. There is no funding at national level for this, and we were told that there is always a disagreement over who should pay. Everyone recognises the importance of this session for junior doctors with consultants remembering how useful the session was for them many years later.

47. At Royal Gwent Hospital and Nevill Hall Hospital pharmacy staff run training for the F1s who get a weekly 10 minute session with a short prescribing related issue for the week. This has run since September and has had good feedback. Subjects addressed include allergies, thrombo-prophylaxis and surgery and gentamycin. They have selected topics where the pharmacists intervene most often in doctor prescribing. There is no input into junior doctor training at Ystrad Fawr, only ad hoc advice provided by technicians.

48. In our survey, 32 per cent of doctors agreed or strongly agreed with the statement 'It is easy for me to keep my medicines management skills up to date'. This compared with 35 per cent across Wales.

[16] Welsh Government, Achieving Excellence: the Quality Delivery Plan for the NHS in Wales 2012-2016, 2012.

49. When a doctor's prescribing errors are identified, they are dealt with through learning, revalidation and appraisal. During this process, doctors are required to fill in a learning log which is reviewed by the revalidation team. The Health Board also has mechanisms in place for the prompt escalation of more serious prescribing incidents through the National Clinical Assessment Service or General Medical Council. Issues of quality of performance in a team are usually dealt with via the Assistant Medical Directors.

50. In our survey, 28 per cent of pharmacy staff and 37 per cent of doctors agreed or strongly agreed with the statement 'The Health Board has good controls in place to monitor the performance of medical prescribers'[17]. This compared with 23 per cent of pharmacy staff and 29 per cent of doctors across Wales.

51. Medicines management is a topic on the induction programme for newly qualified nurses, and pharmacy is involved in a number of other educational and training activities for nurses. In August 2014, the Royal College of Nursing provided two-hour sessions for all trained nurses to update them on the medication issues in Trusted to Care, the report by Professor June Andrews. Pharmacy has also developed training for nursing staff in response to these issues. In line with most health boards, there is no routine refresher training in medicines management for nurses. During interview, further ways to improve nurse medicines management were suggested. For example, through dedicated nurse leadership for medicines management, routine medicines management reporting to the Quality and Safety Committee, and ongoing medicines management refresher training.

Clinical pharmacy services

There are generally effective relationships on the wards although a number of clinical pharmacy indicators suggest there is scope to do more to embed pharmacists within ward teams

52. Clinical pharmacy describes the activity of pharmacy teams in ward and clinic settings. This activity involves direct involvement with patients, giving advice to other healthcare professionals and playing a full part of the multidisciplinary team approach to managing people's medicines. The Standards say that pharmacists should be 'integrated into clinical teams…and provide safe and appropriate clinical care directly to patients'.

53. The resource mapping exercise carried out across Wales in late 2014 showed that the Health Board's pharmacists and technicians typically spent 43 per cent of their time directly supporting wards and clinics, which is more than the average of 32 per cent across Wales[18].

[17] Thirty per cent of pharmacy staff and doctors responded 'Don't know' to this question.

[18] Resource Mapping activity data relating to Pharmacist and Technician staff groups across primary and secondary care.

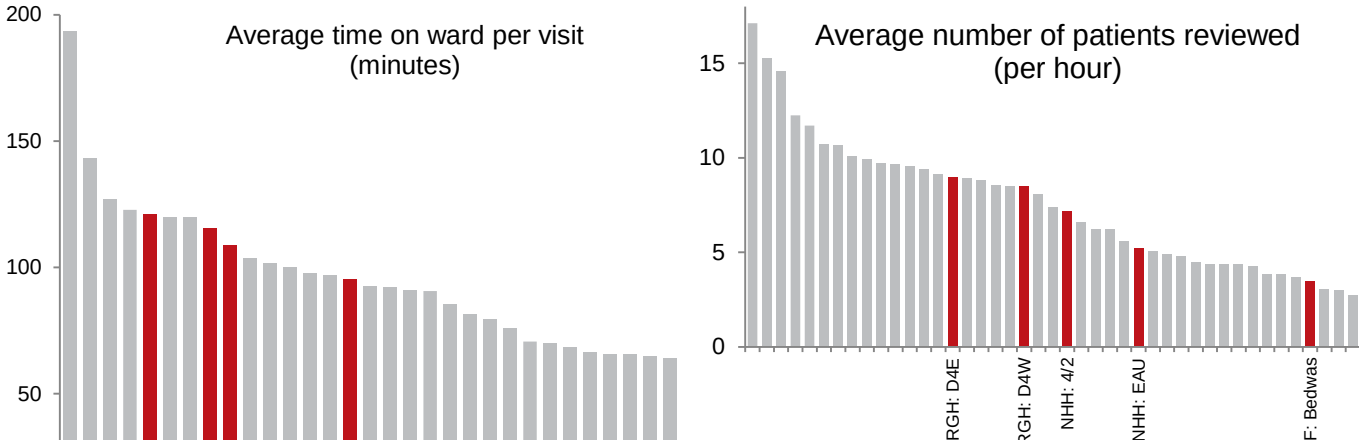
54. Exhibit 5 shows some of the key data we collected in our clinical pharmacy review that covered six wards across the Health Board (details of these wards can be found at Appendix 1). The exhibit also shows data from our staff surveys and wider audit, relating to relationships and clinical pharmacy services on the wards.

Exhibit 5: There are good relationships on the wards although the Health Board has the lowest proportion of named pharmacists in Wales

Indicator	The Health Board	Wales	Observations
% pharmacy staff saying there were good or excellent relationships with medical staff	72%	78%	Good relationships between pharmacy, medical staff and nursing staff are essential for an effective multi-disciplinary approach to medicines management. 71% of medical staff agreed that relationships with pharmacy were good or excellent.
% pharmacy staff saying there were good or excellent relationships with nursing staff	87%	88%	
% wards with a named pharmacist	80%	91%	Allocating named pharmacists and technicians to specific wards can assist with working relationships. The percentage of wards with a named pharmacist is the lowest across Wales and there is also variation between the Health Board's hospitals – 80% at NHH, 83% at RGH and 63% at Ystrad Fawr. On the other hand, the number of named technicians is above the Wales average at all three sites (NHH 55%, RGH 66%, Ystrad Fawr 63%).
% wards with a named technician	62%	50%	
% wards with no visiting service from pharmacy	17%	11%	If there is no routine visiting service to the ward this may suggest that better links need to be forged between pharmacy and the ward teams. The Health Board has more wards with no visiting services (17%) and few wards with a 7-day visiting service (0%) than the Welsh average (11% and 5% respectively).
% wards with a 7-day visiting service	0%	5%	
% of pharmacy team recommendations that led to changes	88%	79%	We looked at recommendations made by pharmacy teams about the type and dosage of drug and we calculated the proportion of these recommendations that were followed. If pharmacy staff are unable to influence prescribers this suggests relationships should be strengthened.
% pharmacy staff that agreed or strongly agreed that they are able to influence the prescribing behaviour of doctors and nurses	59%	68%	

55. Exhibit 6 shows that during our clinical pharmacy review, the average time that pharmacy teams spent on the ward per visit was high on four of the Health Board's wards and comparatively low at the other two. The number of patients reviewed per hour was comparatively low at Ystrad Fawr Bedwas and Royal Gwent D1W. The number of patients reviewed per hour may reflect the efficiency of working by the pharmacy team but may also be indicative of the different casemix of patients on certain wards. Where the review rate is higher, there is a risk that pharmacy teams are not spending enough time with each individual patient. During our fieldwork some pharmacy staff told us that workload pressures meant they did not have enough time to carry out comprehensive reviews of patients. The Health Board should carry out further work to understand these data.

