Archwilydd Cyffredinol Cymru
Auditor General for Wales

WALES AUDIT OFFICE
SWYDDFA ARCHWILIO CYMRU

Medicines Management in Acute Hospitals

Cardiff and Vale University Health Board

Audit year: 2014-15

Issued: June 2015

Document reference: 187A2015

Status of report

This document has been prepared for the internal use of Cardiff and Vale University Health Board as part of work performed in accordance with statutory functions.

No responsibility is taken by the Auditor General or the staff of the Wales Audit Office in relation to any member, director, officer or other employee in their individual capacity, or to any third party.

In the event of receiving a request for information to which this document may be relevant, attention is drawn to the Code of Practice issued under section 45 of the Freedom of Information Act 2000. The section 45 Code sets out the practice in the handling of requests that is expected of public authorities, including consultation with relevant third parties. In relation to this document, the Auditor General for Wales and the Wales Audit Office are relevant third parties. Any enquiries regarding disclosure or re-use of this document should be sent to the Wales Audit Office at infoofficer@wao.gov.uk.

The team who delivered the work comprised Stephen Lisle, Kate Febry, Stephen Pittey and Nigel Blewitt.

Contents

There are strengths in the way the Health Board manages medicines but there are also issues associated with the strategic approach, storage facilities, transfer of medicines information and performance monitoring.

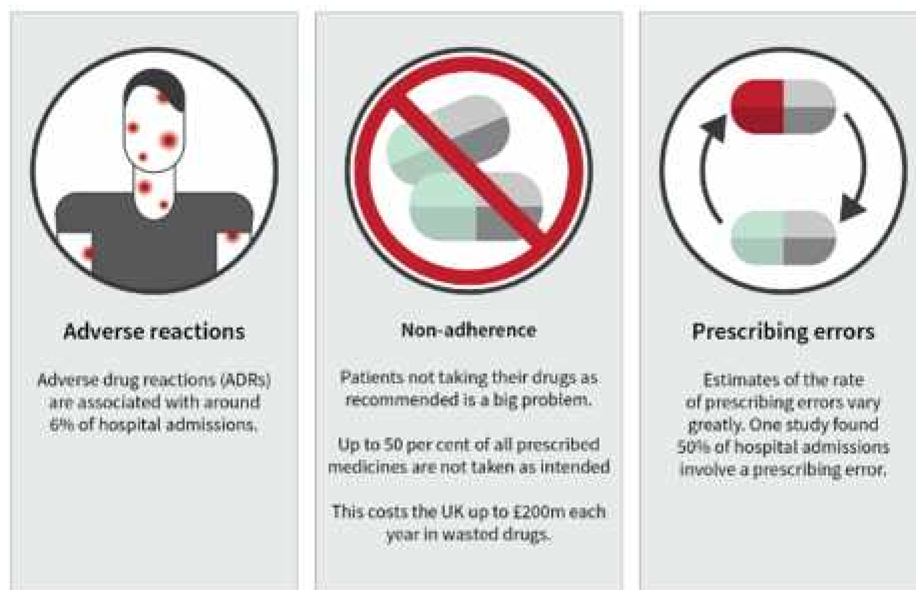
Summary report	
Background	4
Key findings	6
Recommendations	8
Detailed report	
Part 1. Corporate arrangements: There is clear executive leadership, regular financial monitoring and improved clinical engagement but there is scope to raise pharmacy's profile, clarify accountabilities and strengthen the strategy	10
Part 2. Workforce: Pharmacy staff costs per bed day are lower than the Welsh average and workload pressures are similar to the rest of Wales. There is scope to dedicate more resource to training and improve access to the pharmacy team outside normal hours	15
Part 3. Facilities: Pharmacy facilities largely comply with key requirements although there are risks associated with storage of medicines, monitoring the temperature of ward fridges and infrequent audit of injectable medicine preparation on the wards	25
Part 4. Processes: There are some strengths to medicines management processes but there are risks related to information transfer between primary and secondary care, timeliness of reconciliations, non-medical prescribing and supporting patients to take their medicines properly	29
Part 5. Monitoring: There is scope to improve performance reporting, mixed evidence about the effectiveness of learning processes and a need to understand more about the root causes of the pharmacy team's safety interventions	41
Appendices	
Methodology	47

Summary report

Background

1. The most common therapeutic intervention in the NHS is the 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 are 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 the 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 Cardiff and Vale 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, the response rate was poor within the Health Board and, therefore, we have used the results of the nurse survey sparingly in this report. 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

12. Our overall conclusion is: **There are strengths in the way the Health Board manages medicines but there are also issues associated with the strategic approach, storage facilities, transfer of medicines information and performance monitoring**. The table below sets out our key findings in more detail:

Corporate arrangements: There is clear executive leadership, regular financial monitoring and improved clinical engagement but there is scope to raise pharmacy's profile, clarify accountabilities and strengthen the strategic approach.

- Whilst there is clear executive leadership and improved clinical engagement in the new Medicines Management Group there is scope for greater clarity about the role of clinical board pharmacists and about lines of accountability in the pharmacy team.
- There are risks associated with separate visions for primary and secondary care and the Health Board has not yet developed a medicines management strategy.
- In common with other health boards, the pharmacy team has limited involvement in senior decision-making forums and in decisions about service developments.
- There is regular scrutiny of financial information but the medicines savings plan is underperforming and a comparatively large proportion of pharmacy staff think savings are impacting on patient outcomes.
- Despite the fact that the Health Board's individual patient funding request panel considers fewer applications than average, pharmacy spends a disproportionate amount of time supporting the panel.

Workforce: Pharmacy staff costs per bed day are lower than the Welsh average and workload pressures are similar to the rest of Wales. There is scope to dedicate more resource to training and improve access to the pharmacy team outside normal hours.

- The pharmacy team's ratio of pharmacists to technicians is higher than average but the number and cost of staff per bed day is below average. Ongoing workforce planning should seek to address perceptions of high workload pressure and strengthen succession planning.
- There is scope to strengthen medicines management training: pharmacy resources dedicated to training are comparatively less than the Welsh average, few pharmacists are trained in improvement methodologies and there were some negative perceptions from doctors.
- While there are good relationships between pharmacy and ward staff and a high proportion of wards with named pharmacy staff, some indicators suggest scope to further embed clinical pharmacy on the wards.
- Pharmacy services are generally accessible and responsive although medical staff satisfaction is slightly less than the Welsh average and there is particular scope for improvement outside normal working hours.

Facilities: Pharmacy facilities largely comply with key requirements although there are risks associated with storage of medicines, monitoring the temperature of ward fridges and infrequent audit of injectable medicine preparation on the wards.

- Pharmacy facilities largely comply with the key requirements but there are issues with storage space and pharmacy location at University Hospital of Wales (UHW) and temperature regulation of bulk stores at University Hospital Llandough (UHL).
- The aseptic unit was given a medium 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.
- The Health Board has not yet addressed issues with storage of medicines on wards highlighted in the *Trusted to Care* spot checks and needs to strengthen fridge temperature monitoring and the security of medicines due for return to the pharmacy department.

Processes: There are some strengths to medicines management processes but there are risks related to information transfer between primary and secondary care, timeliness of reconciliations, non-medical prescribing and supporting patients to take their medicines properly.

- Poor information transfer between primary and secondary care is causing considerable safety risks and inefficiencies although the pilot of the Individual Health Record is showing encouraging results.
- Less than half of patients sampled at UHW had their medicines reconciled within a day of admission and few patients received a comprehensive review.
- Our review found that for all sampled patients a standard drug chart had been completed and the patient's allergy status recorded.
- The Health Board's formulary processes are in line with the rest of Wales although due to the lack of an electronic prescribing system in secondary care, the Health Board has difficulties monitoring formulary compliance and doctors report more issues accessing the British National Formulary.
- Whilst electronic prescribing is not yet in use on any hospital wards, the Health Board plans to procure a system for inpatient electronic prescribing in 2016.
- In common with the rest of Wales, there is scope for the Health Board to strengthen record keeping and controls in relation to non-medical prescribing.
- The Health Board has taken direct action in response to *Trusted to Care* and we found that when patients were not given their medication, the reasons for non-administration were comparatively well recorded.
- The Health Board needs to do much more to assess and support patients' compliance needs and the medicines helpline is poorly utilised.
- Performance was good in relation to estimated date of discharge but there are safety risks and inefficiencies associated with poor timeliness and quality of discharge summaries and the rate of discharge medication reviews is slightly lower than average.
- The Health Board is taking a range of good actions to improve the use of antimicrobial medicines.

Monitoring: There is scope to improve performance reporting, mixed evidence about the effectiveness of learning processes and a need to understand more about the root causes of the pharmacy team's safety interventions.

- There is scope to strengthen performance reporting through benchmarking and more regular consideration of performance indicators.
- 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 and the membership of the new Safe Medicines Practice Group may not be broad enough to ensure a sufficient spread of learning.

Recommendations

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

a. Evaluate the effectiveness of the Clinical Board pharmacist role. The evaluation should consider the views of non-pharmacy staff and should aim to spread good practice amongst the Clinical Board pharmacists.

b. Write a medicines management strategy to set out a clear vision across primary and secondary care. It should be developed in partnership by pharmacists, doctors and nurses and should align with the Health Board's strategic aims.

c. Create a standard operating procedure that requires pharmacy to be consulted and involved during the early stages of any service change planning.

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

a. Ensure the forthcoming pharmacy workforce plan makes full use of the national resource mapping data and addresses perceptions of high workload pressures, the need for better succession planning, demand for more accessible seven-day services and the need to reduce outpatient dispensing waiting times at UHW.

b. Increase the proportion of its pharmacy staff that are trained in quality improvement methodologies.

c. Evaluate whether it dedicates enough pharmacy resource to induction and ongoing training of medical staff.

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

a. Review and improve the storage facilities at UHW pharmacy to ensure all items are stored above the floor.

b. Minimise the current legal and safety risks associated with bulk storage of intravenous fluids and other bulk items at UHL Pharmacy by ensuring these items are stored in temperature regulated areas.

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

d. Develop a costed, timebound action plan to address the ward medicine storage and refrigeration issues raised in Trusted to Care.

e. Implement a new procedure for safe and secure return of unused medication from the wards to the pharmacy.

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

a. Set out a clear timescale and funding plan to implement electronic prescribing and discharge, fully rolling out the Individual Health Record and improving electronic access on the wards to the British National Formulary.

b. Regularly measure the timeliness of medicines reconciliation with the aim of improving performance, particularly at UHW.

c. Maintain a register of non-medical prescribers to monitor whether staff are regularly prescribing and introduce a policy that sets out competency requirements for maintaining validation in non-medical prescribing.

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, providing a helpline for UHL patients and supporting patients to take their medicines properly.

R5 **Monitoring**: In relation to Part 5 of the report, the Health Board should:

a. Review its portfolio of key performance indicators related to medicines management to ensure performance is monitored on at least a monthly basis and work with other health boards to regularly benchmark performance.

b. Ensure the Board and Clinical Diagnostics and Therapeutics Clinical Board receive more regular medicines management reports and performance data.

c. Carry out further analysis of the safety intervention rate 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

There is clear executive leadership, regular financial monitoring and improved clinical engagement but there is scope to raise pharmacy’s profile, clarify accountabilities and strengthen strategic approach

Leadership and accountability structures

Whilst there is clear executive leadership and improved clinical engagement in the new Medicines Management Group there is scope for greater clarity about the role of clinical board pharmacists and about lines of accountability in the pharmacy team

13. 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.

14. The Health Board is divided into eight Clinical Boards, each responsible for planning, delivering and improving particular services. The Medical Director has executive accountability for pharmacy and medicines management issues across the Health Board. The Director of Nursing is the nursing lead for medicines management and the Health Board also has a Nurse Advisor post for pharmacy. In interviews we were told that the Nurse Advisor role has been effective in improving nursing engagement in medicines management.

15. Responsibility for pharmacy services sits within the Clinical Diagnostics and Therapeutics Clinical Board. The Clinical Board has six directorates, one of which is the Directorate of Pharmacy and Medicines Management (the Directorate). The Directorate is led by the Service Director for Pharmacy and Medicines Management who is professionally and managerially responsible for hospital pharmacy staff.

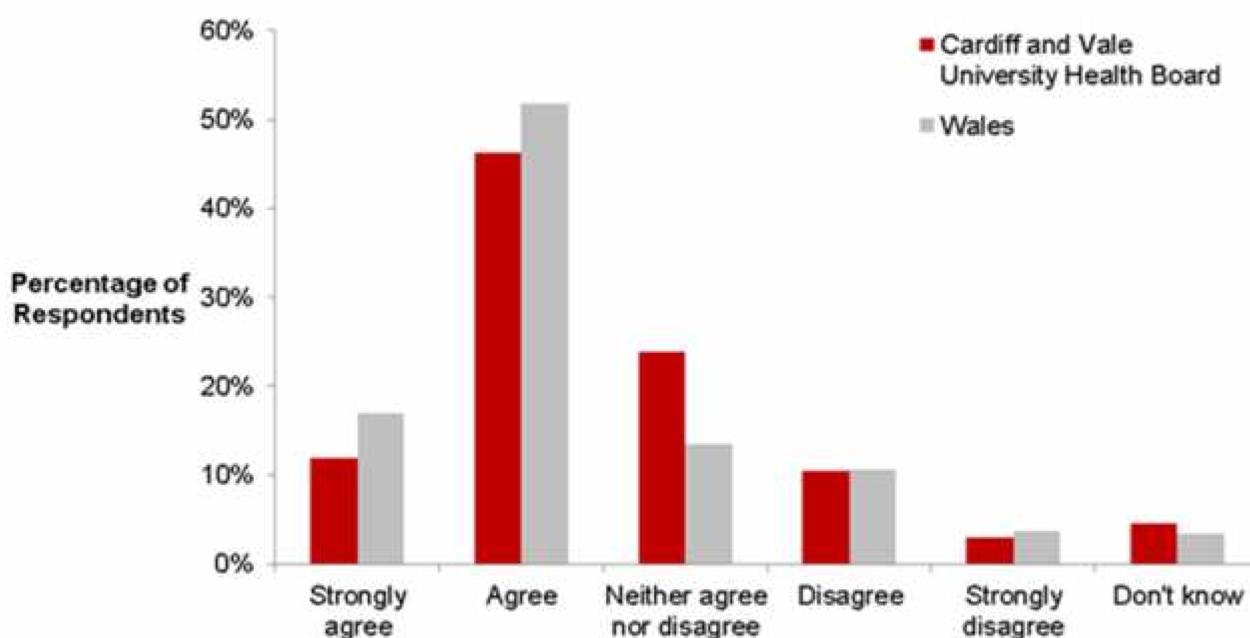
16. There is now a lead pharmacist in each Clinical Board, with the intention for more operational medicines management decision making to be devolved to the Clinical Boards. However, these arrangements are still evolving and we were told about some difficulties in performing these roles. For example, we were told about a lack of time, and lack of clarity about the remit of the Clinical Board pharmacy role. We were also told about wide variation in the roles between different Clinical Boards because of differing levels of complexity in medicines management issues and differing levels of clinical engagement in each Clinical Board. We understand that the Health Board is currently considering how it further develops lead pharmacist roles in Clinical Boards.

17. The *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 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

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

the Health Board was 58 per cent, suggesting there is an opportunity to further clarify lines of accountability in the Health Board's pharmacy team.

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



Source: Wales Audit Office Survey of Pharmacy Staff

18. The Standards also state that health bodies should have a medicines management group (MMG) as a focal point for the development of medicines policy, procedures and guidance. The Health Board has a Corporate MMG which has the purpose of providing a Health Board-wide strategic approach to medicines management issues.[11] The Corporate MMG is accountable to the Health Systems Management Board and is supported by a structure of MMGs in each Clinical Board.