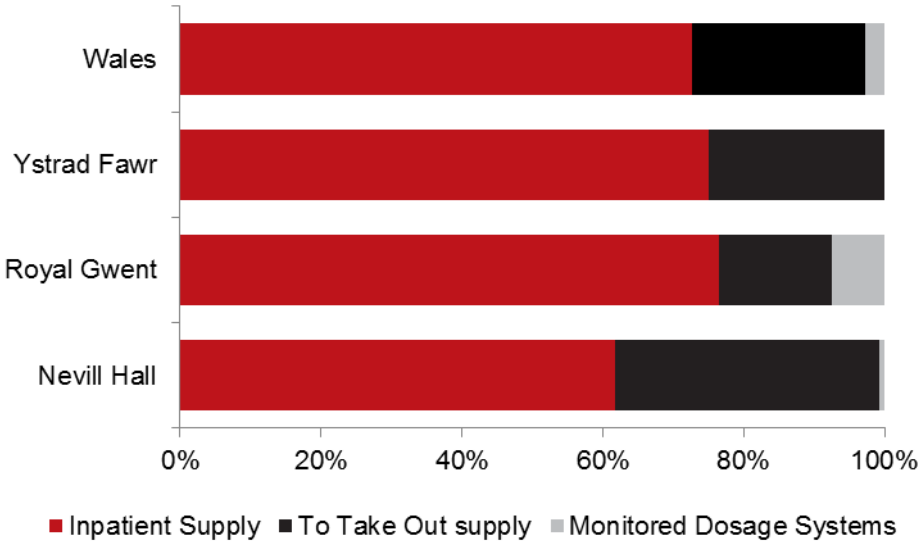
Exhibit 6: Comparison across Wales of the time pharmacy teams spent on the wards per visit and the number of patients they reviewed per hour



Source: Wales Audit Office clinical pharmacy review

56. Exhibit 7 shows details of the pharmacy teams' workload, during our sampled ward visits, in relation to the supply of medicines. We recorded three types of supply: supply of medicines to inpatients, supply of 'to take out' (TTO) medicines when patients are due to be discharged, and supply of monitored dosage systems (MDS), which are multi-compartment boxes to help patients remember which medicines to take. The exhibit shows that pharmacy teams at Royal Gwent are spending a greater proportion of their time supplying MDS boxes and we were told in interview that the workload associated with MDS boxes is increasing. The exhibit also shows that teams at Nevill Hall are spending more time than average supplying TTOs and this may be due to the team's role in providing TTOs for Powys patients. The Health Board may want to carry out further work to understand these data but the different casemix of patients at each hospital is likely to be one contributory factor.

Exhibit 7: Supplying take-home medication represents a greater proportion of the pharmacy activity at Nevill Hall whilst the supply of MDS boxes at Royal Gwent appears more frequent than on average across Wales



Source: Wales Audit Office Clinical Pharmacy Review (ward visit)

57. Ward rounds are a route by which pharmacists can work closely with the rest of the multidisciplinary team to contribute to patient care. Information collected as part of the audit indicates that there is scope to review the extent to which pharmacists integrate their visits to wards with ward rounds performed by doctors. Our results from across Wales suggest there is scope for pharmacy teams to be more frequently involved in ward rounds as just one per cent of the visits recorded in our clinical pharmacy review were as part of ward rounds. In the Health Board, none of the pharmacy team's 125 visits to the wards were as part of ward rounds. However, senior pharmacists in the Health Board were surprised at this finding and told us that pharmacists regularly attend ward rounds at the Medical wards at Royal Gwent. Interestingly, our survey highlighted differing views about the statement 'Clinical pharmacy staff are regularly involved in multidisciplinary ward rounds'. Whilst 65 per cent of pharmacy staff agreed or strongly agreed with the statement, 36 per cent of doctors agreed or strongly agreed.

58. Exhibit 8 shows the pharmacy staff's views on how their team could be more effective and compares their opinions with those of doctors.

Exhibit 8: Staff views on the scope for making the pharmacy team more effective

Priority	Views of pharmacy staff	Views of doctors
1 (Highest)	Increase the amount of time spent on the wards	Improve/put in place processes to support discharge
2	Improve the continuity of pharmacy staff who support the ward/patients	Take part in post-take ward rounds
3	Take part in post-take ward rounds	Improve the continuity of pharmacy staff who support the ward/patients
4	Improve/put in place processes to support discharge	Increase the amount of time spent on the wards
5	Change the timing of the routine visits to wards	Improve/put in place an on-call service
6	Improve/put in place an on-call service	Change the timing of the routine visits to wards

Source: Wales Audit Office Surveys of Pharmacy Staff and Medical Staff

Opening hours and access to the pharmacy workforce

Pharmacy services are generally accessible and responsive although weekday working hours are less than average and there is scope for improvement outside normal working hours, particularly at Ystrad Fawr

59. Pharmacy services should be accessible to healthcare staff at the times when they are most needed. The Royal Pharmaceutical Society has highlighted problems with the availability of pharmacy services outside normal working hours. The Society reports that limited availability of hospital pharmacy services, particularly at weekends, can result in more missed doses and prescription errors, a lack of medicines reconciliation and prolonged waits for discharge medication[19].

60. Exhibit 9 shows the Health Board's pharmacy service opening hours compared with the average across Wales. In addition to the hours shown in the table, the Health Board's pharmacy team is available on-call at all times, which is also the case at all other health boards in Wales.

[19] Royal Pharmaceutical Society, Seven Day Services in Hospital Pharmacy: Giving patients the care they deserve, 2014.

Exhibit 9: Pharmacy service opening hours on weekdays are lower than the Wales average and Ystrad Fawr does not provide a routine weekend service to A&E/outpatients

Hospital	Total no. of hours open to A&E/ outpatients		Total no. of hours open to provide clinical services to the wards	
	Mon-Fri	Sat-Sun	Mon-Fri	Sat-Sun
Royal Gwent	38	5	38	5
Nevill Hall	38	5	38	5
Ystrad Fawr	38	0*	38	5
Wales average	**42**	**5**	**43**	**4**

Source: Wales Audit Office Core Medicines Management Tool. * There is no A&E department at YYF.

61. The Health Board has a Saturday and Sunday pharmacy service. Work is currently being carried out to consider the needs of pharmacy service users and how to meet them. Preliminary conclusions from this work are that a seven-day service is neither affordable nor necessary. In interviews, we were told that effective discharge planning and vending machines for prescriptions are what is needed to ensure effective pharmacy services at weekends.

62. In our survey we asked medical staff for their views on the availability of pharmacy services, both in hours and out of normal working hours. In the Health Board, 82 per cent of doctors agreed or strongly agreed with the statement 'It is easy to contact the pharmacy team in normal working hours' (the equivalent figure across Wales was 85 per cent). When asked about the statement 'It is easy to contact the pharmacy team outside normal working hours' 29 per cent of doctors[20] in the Health Board agreed or strongly agreed (compared with 30 per cent across Wales).

63. We also asked medical staff for their views on the responsiveness of the pharmacy team. In the Health Board, 80 per cent of doctors agreed or strongly agreed with the statement 'The pharmacy team responds in reasonable timescales to my requests in normal working hours' the same as the figure for Wales). When asked about the statement 'The pharmacy team responds in reasonable timescales to my requests outside normal working hours' 29 per cent of doctors[21] in the Health Board agreed or strongly agreed, the same as the figure for Wales.

64. During our walkthroughs, nursing staff told us about generally good access to the pharmacy team during normal working hours and out-of-hours. However, in Ystrad Fawr the lack of availability of medications from the out-of-hours vending machine was said to be a frequent problem, as requests then have to be faxed to Royal Gwent Hospital and sent to Ystrad Fawr by taxi. We heard positive views about the ward order requisition system (WOREQ) that allows ward staff to order medicines online from pharmacy and allows staff to access specific medicines from other wards in the hospital if pharmacy is closed.

[20] A third of doctors responded 'Don't know' to this question.
[21] 40 per cent of doctors responded 'Don't know' to this question.

Part 3

Medicines management facilities

Pharmacy facilities comply with most of the key requirements but there are some issues associated with security and storage in pharmacy and on the wards

Compliance with key requirements for pharmacy facilities

Pharmacy facilities largely comply with the key requirements but there are issues with boundary security and storage at Royal Gwent, as well as out of hours fridge alarms at Ystrad Fawr

65. A Welsh Health Building Note[22] describes key requirements for the design, layout and facilities of hospital pharmacies. The table below shows the requirements in italics and shows whether the facilities of the pharmacies at Royal Gwent Hospital (RGH), Nevill Hall Hospital (NHH), Ysbyty Ystrad Fawr (YYF) comply (☑), partially comply (☐) or do not comply (☒).

Findings
Location
Is the pharmacy on the ground floor and accessible from the main corridors/circulation routes? ☐ RGH: The pharmacy is on the second floor at the end of the main corridor near main lifts. ☑ NHH: The pharmacy is very close to A&E and is easy to find. ☑ YYF: The pharmacy is on a main corridor on level 1 and is accessible via the lift at entrance 3.
Boundary security
Is entry to pharmacy strictly controlled through the use of swipe cards or similar? ☒ RGH: There is numerical key pad access at the entrance. We were told that the code number is widely known; in a recent incident, two unauthorised contractor staff had been given the code and entered without permission. Bids for a swipe-card system have been rejected. The pharmacy loading bay was not locked when the auditor visited. ☑ NHH: There is numerical key pad access at the entrance. ☑ YYF: There is swipe card access at each entrance. Were steps taken to verify the auditor's identification upon arrival at the pharmacy? ☑RGH: The auditor was asked to sign in, but not asked for identification. ☑ NHH: The auditor met the lead pharmacist in the dispensary but was not asked for identification. ☑ YYF: The auditor met the pharmacist but was not asked for identification.