19. Before the introduction of the Clinical Board structure, MMGs were held in each of the Health Board's divisions. However, the divisional meetings were poorly attended, partly due to the large number of meetings at this level. We were told in interviews that clinical engagement and attendance at the new Clinical Board MMGs are better although challenges remain in ensuring the decisions of the Corporate MMG are implemented by prescribers.

20. The MMG should be multidisciplinary to reflect the fact that medicines management is the responsibility of a number of clinical professional groupings. There are two nursing staff representatives on the Corporate MMG (seven per cent of the membership, compared with an average of nine per cent across Wales) and 11 medical staff representatives (44 per cent compared with 46 per cent across Wales).

[11] The Corporate MMG is also responsible for overseeing the Enabling Medicines Management project. Enabling Medicines Management is a workstream within the Health Board's efficiency programme called Leaner and Fitter.

Strategy for medicines management

There are risks associated with separate visions for primary and secondary care and the Health Board has not yet developed a medicines management strategy

21. 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.

22. The Directorate of Pharmacy and Medicines Management (the Directorate) has a business plan (dated December 2013) that sets out the overall strategic objectives for 2014-2017 and a set of priorities for 2014-15 that are structured around the six dimensions of the Annual Quality Framework. The Directorate also has a three-page, draft strategy (updated in September 2014). All three documents relate to the Pharmacy team, rather than wider medicines management issues. The strategy states five principles and lists a mixture of issues, actions taken and actions needed. In reviewing these documents, we found it difficult to match up the objectives and priorities from the business plan to the principles in the strategy.

23. The Pharmacy team's business plan also sets out an intention to develop a Medicines Management Strategy for 2015-16 although this was not in place at the time of our audit. In developing the Medicines Management Strategy, and in future updates of the business plan and Directorate strategy, it will be important for the Health Board to ensure all objectives and principles are better aligned to one another. This should ensure a more joined-up approach to strategy and better prioritisation of improvement actions.

24. The focus of the documents listed above is on secondary care, rather than an integrated focus on medicines management across primary and secondary care. The Health Board's action plan in relation to our primary care prescribing report states an intention to develop a primary care medicines management strategy. There are risks that the separate visions for medicines management in primary and secondary care will not be joined up.

25. We surveyed pharmacy staff for their views on the strategy. The results showed that only 25 per cent of pharmacy staff agreed or strongly agreed that they had been consulted and able to contribute to the strategy, compared to 30 per cent for Wales. The survey also showed that 56 per cent of pharmacy staff agreed or strongly agreed that 'the Health Board has an effective strategy for medicines management', compared to 66 per cent for Wales.

26. Since the end of our fieldwork, the Directorate has developed an Integrated Medium Term Plan (IMTP) for 2015-16. The two-page plan aims to ensure clearer links between the Health Board's overall IMTP and the Directorate's own priorities. The Service Director for Pharmacy and Medicines Management has delivered seven presentations to pharmacy staff to publicise the new priorities.

Profile and influence of pharmacy within the wider health board

In common with other health boards, the pharmacy team has limited involvement in senior decision-making forums and in decisions about service developments

27. 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[12].

28. 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 pharmacy teams have only limited involvement in service changes. The Health Board's pharmacy team has no involvement in decisions to introduce new consultants and only ad hoc involvement in decisions to introduce new clinics or services. The Health Board's self-assessment against the Standards suggests that when the pharmacy team is involved in such discussions it is not necessarily soon enough to influence change.

Financial management of medicines management

There is regular scrutiny of financial information but the medicines savings plan is underperforming and a comparatively large proportion of pharmacy staff think savings are impacting on patient outcomes

29. Secondary care medicines expenditure is reported on a monthly basis to the Board, executive team and Corporate MMG. The Directorate's financial position is scrutinised monthly by the Clinical Board and there is ongoing work within the Directorate to further improve financial forecasting and planning.

30. The Health Board's medicines management savings plan covers primary and secondary care but at December 2014 it was underperforming. The Health Board planned to make medicines management savings in 2014-15 totalling nearly £5 million but has realised savings of £3.6 million. However, we were told that the original savings plan was not realistic, and that planning for 2015-16 is more realistic. We were told in interview that the need to secure savings year after year now means it is increasingly challenging to find further savings within the Directorate.

31. In response to our survey, 40 per cent of pharmacy staff disagreed or strongly disagreed with the statement 'Financial savings made in pharmacy services are not impacting on patient outcomes' compared with 24 per cent across Wales. Whilst this reflects only the perception of a sample of staff, the Health Board should reflect on whether its pursuit of savings is impacting negatively on patient outcomes.

32. The Health Board is pursuing further savings, as well as broader improvements, through work to revise treatment pathways. This work focuses on specific conditions, such as asthma and diabetes, and aims to ensure medicines are made available to patients at the right time (ie, soon enough to secure good outcomes but not before less expensive options are considered.) This work aims to align with the principles of Prudent Healthcare so that patient outcomes are not affected by the pursuit of savings. In February 2015, there were 14 Health Board-approved medicines pathways available to prescribers. The target it is to have 15 pathways in place by March 2015.

[12] Whilst there are no pharmacy team members represented on these committees in Cardiff and Vale, the Medical Director does attend these committees and is the executive with responsibility for medicines management.

Individual patient funding requests

Despite the fact that the Health Board's individual patient funding request panel considers fewer applications than average, pharmacy spends a disproportionate amount of time supporting the panel

33. 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 and applications should be screened and signed by a clinical lead or head of department in advance of meetings[13]. At the Health Board, the IPFR panel has lay members who regularly attend panel meetings. All IPFR applications in the Health Board are screened before the panel sits, and all applications are signed off by a clinical lead or head of department.

34. During 2013-14, the IPFR panel at the Health Board considered 37 applications regarding medicines which was lower than the Wales average of 60[14]. However, the Health Board's pharmacists/technicians spent a disproportionate amount of time supporting and attending these panels (300 hours compared with the Welsh average of 193 hours). One reason for the Health Board's comparatively large number of hours is that Cardiff and Vale has a national role in sharing the decisions of its IPFR panel to help other health boards make decisions in similar cases.

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

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

The medicines management workforce

Pharmacy staff costs per bed day are lower than the Welsh average and workload pressures are similar to the rest of Wales. There is scope to dedicate more resource to training and improve access to the pharmacy team outside normal hours

Staff numbers and skill mix

The pharmacy team's ratio of pharmacists to technicians is higher than average but the number and cost of staff per bed day is below average. Ongoing workforce planning should seek to address perceptions of high workload pressure and strengthen succession planning

35. 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 (on the next page) highlights some of the staffing indicators from that exercise[15]. The Health Board's skill mix has a higher proportion of pharmacists to technicians than the Wales average, which results in the costs per pharmacist and per technician also being slightly higher than average. The number and cost of staff per bed day are below the Wales average.

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

Exhibit 3: Relative to inpatient activity, the Health Board has a smaller pharmacy team than average

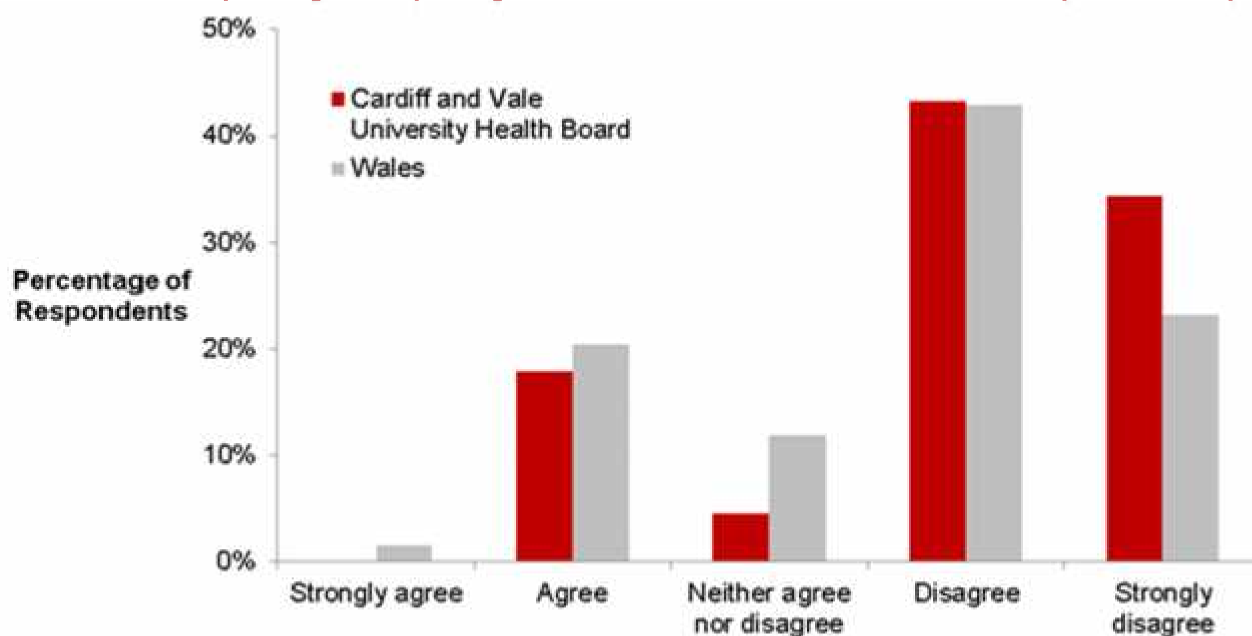
		Wales average	Cardiff and Vale
Staff numbers and skill mix	Total pharmacists and technicians in post: whole-time equivalent (WTE)	148	133
	Ratio of pharmacists to technicians	51:49	54:46
	Pharmacists and technicians (WTE) per 100,000 occupied bed days	37	32
Staffing costs[16]	Average cost per WTE: Pharmacist	£63,600	£66,100
	Average cost per WTE: Technician	£35,900	£38,100
	Pharmacist and technician: cost per hour	£3,800	£3,600
	Pharmacist and technician: cost per occupied bed day	£18.68	£16.91

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 excludes the time/resource dedicated to primary care and community pharmacy activities.

36. Our work across Wales highlighted general perceptions of high workload and too few staff. In the Health Board, 78 per cent of pharmacy staff disagreed or strongly disagreed with the statement 'There are enough pharmacy staff at this organisation for me to do my job properly'. This compares with 60 per cent across Wales. Exhibit 4 (on the next page) shows the extent to which staff agreed with the statement 'I have time to carry out all of my work'.

[16] 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.

Exhibit 4: Pharmacy staff generally disagreed with the statement 'I have time to carry out all of my



Source: Wales Audit Office Survey of Pharmacy Staff

37. Work is now ongoing between the Directorate and Human Resources to produce a three to five year workforce plan and to look at the roles being performed by pharmacy staff to ensure they continue to match demand and need. The Health Board's self-assessment against the *Professional Standards for Hospital Pharmacy Services* (the Standards) recognises that succession planning is limited in the pharmacy workforce and there is a need to improve benchmarking on skill mix and resources.

Training and development

There is scope to strengthen medicines management training as pharmacy resources dedicated to training are comparatively less than the Welsh average, few pharmacists are trained in improvement methodologies and there were some negative perceptions from doctors

38. In our survey, 50 per cent of pharmacy staff in the Health Board disagreed or strongly disagreed with the statement 'I am getting sufficient training, learning and development'. This compared with 33 per cent across Wales as a whole. Data from the resource mapping exercise shows that pharmacy staff in the Health Board spent five per cent of their time on receiving or delivering training, education and personal development over the past year. This compares with nine per cent across Wales[17].

39. The Quality Delivery Plan[18] 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, 10 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. This is the second lowest rate

[17] Resource Mapping activity data relating to pharmacist and technician staff groups across primary and secondary care.

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

reported by health boards in our study, where the figure ranged from 0.7 per cent to 67 per cent. Across Wales, the total proportion of secondary care pharmacy staff trained to at least bronze level is 24 per cent.

40. Training for nursing and medical staff can be a key success factor in contributing to good, multidisciplinary engagement in medicines management. 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 0.2 WTE staff funded for this role, which includes the delivery of a pharmacy session in the junior doctor induction programme. Given the size of the Health Board, there should be consideration of whether this level of resource is sufficient.

41. The Health Board is supporting junior doctors' prescribing in other ways. The Health Board has developed a good prescribing guide for junior doctors and is piloting an approach to ensure junior doctors are given feedback about their prescribing performance. However, we were told that more work is required because the rate of medication errors made by junior staff remains a problem. Our audit did not quantify the rate of errors by junior staff.

42. In our survey, 33 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'[19]. This compared with 35 per cent across Wales.

43. Also in our survey, 24 per cent of pharmacy staff and 26 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'[20]. This compared with 23 per cent of pharmacy staff and 29 per cent of doctors across Wales.

44. All newly employed nurses and midwives attend a medicines management study day which covers medicines storage, administration, disposal and assessing patients to see if they are capable of self-administering their medication. Post registration medicines management education is led by the pharmacy Nurse Advisor and is delivered in response to demand from individual specialties. In line with most health boards, there is currently no routine refresher training in medicines management for nurses although new medicines management information is cascaded to nurses via awareness campaigns as well as by link nurses and Clinical Board nurses. Any nurse that makes two medicine-related errors within a year is required to attend a two-day medicines management course.

45. The Health Board is planning to strengthen nurse and midwife training in medicines management. A new all-Wales policy and education package on medicines management is being developed and along with other health boards in Wales, Cardiff and Vale nurses will be required to undertake three-yearly update training.

[19] Sixteen out of 28 nurses who responded to our survey agreed or strongly agreed with the statement.

[20] Eleven out of 28 nurses agreed or strongly agreed with the statement.

Clinical pharmacy services

While there are good relationships between pharmacy and ward staff and a high proportion of wards with named pharmacy staff, some indicators suggest scope to further embed clinical pharmacy on the wards

46. 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'.

47. The resource mapping exercise carried out across Wales in late 2014 showed that the Health Board's pharmacists and technicians typically spent 24 per cent of their time directly supporting wards and clinics, which is less than the average of 32 per cent across Wales[21]. One contributory factor to the lower figure in the Health Board is that Cardiff and Vale hosts a number of all-Wales pharmacy services, some of which have little direct involvement with patients.

48. Exhibit 5 shows some of the key data we collected in our clinical pharmacy review that covered three wards at each of the acute hospitals (details of these wards can be found in 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 between pharmacy and the wards, with a high proportion of wards having named pharmacists or technicians

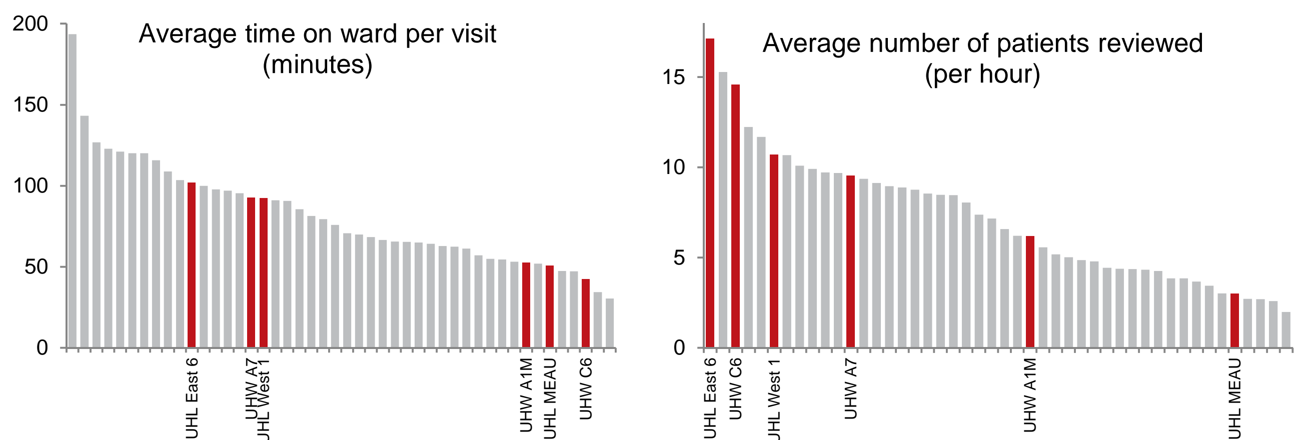
Indicator	The Health Board	Wales	Observations
Percentage of pharmacy staff saying there were good or excellent relationships with medical staff	81%	78%	Good relationships between pharmacy, medical staff and nursing staff are essential for an effective multi-disciplinary approach to medicines management. 77 per cent of medical staff agreed that relationships with pharmacy were good or excellent.
Percentage of pharmacy staff saying there were good or excellent relationships with nursing staff	90%	88%	26 of 28 nurses who responded to our survey shared this view. The positive relationships were mentioned to us several times during our hospital visits.
Percentage of wards with a named pharmacist	95%	91%	Allocating named pharmacists and technicians to specific wards can assist with working relationships.
Percentage of wards with a named technician	63%	50%	Performance at the Health Board compares well with the rest of Wales. However, as shown later in Exhibit 8, pharmacy staff think there is scope for better continuity in the pharmacists and technicians that visit wards.