[22] NHS Wales Shared Services Partnership, Pharmacy and radiopharmacy facilities, Welsh Health Building Note WHBN 14-01, 2014

Findings

Storage area and temperature

Were all items stored above the floor?

☒ RGH: There is storage of items in public corridors, and in boxes on the floor in the stock rooms. These items included intravenous fluids.

☑ NHH: Items are stored in fridges or placed in the dispensary by a robot.

☑ YYF: Items are stored above floor level.

Are there good arrangements to regulate the temperature below 25 degrees, particularly in areas used to store bulk items?

☒ RGH: The bulk fluids room is not air-conditioned, is not temperature regulated, and gets hot as a consequence. This has been raised as a risk. There may be legal risks to these arrangements because the fluids are being stored in conditions that are not compliant with the manufacturer's guidelines on temperature regulation.

☑ NHH: There is air-conditioning throughout pharmacy areas (apart from offices). The temperature is kept below 25 degrees.

☑ YYF: The temperature of the storage areas is air conditioned and controlled centrally in the hospital.

Controlled drugs

Is there a separate, lockable and alarmed controlled drugs store?

☑ RGH: Controlled drugs are kept in a locked cupboard. This is located in a separate room. Whilst it is good practice to keep this room locked, it was not locked when the auditor visited. There is an alarm which alerts police and security staff at night.

☐ NHH: Controlled drugs are kept in locked cupboards, chained to the wall. There is no alarm.

☐ YYF: The controlled drugs are kept in locked cupboards and there is an alarm in this dispensing area.

Fridges

Do all fridges in pharmacy have an external temperature display? And were these displays showing readings of between two and eight degrees?

☑ RGH, NHH and YYF: All fridges have an external display. The fridge in the dispensing robot at RGH is not used because the temperature rises dramatically as soon as the door is opened.

Is there constant monitoring of fridge temperatures with an automatic alert system (in hours and out of hours) when temperatures go out of range?

☑ RGH: Temperatures are monitored by a computer which triggers an alarm if they go out of range for ten minutes. The on-call pharmacist is bleeped automatically if the is a problem out-of-hours.

☐ NHH: There is a monitoring system which is linked to a central display, and which can provide information about each particular fridge. All fridges are alarmed. The on-call pharmacist automatically receives a phone call if there is a problem out-of-hours. We were told that on-call pharmacists do not necessarily respond to alarms for low cost drugs. The Health Board needs to clarify whether there is always a response where drugs need to be kept within the correct temperature range.

☒ YYF: The fridges have alarms that go off in pharmacy if the temperature goes out-of-range. There is no alert for staff out-of-hours; we were told that a year ago, £17,000 of drugs were lost when a fridge failed.

Are all fridges in the pharmacy lockable?

Findings

☑ RGH: All fridges are lockable but many were not locked when the auditor visited.

☑ NHH: All fridges are lockable but many were not locked when the auditor visited because they are in a secure area.

☑ YYF: All fridges are lockable, although the keys could not be found when the auditor asked.

Emergency medicine store

Is there a specific store where medicines can be accessed when pharmacy is not staffed?

☑ RGH: The on-call pharmacist can dispense from home using the dispensing robot. There are vending machines at 15 locations in RGH.

☑ NHH: There is a vending machine in the emergency unit which dispenses individual tablets and medications for immediate use.

☑ YYF: There is a large walk-in cupboard that contains essential items. There is a robot in the medical admissions unit which can dispense items to staff, using fingerprint recognition.

Is there a clear system for recording which items have been taken from the emergency store?

☑ RGH: There is a computer-based audit trail.

☑ NHH: The vending machine records which drugs have been taken and by whom.

☐ YYF: Staff fill out forms for items taken. Pharmacy has to do periodic stocktakes as the forms are not always completed.

Dispensary

Does the dispensary have benches and worktops of a colour that contrasts with white medicine labels?

☑ RGH: Surfaces are speckled grey.

☑ NHH: Surfaces are dark grey.

☑: YYF: Surfaces are light grey.

Does the dispensary have dedicated handwashing facilities?

☑ RGH, NHH, YYF: There are dedicated handwashing facilities at each site.

Source: Wales Audit Office observations of hospital pharmacies

Preparation of aseptics and injectable medicines

The Nevill Hall aseptic unit was given a significant risk rating by external inspectors and in common with the rest of Wales, the preparation of injectable medicines on the wards is not regularly audited

66. Aseptic facilities are sterile units used to prepare high-risk medicines such as chemotherapy injections, intravenous feeds for premature babies and certain antibiotics. Such units are subject to inspection by the Medicines and Healthcare Products Regulatory Agency (MHRA). The Health Board's Royal Gwent Hospital Production Unit was inspected in June 2013 and the MHRA concluded that the 'operations are in general compliance with the principles and guidelines of good manufacturing practice.' The inspection raised no 'critical' failures but two 'major' failures were highlighted. The first major failure related to deficiencies of the quality management system, stating that there was no periodic quality management review with involvement of senior management. The second major failure related to deficiencies in the qualifications and training of the unit's staff. Aseptic units in Wales are also subject to inspection from the All Wales Quality Assurance Pharmacist. The aseptic facilities at the Nevill Hall Hospital Pharmacy Department was last inspected by the All Wales Quality Assurance Pharmacist in April 2012. The overall conclusion was that the unit was well equipped and managed. However, the unit's risk rating was raised from low to significant because the unit's system for producing batch worksheets and labels does not comply with current standards.

67. Some injectable medicines are prepared on the wards. These preparation processes should be subject to annual audits but across Wales we found that such audits are rarely carried out.[23] The Health Board was one of three that was unable to confirm how many wards had a risk assessment in place for injectable medicine preparation, or how many wards had conducted an audit of aseptic practices in the past year. A fourth health board stated that no risk assessments or audits had taken place.

Facilities for storing medicines on the wards

Storage and security of medication on wards remains problematic although staff said storage has improved in those areas where vending machines have been introduced

68. The Trusted to Care spot checks highlighted issues across Wales regarding the safe and secure storage of medications on hospital wards. Key findings from the spot checks in the Health Board were:

- Royal Gwent Hospital: Two wards had no issues with medication preparation areas or trolleys. The third ward's treatment room was being used as a day room and there were issues with the storage of medications in cupboards. The fourth ward had unlocked medication cupboards and medicine trolleys not locked to the wall although there was a key pad on the treatment room door.
- Nevill Hall Hospital: Two wards were using inappropriate trolleys that could not be locked for medications but which was also observed left unattended. There were also issues with unlocked treatment rooms on all wards and inspectors witnessed medications left unattended.

[23] National Patient Safety Agency, Patient safety alert 20, 28 March 2007.

- Ystrad Fawr: Medication trolleys and treatment rooms were all secure although there were issues with some medications left out.

69. During interview we were told that storage and medication security on wards remains a major concern. Storage rooms are often left unlocked and stock is poorly organised.

70. The introduction of automated vending machines to store and dispense medicines on the wards can improve security, audit trails and can release pharmacy and nursing staff time. Ten per cent of the Health Board's wards have automated vending machines, compared with an eight per cent average across Wales. Ward staff told us they find that ward vending machines have various benefits, including improving storage and helping to reduce drug errors.

71. Our clinical pharmacy review found that only 77 per cent of patients reviewed had a functioning, lockable cabinet. This compares with 94 per cent across Wales. The Health Board figure was largely due to the situation on Ward D4W at Royal Gwent Hospital, where there are no lockable cabinets. All but three wards had lockable cabinets for all patients.

72. We were told that joint work is underway between pharmacy and nursing staff to provide assurance that the issues identified in Trusted to Care are being addressed. A ward toolkit has been developed that builds on the medicines-related methodology used in the Trusted to Care spot checks. Wards will be using the toolkit for self-assessment and the toolkit will also be used during a programme of senior nurse visits to the wards.

Part 4

Medicines management processes

The Health Board has good processes for supporting discharge but there are issues with medicines reconciliation, allergy status recording, omitted doses and supporting patients to take their medicines properly

Admission information from GPs

Poor information transfer between primary and secondary care is posing safety risks and inefficiencies

73. The interface between primary and secondary care is high-risk in relation to medicines management. When patients are admitted, good communication between the GP practice and the hospital can prevent errors and inaccuracies about people's medicines.

74. Exhibit 10 shows the pharmacy team's assessment of the quality of information provided by primary care to support admissions, which was carried out during the clinical pharmacy review. In the Health Board overall, the percentage of patients with no information was similar to that across the rest of Wales. The profiles of information comprehensiveness showed variation between hospital sites[24].