[21] Resource Mapping activity data relating to pharmacist and technician staff groups across primary and secondary care.

Indicator	The Health Board	Wales	Observations
Percentage of wards with no visiting service from pharmacy	9%	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.
Percentage of wards with a seven-day visiting service	4%	5%	Only three wards in the Health Board have a seven-day service. All three are at UHW.
Percentage of of pharmacy team recommendations that led to changes	70%	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.
Percentage of pharmacy staff that agreed or strongly agreed that they are able to influence the prescribing behaviour of doctors and nurses	78%	68%	If pharmacy staff are unable to influence prescribers this suggests relationships should be strengthened.

49. Exhibit 6 shows that during our clinical pharmacy review, the average time that the pharmacy team spent on the ward per visit was comparatively low on three of the Health Board's wards. The exhibit also shows that the average number of patients reviewed per hour was among the highest in Wales at UHL East 6, UHL West 1 and UHW C6. Very few patients were reviewed each hour at UHL MEAU, which may reflect the different pharmacy input required on a short-stay unit. Findings are also likely to be influenced by factors such as complexity of cases and pharmacy visiting practice. The Health Board should carry out further analysis to interpret their submitted data in light of local knowledge

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

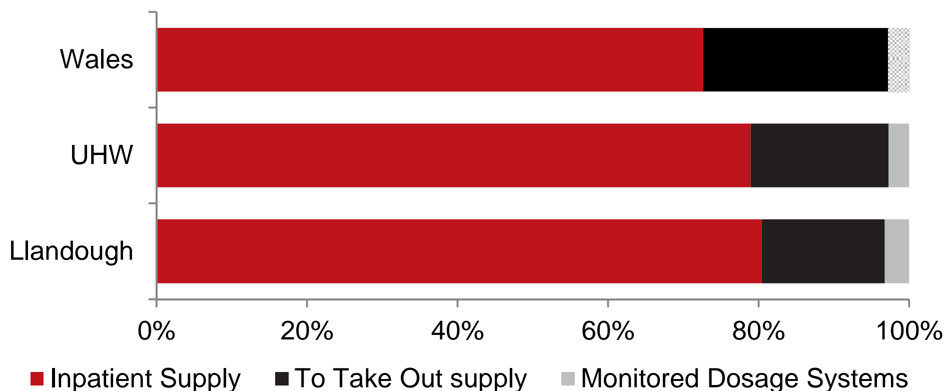


Source: Wales Audit Office Clinical Pharmacy Review

50. 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' medicines when patients are due to be discharged, and supply of monitored dosage systems, which are multi-compartment boxes to help patients remember which medicines to

take. The Health Board's pharmacy team spends a greater proportion of time supplying inpatients and this is likely to be linked to the casemix of patients included in the clinical pharmacy review.

Exhibit 7: Supplying medicines to inpatients represents a greater proportion of the pharmacy team's workload than across the rest of Wales



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

51. 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 82 visits to the wards were as part of ward rounds. The results of our staff surveys highlight differing views from pharmacy staff and doctors about the statement 'Clinical pharmacy staff are regularly involved in multidisciplinary ward rounds'. Sixty-six per cent of pharmacy staff agreed or strongly agreed and 41 per cent of doctors agreed or strongly agreed[22].

52. Exhibit 8 shows the pharmacy staff's views on how their team could be more effective and compares their opinions with those of doctors. Pharmacists felt the pharmacy team should spend more time on the wards and this issue is also highlighted in Exhibit 4 where the resource mapping exercise showed the Health Board's pharmacy team spends comparatively less time supporting wards and clinics.

[22] Fourteen out of 28 nurses who responded to our survey agreed or strongly agreed with the statement.

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

Priority	Pharmacy staff views	Doctors' views
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	Improve/put in place processes to support discharge	Improve the continuity of pharmacy staff who support the ward/patients
4	Take part in post-take ward rounds	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 medical staff satisfaction is slightly less than the Welsh average and there is particular scope for improvement outside normal working hours

53. 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[23].

54. 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. However, as discussed in paragraph 57, medical staff told us that there is scope to make the pharmacy team more accessible and responsive outside normal working hours.

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

Exhibit 9: Pharmacy service opening hours at UHW are longer than the Wales average

Hospital	Total number of hours open to A&E/ outpatients		Total number of hours open to provide clinical services to the wards	
	Mon-Fri	Sat-Sun	Mon-Fri	Sat-Sun
UHW	47	8	48	8
UHL	42	3	43	3
Wales average	**42**	**5**	**43**	**4**

Source: Wales Audit Office Core Medicines Management Tool

55. The Health Board is actively considering whether to extend the hours of pharmacy services. There is already a limited seven-day service at UHW, with pharmacy services being open for four hours on Saturday and Sunday. The forthcoming closure of Whitchurch Hospital may allow pharmacy resources to be consolidated to provide a seven-day service at UHL where weekend opening hours are currently below the all-Wales average. The Medicine Clinical Board has proposed that it should extend its working hours at weekends which would have impacts on pharmacy. Pharmacy work at weekends tends to focus on the medication needs of newly admitted patients. However, if the Medicine Clinical Board was to extend its services' working hours at weekends, there would inevitably be more changes to existing patients' medication and this would mean a greater workload for the pharmacy team. A project group has been convened to consider the ways in which the pharmacy service should change to meet the needs of the extended Medicine service.

56. Exhibit 10 (on the next page) shows the results of our survey of medical staff in relation to the accessibility and responsiveness of pharmacy services.

Exhibit 10: Satisfaction with pharmacy accessibility and responsiveness is generally good, although slightly less than the Wales average and there is scope for improvement out of hours

	The Health Board	Wales
'It is easy to contact the pharmacy team in normal working hours'		
Percentage of medical staff that agreed or strongly agreed	79%	85%
'It is easy to contact the pharmacy team outside normal working hours'		
Percentage of medical staff that agreed or strongly agreed[24]	25%	30%
'The pharmacy team responds in reasonable timescales to my requests in normal working hours'		
Percentage of medical staff that agreed or strongly agreed	76%	81%
'The pharmacy team responds in reasonable timescales to my requests outside normal working hours'		
Percentage of medical staff that agreed or strongly agreed[25]	23%	29%

Source: Wales Audit Office Surveys of Medical staff.

57. During our walkthroughs, nursing staff told us about generally good access to the pharmacy team during normal working hours. There were more mixed views about accessibility during the out-of-hours period with some staff saying pharmacy should be open all weekend so that discharges are not delayed. 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.

58. Outpatient dispensing services were not a major part of our audit scope but we were told there can be delays in the UHW service with some patients waiting up to two hours for take-home medication following an outpatient appointment. This issue should be considered as part of any broader consideration of pharmacy team resources and performance.

[24] Thirty-five per cent of doctors said they did not know.

[25] Forty-four per cent of doctors said they did not know.