Exhibit 10: The percentage of patients with no primary care information was highest at Nevill Hall, but when information was available for patients at this site it was more likely to be comprehensive. Patient information at Ystrad Fawr was rarely comprehensive

	No information	Limited information	Standard information	Comprehensive information
Nevill Hall	55%	5%	0%	41%
Royal Gwent	29%	21%	21%	29%
Ystrad Fawr	35%	29%	29%	6%
Aneurin Bevan	42%	17%	15%	26%
Wales average	**41%**	**18%**	**20%**	**22%**

Source: Wales Audit Office Clinical Pharmacy Review (patient log of 155 patients)

Note: The options were 'No information/could not find information in notes', 'Limited information: contained an incomplete drug history', 'Standard information: contained a complete drug history', Comprehensive information: contained a complete drug history including supporting clinical information and relevant test results.

[24] These data include only the patients reviewed in the clinical pharmacy review that were admitted via a GP, therefore Exhibit 10 includes data from 53 Aneurin Bevan patients and 362 patients from across Wales.

75. In our survey, 39 per cent of hospital doctors and 27 per cent of pharmacy staff in the Health Board agreed or strongly agreed with the statement that admission information for elective patients was sufficient. The responses were very similar to the Wales average. For emergency patients, only 19 per cent of hospital doctors and 18 per cent of pharmacy staff agreed or strongly agreed with the statement that '…it is easy to access sufficient written/electronic information about patients' existing medication'. These results were slightly higher than those across Wales, where 11 per cent of doctors and 11 per cent of pharmacy staff agreed or strongly agreed with the statement.

76. Problems with the transfer of medication information between primary and secondary care continue to be a risk area for the Health Board. Senior staff acknowledged that while the information can sometimes be very good, it is often poor or non-existent. This necessitates hospital staff having to pursue information from practices. We were told that while the Individual Health Record can provide good information at the right time it is not currently used every time with every patient.

77. When patients arrive in hospital with limited information about their medicines, pharmacy teams often telephone GP surgeries to secure a patient's drug history. The Individual Health Record (IHR) is an electronic system that contains a summary of the information held by GPs about their patients. The IHR system is being piloted for use in medicines reconciliation at four emergency settings within Aneurin Bevan[25], as well as at Cardiff and Vale. The IHR system allows pharmacists to directly access GP-held information about patients' medicines. Evaluations at Cardiff and Vale suggests use of IHR saves an average of seven minutes of pharmacy time per patient reconciled. Using this estimated saving of seven minutes, if the IHR had been used for half of the 69,731 emergency admissions at the Health Board in 2013-14, this could have saved approximately 4,100 hours of pharmacy time, which equates to 2.3 whole time equivalent pharmacy staff [26]. Given the potentially significant time savings and safety improvements possible through IHR, both on the wards and in general practices, it is important that the roll out of IHR is expedited.

[25] IHR is being piloted at the medical admissions unit, clinical decisions unit and wards D1 and D2.

[26] This calculation compares the situation where IHR is used for 50 per cent of emergency admissions, with the situation where IHR is used for no emergency admissions. It also assumes one WTE works 37.5 hours per week, 47 weeks per year.

Medicines reconciliation and review in hospital

The percentage of patients with a timely medicines reconciliation was slightly lower than average and there was variation across sites in the proportion of patients that had a comprehensive medication review

78. Medicines reconciliation is a checking process, often led by a pharmacist, to ensure that when a patient moves in or out of hospital, they are followed by accurate and complete medication information. The Standards state that within 24 hours of admission, patients' medicines should be reviewed or 'reconciled' to avoid unintentional changes to their medication[27]. Of the 155 patients reviewed as part of our clinical pharmacy review where a medicines reconciliation date had been recorded, 87 (56 per cent) had received a medicines review within one day of their admission[28]. This compares with an average of 64 per cent across Wales. After our fieldwork, the Health Board provided data from a medication safety audit that covered around 450 patients each month, across all of the organisation's acute sites. The data showed that between June 2014 and February 2015, the percentage of patients that had their medicines reconciled within 24 hours of admission ranged from 76 per cent to 82 per cent.

79. During their hospital stay, patients should have their medicines reviewed regularly. In response to our survey, 77 per cent of pharmacy staff and 64 per cent of doctors agreed or strongly agreed with the statement 'Patients receive medication reviews (by any member of the multidisciplinary team) frequently during their hospital stay'. For Wales, the figure was 65 per cent for pharmacy staff and 67 per cent for doctors. Our clinical pharmacy review showed that these medication reviews are almost exclusively carried out by pharmacists, with only six per cent across Wales being carried out by doctors. Exhibit 11 summarises the key data on medication reviews from our clinical pharmacy review.

Exhibit 11: The majority of patients in Ystrad Fawr received a comprehensive medication review. At Royal Gwent a high proportion of reviews identified patients with a compliance or drug issue

	Nevill Hall	Royal Gwent	Ystrad Fawr	Wales
% of patients receiving a comprehensive medication review	34%	24%	85%	44%
% reviews where compliance or drug issue was found	12%	57%	12%	20%

Source: Wales Audit Office Clinical Pharmacy Review (patient log of 155 patients). In the Health Board as a whole, 59 patients had a comprehensive, level D review (Full review which includes drug history taking, review of history and clinical notes and discussion with patient on concordance), 91 had a level C review (drug history taken and checked for any issues against clinical notes) and 5 had a level B review (Drug history taken).

[27] National Prescribing Centre, Medicines reconciliation: A guide to implementation.

[28] Figure represents patients whose medicines review date was either the same day as admission or the following day.

Medicines administration charts

Our audit has found issues with the recording of patient allergy statuses and the pharmacy team updated patients' allergy statuses much more frequently than across Wales as a whole

80. The medicines management process in hospital relies heavily on safe and effective record keeping. Drug charts should be used by staff to record what medicines patients have been prescribed, the required dosage and to record clearly the times when doses were given. A standard drug chart has been developed in Wales, called the Inpatient Medication Administration Record and approved by the Royal College of Physicians. A separate chart called the Long Stay Medication Administration Record should be used for patients who remain in hospital for long periods. Our drug chart review in the Health Board found that all patients had the inpatient standard form. In Wales as a whole, 93.3 per cent of patients had the standard form, 6.4 per cent had the Long Stay Inpatient Medication Administration Record and 0.3 per cent had a non-standard form of chart.

81. Whatever type of drug chart is in use, there should be a record of the patient's allergies and sensitivities to medications. Allergic reactions are a serious risk to patient safety and a common source of drug error. Our drug chart review in the Health Board found that 90 per cent of patients had their allergy status recorded on the drug chart. This compares with 98 per cent across Wales. After our fieldwork, the Health Board provided data from a medication safety audit that covered around 450 patients each month, across all of the organisation's acute sites. The data showed that between June 2014 and February 2015, the percentage of patients with an allergy status documented ranged from 98 per cent to 100 per cent.

82. Our clinical pharmacy review identified 141 occasions where pharmacy teams updated a patient's allergy status, equivalent to 15 amendments for every 100 patients reviewed. This was by far the highest rate across Wales, where the average was five amendments for every 100 patients reviewed. Nevill Hall Emergency Admissions Unit was the ward where pharmacy teams most frequently updated patients' allergy statuses. We found 86 occasions where this had taken place, equivalent to 55 for every 100 patients.

Formulary processes

The Health Board's formulary processes are generally in line with the rest of Wales and a time-consuming manual exercise is required to monitor formulary compliance

83. A formulary is a health board's preferred list of medicines that staff can use as a reference document to ensure the safe and cost effective prescribing. The Health Board has an electronic online formulary, which uses the NHS Wales formulary management system (INFORM), was introduced in 2012 and is available to all prescribers. It is accessible via the MTC website. Nevertheless, the Health Board has difficulties monitoring compliance with the formulary due to the lack of electronic prescribing in secondary care. This means a manual exercise is required to monitor prescribing and formulary compliance.

84. Our primary care prescribing review reported that GPs are able to use a 'decline to prescribe' form when they are concerned that secondary care clinicians are prescribing outside formulary parameters. The decline to prescribe forms are continually monitored, and issues are picked up and managed by directorate pharmacists and clinical directors. In response to the survey for this audit, 48 per cent of medical staff said they agreed or strongly agreed that the formulary (and supporting documents/guidance) met their needs. This compared with 45 per cent across Wales.

85. We scored organisations on the number of mechanisms they have in place to share information with staff about changes to the formulary[29]. The Health Board scored 32 points out of a possible 50 compared with an average of 38 across Wales. The main areas of weakness were a lack of detailed drug information being produced and shared among staff groups, and the absence of nursing representatives to cascade committee decisions on changes to the formulary.