Part 3

Medicines management facilities

Pharmacy facilities largely comply with key requirements although there are risks associated with storage of medicines, monitoring the temperature of ward fridges and infrequent audit of injectable medicine preparation on the wards

Compliance with key requirements for pharmacy facilities

Pharmacy facilities largely comply with the key requirements but there are issues with storage space and the pharmacy location at UHW and temperature regulation of bulk stores at UHL

59. A Welsh Health Building Note[26] 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 at University Hospital of Wales (UHW) and University Hospital Llandough (UHL) comply (☑), partially comply (☐) or do not comply (☒).

Findings
Location
Is the pharmacy on the ground floor and accessible from the main corridors/circulation routes? ☐ UHW: The pharmacy is on the first floor but the Health Board has received patient feedback to say it is too far from outpatients. ☑ UHL: The pharmacy is on the ground floor and on the same corridor as outpatients.
Boundary security
Is entry to the pharmacy strictly controlled through the use of swipe cards or similar? ☑ UHW: There is a pin code entry system. ☑ UHL: There is a pin code entry system on most doors with the remainder being locked with a key. **Were steps taken to verify the auditor's identification upon arrival at the pharmacy?** ☑ UHW: The pharmacy door was held open for the auditor although a separate member of staff asked who the auditor was. The auditor was not asked for identification. ☑ UHL: The auditor knocked the door and was asked who they were. The auditor was not asked for identification.

[26] 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?

☒ UHW: Storage boxes were seen on the floor in several areas (bulk storage area, controlled drugs cupboard and in main fridge). The areas observed were untidy and appeared to be short of space.

☑ UHL: There appeared to be adequate storage space. The only items stored on the ground had just been delivered and staff were in the process of putting the items away.

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

☑ UHW: All areas were air conditioned.

☒ UHL: The bulk storage area where fluids (and occasionally overspill medicines) are kept, had no system for regulating temperature. 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.

Controlled drugs

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

☑ UHW and UHL: There is a lockable, alarmed store. Staff have to sign for a key to access the store.

Fridges

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

☑ UHW and UHL: All fridges have an external display. All were within range.

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

☑ UHW: All fridges are linked electronically to Stores for monitoring. Stores raises the alarm if fridges go out of range. Out of hours, Switchboard is alerted and the on-call pharmacist is informed.

☐ UHL: An automated system records fridge temperatures at 9 am daily. There are alarms on all but one of the fridges (in the emergency drugs store). Out of hours, the Front Lodge is alerted and staff raise the alarm with the on-call pharmacist.

Are all fridges in the pharmacy lockable?

☑ UHW and UHL: All fridges at both pharmacies are lockable.

Emergency medicine store

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

☑ UHW: There is an electronic storage cupboard (Omnicell vending machine) in the public part of the pharmacy. A similar cupboard is due to be installed in the emergency unit.

☑ UHL: There is an air-conditioned, emergency medicine store room. The key is kept at Front Lodge and staff must sign it in and out.

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

☑ UHW: The Omnicell machine provides an electronic audit trail.

☑ UHL: Staff complete a logbook to record the drugs they have removed from the store. A pharmacist checks the log every morning.

Findings
Dispensary
Does the dispensary have benches and worktops of a colour that contrasts with white medicine labels?
☑ UHW: Worktops are speckled green.
☑ UHL: The worktops are light brown.
Does the dispensary have dedicated handwashing facilities?
☑ UHW and UHL: The dispensaries have dedicated handwashing facilities.

Source: Wales Audit Office observations of hospital pharmacies

Preparation of aseptics and injectable medicines

The aseptic unit was given a medium 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

60. 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 Healthcare Products Regulatory Agency. The Health Board's St Mary's Pharmaceutical Unit (SMPU) was inspected in November 2012 and received a moderate risk rating 3 on a scale of 0 to 5 where 0 is the highest level risk. Aseptic units in Wales are also subject to inspection from the All Wales Quality Assurance Pharmacist. The SMPU was last inspected by the All Wales Quality Assurance Pharmacist in August 2013 and the overall conclusion was that the unit is well managed and has a medium risk rating. The main issues highlighted by the inspection related to checking of total parenteral nutrition prescriptions, poor record keeping regarding errors and near misses, internal audit processes, and weaknesses in microbiological monitoring of sinks, taps and water. The inspection report states that encouraging work is underway to address the issues raised in the report.

61. Some injectable medicines are prepared on the wards. These preparation processes should be subject to annual audits[27] but across Wales we found that such audits are rarely carried out. 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.

[27] National Patient Safety Agency, *Patient safety alert 20*, 28 March 2007

Facilities for storing medicines on the wards

The Health Board has not yet addressed issues with storage of medicines on wards highlighted in the *Trusted to Care* spot checks and needs to strengthen fridge temperature monitoring and the security of medicines due for return to the pharmacy department

62. The *Trusted to Care* spot checks highlighted issues across Wales regarding the safe and secure storage of medications on hospital wards. The spot checks found that whilst some drugs cupboards were unlocked at UHW, the more serious issues were found at UHL where some medicines rooms and drugs fridges were unlocked and some drugs cupboards did not meet standards or required urgent replacement.

63. During our ward visits, some staff told us about some ongoing storage issues such as a lack of space in medicines rooms and problems with patient medicine lockers/cabinets, including keys going missing, lockers rusting and lockers breaking frequently. Our clinical pharmacy review found that 99 per cent of patients reviewed had a functioning, lockable cabinet. This compares with 94 per cent across Wales.

64. 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. None of the Health Board's wards has an automated vending machine, compared with an eight per cent average across Wales. There is however, a vending machine in the pharmacy at UHW, with another planned for the emergency unit.

65. The *Trusted to Care* spot checks across Wales also revealed issues with the refrigeration of medicines on the wards. At the time of our ward visits, the Health Board was carrying out an audit of 96 ward fridges. The findings showed 65 per cent of fridges were locked, daily temperature monitoring was undertaken in 69 per cent of fridges and only three per cent had an audible alarm to alert staff if the temperature exceeds set limits. The audit recommended that a specification should be developed to ensure fridges purchased in future are of an appropriate standard, and that guidance be issued to clinical staff on actions required in relation to temperature monitoring.

66. Our audit revealed an issue with the storage of drugs that are due to be returned to pharmacy. Ward staff in UHW place these drugs in grey boxes that should be picked up by pharmacy staff daily. These boxes are unlocked, are sometimes left in unlocked treatment rooms and can remain there for days.

Medicines management processes

There are some strengths to medicines management processes but there are risks related to information transfer between primary and secondary care, timeliness of reconciliations, non-medical prescribing and supporting patients to take their medicines properly

Admission information from GPs

Poor information transfer between primary and secondary care is causing considerable safety risks and inefficiencies although the pilot of the Individual Health Record is showing encouraging results

67. When patients are admitted, good communication between the GP practice and the hospital can prevent errors and inaccuracies about people's medicines. If the interface between primary and secondary care is not managed properly it can be an area of high risk in relation to medicines management.

68. Exhibit 11 shows the pharmacy team's assessment of the quality of information provided by primary care to support admissions, which was carried out during our clinical pharmacy review. In the Health Board overall, the percentage of patients with no information was considerably lower than the rest of Wales, although performance was much better at UHW than at UHL. However, the proportion of patients that had comprehensive information in the Health Board was lower than across Wales. Again, performance in UHW was better than in UHL[28].

Exhibit 11: The percentage of patients with no information was lower than in the rest of Wales but this percentage was much higher at UHL than at UHW. There was also a smaller percentage of patients in the Health Board with comprehensive information.

	No information	Limited information	Standard information	Comprehensive information
UHW	8%	42%	21%	29%
UHL	23%	26%	46%	6%
Cardiff and Vale	17%	32%	36%	15%
Wales average	**41%**	**18%**	**20%**	**22%**

Source: Wales Audit Office Clinical Pharmacy Review (patient log of 170 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.

[28] These data include only the patients reviewed in the clinical pharmacy review that were admitted via a GP, therefore Exhibit 11 includes data from 59 Cardiff and Vale patients and 362 patients from across Wales.

69. In our survey, 25 per cent of hospital doctors and 39 per cent of pharmacy staff in the Health Board disagreed or strongly disagreed with the statement that admission information for elective patients was sufficient. Across Wales the results were similar with 23 per cent of doctors and 40 per cent of pharmacy staff disagreeing or strongly disagreeing. For emergency patients, 61 per cent of hospital doctors and 66 per cent of pharmacy staff disagreed or strongly disagreed with the statement that '…it is easy to access sufficient written/electronic information about patients' existing medication'. Again, these results were similar across Wales with 61 per cent of doctors and 65 per cent of pharmacy staff disagreeing or strongly disagreeing.

70. The Health Board does not have guidance for GPs to stipulate what information to provide when their patients are admitted. However, the Health Board does provide GPs with a standard pre-admission letter to hand to patients before their admission to hospital, reminding them to bring their medicines.

71. Problems with the transfer of medication information between primary and secondary care is a recognised risk for the Health Board. Senior staff acknowledged these risks during interviews and staff during our ward visits told us about the variable quality of information received from GPs. A self-assessment against the *Professional Standards for Hospital Pharmacy Services* (the Standards) recognises 'poor communication between primary and secondary care' and 'major gaps in transfer' of information.

72. 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 Cardiff and Vale University Health Board. The IHR system allows pharmacists to directly access GP-held information about patients' medicines. Evaluation 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 IHR had been used for half of the 50,281 emergency admissions at the Health Board in 2013-14, this could have saved approximately 2,900 hours of pharmacy time, which equates to 1.7 WTE pharmacy staff [29]. 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.

Medicines reconciliation and review in hospital

Less than half of patients sampled at UHW had their medicines reconciled within a day of admission and few patients received a comprehensive review

73. 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[30]. Of the 162 patients reviewed as part of our clinical pharmacy review, where a medicines reconciliation date had

[29] 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.

[30] National Prescribing Centre, *Medicines reconciliation: A guide to implementation*

been recorded, 93 (57 per cent) had received a medicines reconciliation within one day of their admission[31]. At UHW, the figure was just 47 per cent but at UHL it was higher at 76 per cent. This compares with an average of 64 per cent across Wales.

74. During their hospital stay, patients should have their medicines reviewed regularly. In response to our survey, 66 per cent of pharmacy staff and 67 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'. This was almost identical to the results for Wales as a whole. 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 12 shows that comparatively few patients in the Health Board received a comprehensive review of their medication and few patients were identified as having compliance issues.

Exhibit 12: Compared with the rest of Wales, fewer patients in Cardiff and Vale received a comprehensive medication review and fewer patients were found to have a compliance issue

	UHL	UHW	Wales
Percentage of of patients receiving a comprehensive medication review	22%	26%	44%
Percentage of reviews where a compliance or drug issue was found	7%	6%	20%

Source: Wales Audit Office Clinical Pharmacy Review (patient log of 170 patients)

Medicines administration charts

Our review found that for all sampled patients a standard drug chart had been completed and the patient's allergy status recorded

75. 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 the times when doses were given. A standard drug chart has been developed in Wales, called the Inpatient Medication Administration Record and it has been 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.

76. 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 all patients had their allergy status recorded on the drug chart. This compares with 98 per cent across Wales. Our clinical pharmacy review identified 10 occasions where pharmacy teams updated a patient's allergy status,

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

equivalent to 1.2 amendments for every 100 patients reviewed. This was the lowest across Wales, where the average was five amendments for every 100 patients reviewed.

Formulary processes

The Health Board's formulary processes are in line with the rest of Wales although due to the lack of an electronic prescribing system in secondary care, the Health Board has difficulties monitoring formulary compliance and doctors report more issues accessing the British National Formulary

77. A formulary is a health board's preferred list of medicines that staff can use as a reference document to ensure safe and cost-effective prescribing. The Health Board has an online, organisation-wide formulary that is available on all hospital computers. 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.

78. Our primary care prescribing report identified issues with the impact of secondary care prescribing on primary care, which included non-compliance with the formulary and off licence prescribing. In response to the survey for our most recent audit, 43 per cent of medical staff said they agreed or strongly agreed that the formulary (and supporting documents/guidance) met their needs[32]. This compared with 45 per cent across Wales.

79. We scored organisations on the number of mechanisms they have in place to share information with staff about changes to the formulary[33]. The Health Board scored 36 points out of a possible 50 compared with an average of 38 across Wales.

80. 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 13 shows the percentage of medical staff that agreed or strongly agreed with the statements about accessing the BNF when on the wards. The Health Board's self-assessment against the Standards recognises that more needs to be done to make guidance more available to prescribers through better computer access and raised awareness of existing sources of guidance.

Exhibit 13: Medical staff in the Health Board had slightly more negative views about access to the BNF than staff in the rest of Wales

	Health Board	Wales
The most up-to-date version of the BNF is readily available in hard copy	54%	60%
I can easily access the BNF using a computer	33%	40%
I tend to access the BNF using a smartphone	23%	22%

Source: Wales Audit Office survey of medical staff

[32] Nineteen out of 27 nurses who responded to our survey agreed or strongly agreed with the statement.

[33] 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.

Electronic prescribing

Whilst electronic prescribing is not yet in use on any hospital wards, the Health Board plans to procure a system for inpatient electronic prescribing in 2016

81. 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[34]. 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.

82. Health boards across Wales told us that none of their wards have electronic prescribing processes in place. However, Cardiff and Vale has recently launched electronic prescribing in outpatients as part of an invest-to-save scheme with the Welsh Government. The scheme began in Child Health and will later be rolled out to all outpatients. The Health Board plans to procure an inpatient electronic prescribing system in 2016, although because the prescribing system will need to interface with the pharmacy stock control system, the Health Board plans to delay procurement until the replacement of the all-Wales pharmacy stock control system, which is due to take place in 2015.

Non-medical prescribing

In common with the rest of Wales, there is scope for the Health Board to strengthen record keeping and controls in relation to non-medical prescribing

83. 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[35].

84. 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, but only two recorded this information for other non-medical staff groups. Cardiff and Vale has 89 nurses, 31 pharmacists and one other non-medical professional who are independent or supplementary prescribers. The Health Board was unable to confirm how many non-medical prescribers are regularly prescribing.

85. In response to our survey, 30 per cent of pharmacy staff and 26 per cent of doctors agreed or strongly agreed with the statement 'Staff trained in non-medical prescribing are regularly using these skills'[36]. This compares with 29 per cent of pharmacy staff and 28 per cent of doctors across Wales. Our clinical pharmacy review showed that pharmacy staff rarely prescribe on the wards. At the Health Board, pharmacy staff wrote one prescription for every 100 patients reviewed. Across Wales the average was slightly higher at 1.5 prescriptions per 100 patients reviewed.

---

[34] 1000 Lives Plus, *Achieving prudent healthcare in NHS Wales*, June 2014

[35] 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.

[36] Twelve out of 28 nurses who responded to our survey agreed or strongly agreed with the statement.

86. Exhibit 14 shows how the Health Board compares to others in Wales relating to non-medical prescribing policies.

Exhibit 14: The Health Board had in place three out of four key policies on non-medical prescribing

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	No	In place at three health boards

Source: Wales Audit Office Core Medicines Management Tool

87. In response to our survey, seven per cent of the Health Board's pharmacy staff and 11 per cent of doctors agreed or strongly agreed with the statement 'The Health Board has good controls in place to monitor the performance of non-medical prescribers'. Across Wales, 14 per cent of pharmacy staff and 14 per cent of doctors agreed or strongly agreed. The Health Board told us its main mechanism for monitoring competence of non-medical prescribers is through the Personal Appraisal Development Review (PADR) process although we did not review the effectiveness of this mechanism.

Administration of medicines

The Health Board has taken direct action in response to *Trusted to Care* and we found that when patients are not given their medication, the reasons for non-administration were comparatively well recorded

88. *Trusted to Care* highlighted serious problems in the way that medicines are administered and recorded. All organisations have produced action plans to respond to *Trusted to Care*. The Health Board has also carried out spot checks of their own to look at the issues from *Trusted to Care.* The Board has received an assurance framework with an associated development plan that aims to address the *Trusted to Care* issues. There is also a specific action plan for pharmacy.