86. The British National Formulary (BNF) is published to provide prescribers, pharmacists, and other healthcare professionals with up-to-date, consistent information about medicines. It is important that staff on the wards can readily access the most up-to-date version of the BNF. Exhibit 12 shows the percentage of medical staff that agreed or strongly agreed with the statements about the BNF when on the wards.

Exhibit 12: Medical staff in the Health Board gave positive views about accessing the BNF using a computer

	Health Board	Wales
The most up-to-date version of the BNF is readily available in hard copy	55%	60%
I can easily access the BNF using a computer	60%	40%
I tend to access the BNF using a smartphone	22%	22%

Source: Wales Audit Office survey of Medical Staff

Electronic prescribing

Electronic prescribing is not yet in use on any acute hospital wards

87. Electronic prescribing is the computer-based generation, transmission and filing of a prescription for medication. Electronic prescribing systems in secondary care can allow quicker, safer and cost-effective transfer of information[30]. These systems provide a considerable opportunity to influence the prescribing behaviour of secondary care clinicians by reinforcing and reminding staff about the Health Board's prescribing priorities.

88. Health boards across Wales told us that none of their wards have electronic prescribing processes in place, and that progress in implementing electronic prescribing relies upon decisions at a national level. However, some health boards are currently implementing electronic prescribing in outpatients and are actively seeking funding to implement electronic prescribing for inpatients.

[29] We considered whether committees cascade their decisions to staff, whether bulletins are shared, whether detailed information on each drug is shared, and whether the website is updated.

[30] 1000 Lives Plus, Achieving prudent healthcare in NHS Wales, June 2014

Non-medical prescribing

The Health Board needs to further strengthen record keeping and controls in relation to non-medical prescribing

89. Training pharmacists, nurses and other non-medical staff as prescribers can improve patient access to medicines advice and expertise, contribute to more flexible team working and result in more streamlined care[31].

90. Health boards across Wales struggled to provide us with comprehensive data on the number of non-medical prescribers within their staff, and they particularly struggled to provide the number of these staff that were regularly using their skills. Across Wales, health boards report having between 44 and 303 supplementary prescribers in place. Four health boards provided information about the proportion of nurses and pharmacists that were regularly prescribing. The Health Board has 107 nurses and seven pharmacists who are independent or supplementary prescribers. Sixty of these nurses and six pharmacists are regularly prescribing. The Health Board was one of four that could not confirm how many other healthcare professionals were registered non-medical prescribers.

91. In response to our survey, 18 per cent of pharmacy staff and 24 per cent of doctors agreed or strongly agreed with the statement 'Staff trained in non-medical prescribing are regularly using these skills'[32]. This compares with 29 per cent of pharmacy staff and 28 per cent of doctors across Wales. At the Health Board, pharmacy staff wrote four prescriptions for every 100 patients reviewed[33]. This was the highest rate across Wales, where the average was 1.5 prescriptions per 100 patients reviewed.

92. The Health Board has an existing policy relating to various aspects of non-medical prescribing, it has recently expired and is in the process of being updated. Exhibit 13 shows how the Health Board compares to others in Wales relating to non-medical prescribing policies.

Exhibit 13: The Health Board has all four of these key policies on non-medical prescribing in place

Does the Health Board have these policies in place?	This Health Board	Wales
Criteria for selecting staff to train as non-medical prescribers	Yes	In place at five health boards
Mechanism for recording non-medical prescribers and sharing this list with appropriate directorates	Yes	In place at all health boards
Support mechanisms for ensuring non-medical prescribers maintain their knowledge	Yes	In place at all health boards
Competency requirements to maintain validation as a non-medical prescriber	Yes	In place at three health boards

Source: Wales Audit Office Core Medicines Management Tool

[31] Supplementary prescribers can only prescribe in partnership with a doctor or dentist. Independent prescribers can prescribe for any medical condition within their area of competence.

[32] One third of pharmacy staff and 40 per cent of doctors responded 'Don't know' to this question.

[33] This comparatively high level of pharmacist prescribing was mainly due to performance at Nevill Hall EAU where pharmacy staff wrote 10 prescriptions per 100 patients reviewed.

93. In response to our survey, 14 per cent of pharmacy staff and 14 per cent of doctors across Wales agreed or strongly agreed with the statement 'The Health Board has good controls in place to monitor the performance of non-medical prescribers'. In the Health Board 16 per cent of pharmacy staff and nine per cent of doctors agreed or strongly agreed[34]. The Health Board told us its main mechanism for monitoring competence of non-medical prescribers is through the Personal Appraisal Development Review (PADR) process. It is also reviewed through the Advanced Practitioner Framework annual portfolio submission process. More immediate issues can be picked up through pharmacist review of patient charts, incident reporting and hospital/community review of prescriptions.

Administration of medicines

The Health Board has taken direct action in response to Trusted to Care although we found a comparatively high proportion of cases where it was unclear if a dose had been omitted or not

94. Trusted to Care highlighted serious problems in the way that medicines are administered and recorded. The Health Board has carried out spot checks to look at the issues from Trusted to Care. It has also conducted an evaluation using the All-Wales 'Trusted to Care' Assurance Framework, and developed its own local action plan for these issues. This includes issues relating to policies and standards for medicines management.

95. In response to our survey, 79 per cent of pharmacy staff and 44 per cent of doctors agreed or strongly agreed with the statement 'The organisation has taken appropriate action in relation to the Trusted to Care report (the Andrews Report)'. This compares with 82 per cent of pharmacy staff and 34 per cent of doctors across Wales.

96. Trusted to Care mentions delayed and omitted doses, and particular problems with confused and immobile patients being unable to take their pills without supervision and therefore not getting their medication on time, or at all. There can be justified reasons why a dose is missed, such as the patient refusing to take their medicines. However, sometimes doses are missed because the drug is not available on the ward or sometimes poor record keeping means it is not clear from the drugs chart whether a dose has been omitted or not. The latter is particularly dangerous because when the drugs chart has not been properly completed it risks the patient being given their medication twice. Our clinical pharmacy review covered 155 patients over a 24-hour period across six wards in the Health Board. The audit identified 37 occurrences where a drug was not available on the ward and 55 occurrences where it was unclear whether a dose had been omitted or not.

97. Exhibit 14 shows the reasons for missed doses that were recorded on the drugs charts in the Health Board, and compares this with the situation across Wales. The exhibit shows that in the Health Board there was a comparatively high percentage of occurrences where it was unclear whether a dose had been omitted or not, particularly at Royal Gwent. There was also a comparatively high percentage of occurrences at Ystrad Fawr where the medicine was not available. After our fieldwork, the Health Board provided data from a medication safety audit that covered around 450 patients each month, across all of the organisation's acute sites. The data showed that between June 2014 and February 2015, the percentage of patients that in the past 24 hours had received all of the doses due to them, ranged from 71 per cent to 78 per cent. The target is 95 per cent.

[34] Two thirds of doctors and nearly half of pharmacy staff responded 'Don't know' to this question.

Exhibit 14: The Health Board had a higher proportion of cases where it was unclear if a dose had been omitted or not, and also where the medicine was not available

Proportion of non-administration reason codes recorded							
	Prescriber's request	Patient not on ward	Patient unable to receive medicine/ no access	Patient refused medicine	Medicine not available	Other reason: see notes	Unclear if dose omitted or not
Code used on charts	**X**	**2**	**3**	**4**	**5**	**6**	**No code**
Nevill Hall	14%	0%	1%	51%	17%	4%	14%
Royal Gwent	17%	0%	1%	33%	7%	16%	27%
Ystrad Fawr	35%	0%	0%	23%	27%	2%	13%
Aneurin Bevan	20%	0%	1%	36%	14%	10%	20%
Wales average	**18%**	**0%**	**8%**	**45%**	**8%**	**9%**	**12%**

Source: Wales Audit Office clinical pharmacy review (patient log of 155 patients)

98. The standards of the Nursing and Midwifery Council state that a 'policy must be in place and adhered to in assessing the competence of an individual to support a patient in taking medication'. Those standards also set out the responsibility of nursing staff in assessing patients' competence to self-administer their medicines. We found that none of the wards in the Health Board have a procedure for self-administration, while the average at health boards in Wales was 25 per cent. Across Wales our clinical pharmacy review found that very few patients were administering their own medicines. Out of 994 patients across Wales, only 12 were self-administering and only three of these had been risk-assessed. A further 120 patients were self-administering in a limited way. At this Health Board, one patient was self-administering, 22 were self-administering in a limited way and none had been risk assessed.

Supporting patients with compliance

The Health Board had the highest proportion of patients who needed additional support to take their medication and needs to do much more to ensure that patients' compliance needs are consistently assessed and met

99. Studies[35] have shown that up to half of all patients do not take their medicines as intended. This can result in considerable waste, particularly when you consider that the Health Board spent £28.6 million on medicines in 2013-14. This may be because patients do not fully understand the instructions for taking their medicines or because they are physically unable to administer the medicines themselves. NHS bodies should make information readily available and proactively identify patients who need extra support in taking their medicines. Not taking medicines appropriately also has important implications for patient safety.

[35] 1000 Lives Plus, Achieving prudent healthcare in NHS Wales, June 2014.

100. We scored organisations by considering the actions they take to support people to comply with their medicines[36]. The Health Board scored 16 out of a possible 32 points, compared with an average of 17 across Wales. Each of the Health Board's hospitals uses a number of methods to support compliance, but these are not routinely applied across all patients. The Health Board stated that the provision of MDSs to patients on complex medicine regimes where compliance is an issue was not applicable at its hospital sites. A self-assessment against the Standards recognises gaps in the way in which patients' ability to adhere to their medication is assessed.

101. Across Wales we found that pharmacy teams are struggling to spend enough time educating patients on their medication. In the clinical pharmacy review across Wales we found that only six per cent of patients or carers were educated on an aspect of their medication. In the Health Board, this figure was seven per cent.

102. The results of our clinical pharmacy review found that 32 per cent of patients reviewed in the Health Board were found to have compliance issues. This was the highest figure for health boards across Wales and predominantly due to patients at Royal Gwent Hospital, where the average was 57 per cent. The Wales average was 20 per cent.

103. Hospital pharmacies across Wales are not generally doing enough to provide medicines information to patient groups with particular information needs. The Health Board's pharmacies do not provide specific information for patients with visual impairments or patients using non-English languages. Only Royal Gwent Hospital produces information targeted towards young children. Across the 18 hospitals we surveyed, five produce information for young children, seven cater for the visually impaired, and eight provide medicines information in non-English languages.

104. The Standards state that patients should be able to call a helpline to discuss their medicines. This can be particularly important in supporting discharged patients who are unsure about their medication regime. At the Health Board, a pharmacy helpline service is provided at Nevill Hall Hospital. While there is currently no helpline at Royal Gwent Hospital or at Ystrad Fawr Hospital, we understand that Health Board plans to introduce helplines at these sites.

105. Across Wales we concluded that some pharmacy helplines are under-utilised despite their importance in helping patients manage their medicines. Across Wales, the use of helplines ranged from six to 66 contacts per 100 opening hours (the average was 32 contacts). Exhibit 15 summarises key data about the pharmacy phone lines available within the Health Board.

[36] We considered whether patients are assessed on their ability to open containers, whether patients are counselled for complex and high risk medication, whether reminder charts and monitored dosage systems are used, whether targeted written information is given, whether education groups are in existence and whether GPs are made aware of patients' compliance issues.

Exhibit 15: Only Nevill Hall provides a helpline service and whilst it is open for more time than average, it is not well utilised

	Total no. of hours open (Mon-Fri)	Total no. of hours open (Sat-Sun)	Average no. of contacts per 100 hours of opening
Royal Gwent Hospital	No Helpline		
Ystrad Fawr	No Helpline		
Nevill Hall Hospital	43	5	6
Wales average[37]	**40**	**4**	**32**

Source: Wales Audit Office Core Medicines Management Tool

Supporting discharge

The Health Board has the highest rate of electronic discharge summaries and discharge medication reviews across Wales

106. It is good practice for hospital staff to begin planning a patient's discharge as soon as possible.[38] By estimating the date of their discharge this can ensure all staff are working towards the same timescale and can prevent unnecessary delays. Across Wales, nearly half of all patients seen through the clinical pharmacy review had an estimated date of discharge. At this Health Board, only 17 per cent of patients had an estimated date of discharge, which was the lowest percentage of all health boards across Wales.

107. A patient's discharge from hospital can be delayed for various reasons. Exhibit 16 shows that doctors and pharmacy staff have differing views about the most common causes of delays to discharge that are medicines-related. The Health Board should therefore undertake further work to understand the real reasons for medicines management delayed discharges.

[37] Wales average is calculated across 12 hospital sites where a Helpline service is provided. Six sites do not provide a dedicated helpline, but three of these do offer patients a contact number in case of medication problems following discharge.

[38] College of Emergency Medicine, The Silver Book: Quality Care for Older People with Urgent and Emergency Care Needs, June 2012.

Exhibit 16: Pharmacy staff and doctors had differing views about the most common causes of medicines-related delays to discharge

	Views of pharmacy staff	Views of doctors
1 (most common)	Waiting for prescription to be written	Waiting for medicines to be dispensed in the dispensary
2	Waiting for medicines to be delivered to the ward	Waiting for prescription to be written
3	Waiting for prescription to be clinically checked	Waiting for medicines to be delivered to the ward
4	Waiting for medicines to be dispensed in the dispensary	Waiting for prescription to be clinically checked
5	Waiting for the TTO to be assembled on the ward	Waiting for the TTO to be assembled on the ward

Source: Wales Audit Office Surveys of Pharmacy Staff and Medical Staff

108. When patients are discharged from hospital, the interface between the hospital and the patient's GP is vital to ensure safe and effective medicines management. The Standards state that arrangements should ensure 'accurate information about the patient's medicines is transferred to the healthcare professional(s) taking over care of the patient at the time of the transfer.' Nevill Hall, Royal Gwent and Ystrad Fawr each have a standard template that sets out the information to be provided to GPs upon a patient's discharge, but none of the sites apply this across all specialties. Across Wales, 17 out of 18 hospitals that we reviewed have a template in place, but only 10 of these apply it across all specialties.

109. In the Health Board, 78 per cent of wards produce electronic discharge summaries. This is the highest across Wales, where the average is 34 per cent. We were told that an electronic prescribing system is being considered and this would help to support the safety and quality of prescribing, although there is no date for its implementation yet. During interview we were told that a high level of discharge summaries are provided through e-Discharge, and that the level of concern amongst GPs about a lack of medication information at discharge has declined over the last five years.
The discharge process has been reviewed by the Medical Director, with positive findings.

110. Pharmacy staff and doctors in the Health Board gave comparatively positive views about the quality of discharge information provided to primary care. In our survey, 71 per cent of pharmacy staff, 49 per cent of doctors agreed or strongly agreed with the statement 'The discharge information about patients' medicines provided to GPs is of high quality'. This compared with 41 per cent of pharmacy staff and 30 per cent of doctors across Wales.

111. The Standards state that organisations should 'monitor the accuracy, legibility and timeliness of information transfer. Ystrad Fawr has not audited the quality and timeliness of discharge information in the past two years, although this has been audited at Royal Gwent and Nevill Hall. Our primary care prescribing report said that GPs 'expressed concern about the lack of prescribing information provided in discharge letters, the amount of time it takes for discharge letters to be received, and the lack of information for patients about the drugs they have been discharged with.'

112. When a patient is being discharged from hospital, staff may request that community pharmacists carry out a Discharge Medicines Review (DMR) soon after the patient's return home. These DMRs aim to ensure changes to patients' medicines initiated in hospital are continued appropriately in the community. The reviews also ensure patients are supported in adhering to their medication regime. An independent review of the DMR service in Wales estimated that each DMR costs £68.50 and that DMRs have an approximate 3:1 return on investment due to avoiding emergency department attendances, hospital admissions and medicines wastage.[39] Whilst DMRs appear to be effective, they are essentially correcting issues that have arisen in a patient's episode of care. It could be argued that expenditure on DMRs could be better spent upstream to prevent these issues that later require correction, for example by improving the quality and timeliness of information sharing at the transfer of care between primary and secondary care. At the Health Board, 1,361 DMRs were carried out in 2013-14 at a cost of approximately £93,200[40].

113. The Health Board funded 21 DMRs for every 1,000 patients discharged from hospital. This was the highest rate across Wales, where the average was 14 DMRs per 1,000 discharges.[41]The Health Board is one of only two that records the number of community referrals for DMR made by secondary care staff.

Antimicrobial stewardship

The Health Board is taking a range of actions to improve antimicrobial stewardship, although Royal Gwent is the only hospital with an antibiotics pharmacist

114. Resistance to antibiotics has increased in Wales.[42] The all-Wales action plan on antimicrobial stewardship talks about the importance of promoting good antimicrobial prescribing through audit. In the past year, the Health Board has audited the following five aspects of antimicrobial use: costs, defined daily dose, point prevalence, antimicrobial resistance, and the correlation between prescribing practice and problem organisms. The point prevalence audit is the only one of these five topics to be applied across all service areas. Two other health boards in Wales have audited each of the five topics, but only one has conducted this work across all service areas. The scope of our audit did not cover the findings from these audits.

115. In secondary care settings, designated antibiotics pharmacists can help staff to focus on appropriate use of antibiotic medication. While there is an antibiotics pharmacist at the Royal Gwent Hospital, there are no equivalents at the other hospitals.

[39] Cardiff University, Evaluation of the discharge medicines review service, March 2014.

[40] We have calculated this cost by multiplying the number of DMRs carried out by £68.50.

[41] We have used the number of discharges in 2013-14 at acute hospitals as the denominator in this paragraph.

[42] Public Health Wales, Antimicrobial resistance and usage in Wales (2005-2011), November 2012.

Part 5

Monitoring pharmacy services

There is mixed evidence about the effectiveness of learning processes and there is a need to strengthen performance reporting and understand more about the reasons for pharmacy team safety interventions

Performance reporting

Whilst performance reports consider a good range of medicines-related indicators, there is scope to strengthen performance reporting through benchmarking and by improving the consistency and format of reports

116. The Professional Standards for Hospital Pharmacy Standards (the Standards) state that agreed key performance indicators should be in place to enable internal and external assessment of performance. Performance should also be benchmarked against other relevant organisations.

117. We reviewed examples of recent quarterly performance reports in relation to medicines management. They mainly provide quarterly data on key performance indicators including:

- discharge waiting times – MMP wards;
- outpatients waiting times (for dispensing);
- dispensing error rates resulting in clinical incidents;
- number of MI enquiries answered within the agreed time; and
- number of potentially lethal/serious interventions.

118. In addition there was information around procurement, production and aseptic services, and particular themes for any given quarter.

119. The reports include detailed numerical information and a considerable amount of narrative describing drug interventions. Whilst the information for each site is broadly similar, the formatting of the information is different for each, and less extensive for Ystrad Fawr. The presentation of information relies almost entirely on data in tables and extensive narrative. There is very little use of trend chart and other means of presentation that can usefully highlight particular features in the data. There is no summary to help guide the reader to key issues. The analysis of incidents is based on severity, specialty and some specific drugs, but there is no information on incidents by wards or other ways of drilling down to see where patterns occur. We found no evidence of benchmarking or comparison. We concluded there is scope to strengthen performance reporting and monitoring in relation to medicines management.

120. In our survey, 41 per cent of pharmacy staff agreed with the statement ‘I am regularly given an opportunity to see data relating to the pharmacy team’s performance’. This was almost identical to the findings for pharmacy staff across Wales as a whole.

Safety interventions and medication-related admissions

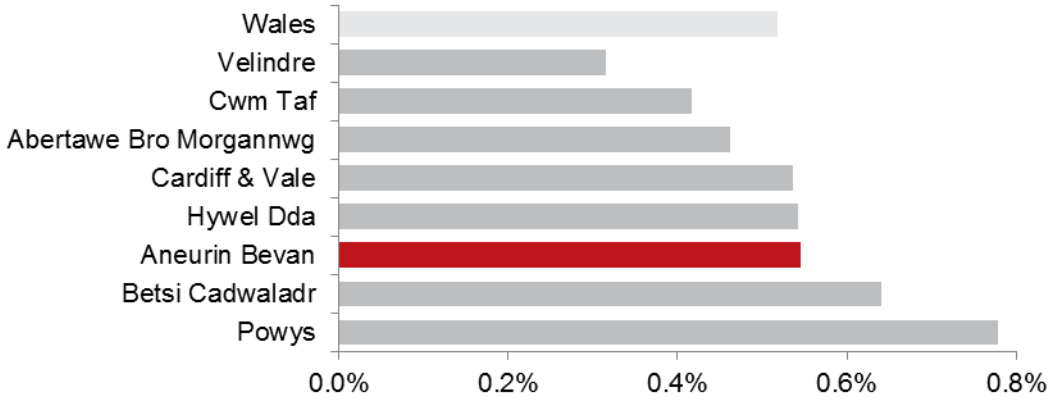
The rate of medication-related admissions is slightly higher than the Wales average and the Health Board needs to do more work to understand the reasons for the pharmacy team's safety interventions

121. Medicines management is a complicated set of processes and there is potential for things to go wrong at numerous stages. The absolute focus for health boards should be in ensuring safe practices. Where errors or incidents are identified in relation to medicines, health boards should act decisively and openly to learn lessons and prevent repeat incidents.

122. In our survey, 73 per cent of pharmacy staff and 61 per cent of doctors agreed or strongly agreed that 'I would feel safe having my medicines managed at this hospital'. Across Wales a whole, the figures were nearly identical.

123. When something goes wrong with someone's medication it can directly cause an admission to hospital. Exhibit 17 shows the results of a national audit on the rate at which patients were admitted to hospital as a result of problems with their medication. The rate of these admissions at the Health Board is slightly higher than the Welsh average. Data is taken from the NHS Wales Informatics Service but is complicated by the fact that coding teams take differing approaches to coding the causes of admissions. The scale of the problem with medication-related admissions is therefore potentially understated.

Exhibit 17: The proportion of admissions that are medication-related is slightly higher than the all-Wales average



Source: NHS Wales Informatics Service. Data, by provider, cover 1/7/2012 to 31/6/2013.

124. Our clinical pharmacy review also looked at medication-related admissions and found a considerably higher proportion of medication-related admissions than in the exhibit above. At the Health Board, nine per cent of patients seen by the pharmacy team were considered to be admitted due to a medication-related issue[43]. This compares with 10 per cent across Wales. Using these figures, the estimated cost of admissions due to medication issues in the Health Board in 2013-14 would be £2.7 million[44].

125. Part of the pharmacy team's role is to make important interventions when a patient's safety is at risk. Such patient safety interventions may be necessary, for example, to ensure that patients with a medication allergy are not prescribed those drugs and ensuring that insulin-dependent diabetic patient are correctly prescribed their insulin. Our clinical pharmacy review identified 26 occasions in the Health Board where pharmacy teams intervened because a patient's medication regime could have significantly compromised their safety. This represents a rate of 2.8 occurrences for every 100 patients reviewed. Across Wales, the average was 4.1 occurrences for every 100 patients reviewed. Whilst the Health Board's intervention rate is lower than the Wales average, the rate at Ystrad Fawr's Bedwas ward was the highest within the Health Board at 12.4 occurrences for every 100 patients reviewed. The Health Board should consider these data further and decide whether more pharmacy team resources should be diverted to addressing the root causes and stopping errors and near misses happening, rather than correcting them once they have been made.

Learning when things go wrong

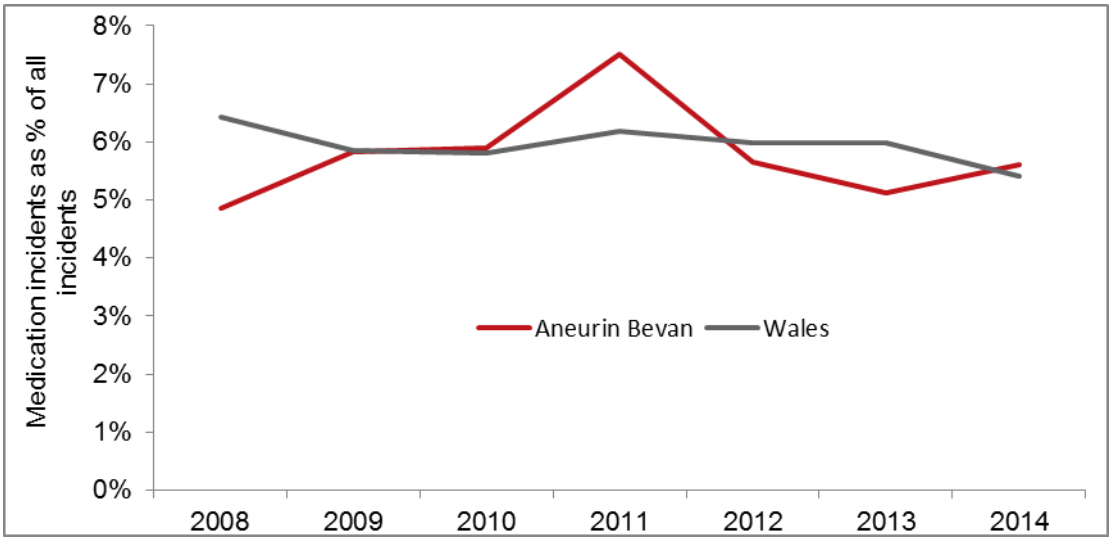
There is mixed evidence about the effectiveness of learning processes

126. Health boards should report all patient safety incidents to the National Reporting and Learning System (NRLS) so that national analyses and comparisons can be made. Exhibit 18 shows the number of medication-related incidents reported as a percentage of all incidents reported to the NRLS.

[43] Patients were deemed to have a medication-related admission if the documented, initial diagnosis included a possible problem with medication, including adverse drug reaction, non-compliance, non-evidence based prescribing, dispensing error, poor medication advice etc.

[44] We used a cost per admission of £456, the figure defined in Cardiff University's Evaluation of the Discharge Medicines Review Service, March 2014. The Health Board told us there were 65,791 inpatient admissions in 2013-14 (Wales Audit Office Core Medicines Management Tool). Nine per cent of this is 5,921.

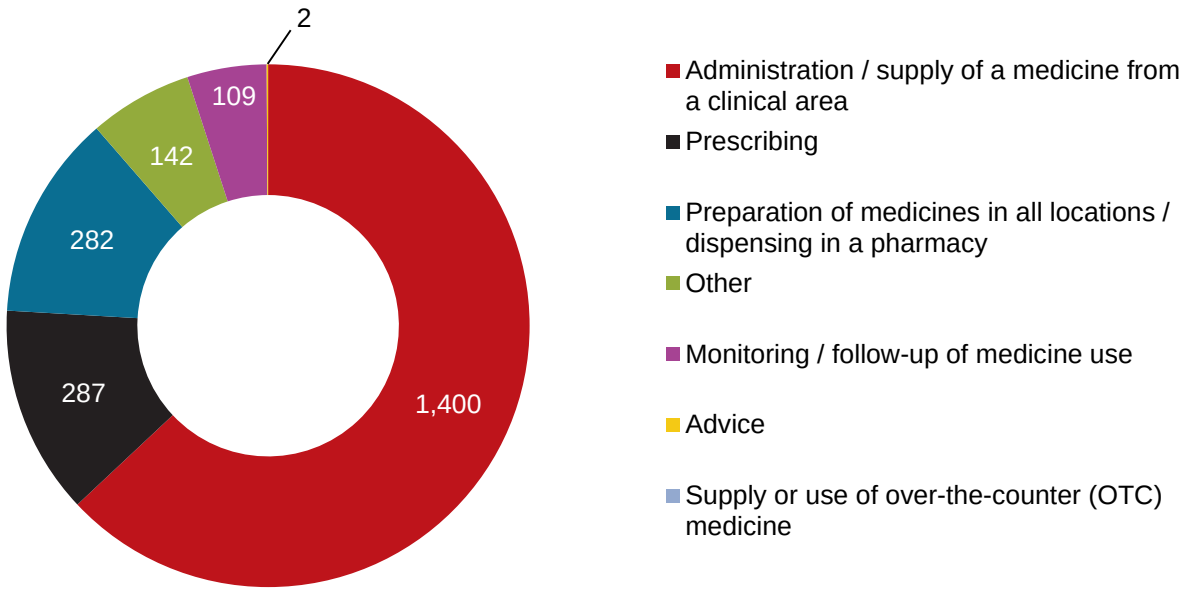
Exhibit 18: With the exception of a peak in 2011, the proportion of incidents that were medication related have remained between five and six per cent at the Health Board, and close to the Welsh average



Source: NRLS, NHS Commissioning Board Special Health Authority. Data for 2014 include incidents reported before 31 March 2014.

127. Exhibit 19 shows the types of medication-related incidents that were reported by the Health Board to the NRLS. The most common category of incident was 'Administration/supply of a medicine from a clinical area' which covers all stages of the administration process from reviewing the prescription, selecting the correct medicine, identifying the correct patient and administering the dose.

Exhibit 19: Medication-related incidents in the Health Board are most commonly associated with the administration and supply of medicines from clinical areas



Source: NRLS, NHS Commissioning Board Special Health Authority (1/4/2008 to 31/3/2014). Further detail on the categories can be found at the following linkhttps://www.eforms.nrls.nhs.uk/staffreport/help/AC/Dataset_Question_References/Medicine_incident_details/MD01.htm

128. In our survey, 72 per cent of pharmacy staff agreed or strongly agreed with the statement 'Medicines-related incidents/errors are reported and handled appropriately at this hospital', identical to the figure for Wales. When asked whether they agree with the statement 'Information obtained through incident/error reports is used to make patient care safer', 72 per cent agreed or strongly agreed (compared with 70 per cent across Wales).

129. The pharmacy team plays a key role in ensuring that safe medication practices are embedded in the Health Board. Learning from medication errors and systems failures related to medicines should be shared with the multidisciplinary team and acted upon to improve practice. Medication incidents are reported on Datix and serious incidents are investigated. There are a lot of incidents reported on Datix so the pharmacy staff did not think that ward staff were reticent about reporting. In particular, pharmacists at Ystrad Fawr are carrying out a monthly audit of missed doses which has uncovered a high level of missed doses. Pharmacists are encouraging ward staff to report them on Datix.
While most dispensing errors are picked up before the medication leaves the dispensary, a small number of errors that occur are reported on Datix and reviewed by the pharmacy team. The Health Board's self-assessment against the Standards recognises scope for improvement, noting that in relation to dispensing, 'under reporting of missed doses by nursing staff'.

130. Some patients can suffer negative impacts from taking their medication which are known as adverse drug reactions. Some reactions are unexpected but some are predictable. The Academy of Medical Royal Colleges has calculated that 4 in 100 hospital bed days are caused by adverse drug reactions in the United Kingdom. In the Health Board, adverse reactions represent an approximate cost of £9.9 million per year in bed days alone. We were told that the Health Board is not monitoring trends or patterns of adverse events. They have reviewed medication related admissions to hospital where an adverse reaction to a medication has resulted in an admission, for example, bleeding due to aspirin or warfarin use.

131. When patients experience adverse reactions as a result of their medicines, staff should report these events to the MHRA via the Yellow Card Scheme. In this Health Board in 2013-14, hospital pharmacists represent the professional group that reports the most adverse events, which was typical across Wales. Our clinical pharmacy review identified just one occasion where pharmacy teams identified symptoms of potential adverse drug reactions or side-effects when reviewing patients. This represents a rate of one occurrence for every 1,000 patients reviewed, which was the lowest across Wales. The average rate in Wales was six per 1,000 patients reviewed. These data suggest it may be beneficial for the Health Board to further promote the Yellow Card Scheme to staff from all professional groups.

132. In our survey, 76 per cent of pharmacy staff and 26 per cent of doctors agreed or strongly agreed with the statement 'Use of the Yellow Card Scheme is promoted effectively in this Health Board'. This compared with 59 per cent of pharmacy staff 31 per cent of doctors across Wales.

133. Health bodies should have in place a medication safety committee. This should be a multi-professional group to review medication error incidents and improve medication safety locally. The Health Board has an active Medication Safety Group which reviews medication errors and issues alerts when information on errors needs to be disseminated across the Health Board..

Appendix 1

Methodology

Our audit consisted of the following methods:

Method	Detail
Core medicines management tool	The core tool was the main source of corporate-level data that we requested from the Health Board/trust. The tool was an Excel-based spreadsheet.
Document request	We requested and reviewed approximately 20 documents from the Health Board.
Clinical pharmacy review	The clinical pharmacy review was completed by pharmacy teams on the following wards: • Nevill Hall – EAU, Ward 4/2 • Royal Gwent - wards D4E, D1W and D4W • Ystrad Fawr – Bedwas The tool aimed to record activity of pharmacy teams during ward visits.
Interviews	We interviewed a small number of staff including: • Clinical Director of Pharmacy • Medical Director • Executive Director of Nursing • Chief Pharmacist for Royal Gwent Hospital and Nevill Hall Hospital • Clinical Services Pharmacist, Nevill Hall Hospital • Pharmacy Manager, Ystrad Fawr
Walkthroughs	We visited all acute hospitals within the Health Board where we carried out an observation within the hospital pharmacy/dispensary. We also visited the following wards where we spoke to staff and carried out a drug chart review: • Royal Gwent – D2West, C5E • Nevill Hall – Glan Ebbw 3/1 Trauma and Orthopaedics • Ystrad Fawr - Bedwas Medical Admissions Unit
Surveys of medical and nursing staff	We carried out an online survey of a sample of medical and nursing staff to ask their views on the effectiveness of medicines management within the organisation. We received 67 responses from doctors (62 of whom were consultants). Across Wales we received 413 responses from doctors. In the Health Board we received only 12 responses from nurses (and across Wales we received 377 responses from nurses).
Survey of pharmacy staff	We carried out an online survey pharmacy staff to ask their views on the effectiveness of medicines management within the organisation. We received 75 responses in total, with 26 staff based at Nevill Hall, 40 based at the Royal Gwent and nine based at YAB and Ystrad Fawr. Across Wales we received 407 responses from pharmacy staff.
Use of existing data	We used existing sources of data wherever possible such as incident data from the NRLS, data from the Cardiff University review of the Discharge Medicines Review Service and the NHS Wales pharmacy resource mapping exercise 2014.

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