89. In response to our survey, 85 per cent of pharmacy staff and 23 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)[37]. This compares with 82 per cent of pharmacy staff and 34 per cent of doctors across Wales.

90. The original *Trusted to Care* report at Abertawe Bro Morgannwg 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 not being on the ward to take their medicines. However, sometimes doses are missed because the drug is not available on the ward or sometimes

[37] Seventeen out of 28 nurses who responded to our survey agreed or strongly agreed with the statement.

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 170 patients over a 24-hour period across six wards in the Health Board. The audit identified 22 occurrences where a drug was not available and 13 occurrences where it was unclear whether a dose had been omitted or not.

91. Exhibit 15 provides a breakdown of the reasons why patients were not given their medicines and compares this with the situation across Wales. It shows that when patients in the Health Board were not given their medication, the reasons for this non-administration were comparatively well recorded. There is a comparatively low proportion of occurrences where it was unclear whether a dose had been omitted or not.

Exhibit 15: When doses were missed, the Health Board had a smaller proportion of cases where the reason for the missed dose was not known

Reason why patients did not receive their medicine							
	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**
UHW	22%	1%	10%	41%	9%	11%	6%
UHL	35%	2%	2%	39%	11%	7%	5%
Cardiff and Vale	25%	1%	8%	41%	10%	10%	6%
Wales average	**18%**	**0%**	**8%**	**45%**	**8%**	**9%**	**12%**

Source: Wales Audit Office clinical pharmacy review (patient log of 170 patients)

92. 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 69 per cent of wards in the Health Board have a procedure for self-administration (compared with 25 per cent across Wales) although risk assessments are rarely carried out because they are time-consuming for nursing staff. 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, six patients were self-administering and 20 were self-administering in a limited way. Only one patient had been risk assessed.

Supporting patients with compliance

The Health Board needs to do much more to assess and support patients' compliance needs and the medicines helpline is poorly utilised

93. Studies[38] have shown that up to half of all patients do not take their medicines as intended. Not taking medicines appropriately has important implications for patient safety and can result in considerable waste, particularly when you consider that the Health Board spent £67.8 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.

94. We scored organisations by considering the actions they take to support people to comply with their medicines[39]. The Health Board scored 16 out of a possible 32 points, compared with an average of 17 across Wales. Key gaps within the Health Board include the targeting of users and groups where compliance issues are common. The Health Board could not confirm that any of our scored compliance actions were consistently in place as a matter of routine. A self-assessment against the Standards recognises major gaps in the way in which patients' ability to adhere to their medication is assessed. During our interviews, some staff told us that there is scope for the Health Board to do much more to improve patient information about medicines, particularly in short stay units where patient turnover is quick. However, we were told about good practice in orthopaedics where elderly patients can be provided with prompt cards to remind patients to take their medicines and to emphasise the specific purpose of each medicine.

95. 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 just four per cent.

96. Despite the above findings the results of our clinical pharmacy review found that six per cent of patients reviewed in the Health Board were found to have compliance issues. This was the lowest across Wales, where the average was 20 per cent.

97. 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 young children, patients with visual impairments or patients using non-English languages. Across the 18 hospitals we surveyed across Wales, five produce targeted information for young children, seven cater for the visually impaired, and eight provide medicines information in non-English languages.

98. The *Professional Standards for Hospital Pharmacy Services* (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. The Health Board's helpline, (hosted by the Welsh Medicines Information Centre (WMIC)), was set up in 2013 and has

[38] 1000 Lives Plus, *Achieving prudent healthcare in NHS Wales*, June 2014

[39] 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.

been advertised in the Chief Executive's blog and through publicity stands at UHW's concourse. An evaluation report of the helpline in February 2014 concluded the number of calls received was fairly low but patients found the service easy to access, helpful and in some cases avoided the need for patients to contact their GP or other services. The Health Board is considering whether the helpline should be extended to patients from UHL.

99. Across Wales we concluded that some pharmacy helplines are under-utilised despite their importance in helping patients manage their medicines. The use of helplines across Wales ranged from 6 to 66 contacts per 100 opening hours (the average was 32 contacts). Exhibit 16 shows that the UHW helpline opens for fewer hours than average and is used less than average across Wales.

Exhibit 16: The Health Board helpline is used less and opens for less time than average

	Total number of hours open (Mon-Fri)	Total number of hours open (Sat-Sun)	Average number of contacts per 100 hours of opening
UHW	15	0	13
UHL	No helpline	No helpline	No helpline
Wales average[40]	**40**	**4**	**32**

Source: Wales Audit Office Core Medicines Management Tool

Supporting discharge

Performance was good in relation to estimated date of discharge but there are safety risks and inefficiencies associated with poor timeliness and quality of discharge summaries and the rate of discharge medication reviews is slightly lower than average

100. It is good practice for hospital staff to begin planning a patient's discharge as soon as possible[41]. 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 we found that 47 per cent of patients reviewed through the clinical pharmacy review had an estimated date of discharge. This Health Board compared well with the rest of Wales as 74 per cent of patients had an estimated date of discharge.

101. A patient's discharge from hospital can be delayed for various reasons. Exhibit 17 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.

[40] The 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.

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

Exhibit 17: Pharmacy staff and doctors had differing views about the most common causes of medicines-related delays to discharge

	Pharmacy staff views	Doctors' views
1 (most common)	Waiting for prescription to be written	Waiting for medicines to be dispensed in the dispensary
2	Waiting for medicines to be dispensed in the dispensary	Waiting for medicines to be delivered to the ward
3	Waiting for medicines to be delivered to the ward	Waiting for prescription to be written
4	Waiting for prescription to be clinically checked	Waiting for the to-take-out (TTO) to be assembled on the ward
5	Waiting for the TTO to be assembled on the ward	Waiting for prescription to be clinically checked

Source: Wales Audit Office surveys of pharmacists and medical staff

102. 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'. The Health Board is in discussion with the Local Medical Committee to decide what information should be essential for the hospitals to provide to GPs upon discharge. Both UHL and UHW have a standard template applied to all specialties that sets out the information to be provided to GPs upon a patient's discharge. Across Wales, 17 out of 18 hospitals that we reviewed have a similar template in place, but only 10 of these apply it across all specialties.

103. The Standards state that organisations should 'monitor the accuracy, legibility and timeliness of information transfer. The Health Board has not audited the quality and timeliness of discharge information in the past two years.

104. Our primary care prescribing report said that 'There is general dissatisfaction amongst GPs about the lack of information provided by specialists in discharge letters and also about the amount of time it takes for these letters to be received.' There remains considerable scope to improve the quality of discharge information. In our survey, only eight per cent of pharmacy staff and 25 per cent of doctors agreed or strongly agreed with the statement: 'The discharge information about patients' medicines provided to GPs is of high quality.'[42] This compared with 41 per cent of pharmacy staff and 30 per cent of doctors across Wales.

105. The Health Board intends to improve the quality of discharge information by rolling out electronic discharge summaries. We found that only seven per cent of the Health Board's wards produce electronic discharge summaries. This compares with 34 per cent across Wales. An electronic discharge system called Medicines Transcribing and e-Discharge (MTeD) is being used in six wards at UHW as well as the emergency unit. Staff told us that MTeD is time-consuming, not particularly easy to use and due to the frequent turnover of junior medical staff, it is difficult to make sure all staff are able to use it. A separate, in-house e-discharge system is also being used in the Health Board. The Health Board has asked MTeD's suppliers, the NHS Wales Informatics Service (NWIS), for

[42] Eleven out of 27 nurses who responded to our survey agreed or strongly agreed with the statement.

improvements to the system but at the same time the Health Board is progressing work on in-house e-discharge systems. The Health Board set itself a target of ensuring 80 per cent of patients have an electronic discharge by the end of March 2015 but as at April 2015 the target had not been met. The Health Board is now aiming to fully complete its work on the in-house system in June 2015.

106. 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[43]. 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 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, 991 DMRs were carried out in 2013-14 at a cost of approximately £68,000[44].

107. The Health Board funded 12 DMRs for every 1,000 patients discharged from hospital. This compares with an average rate of 14 DMRs per 1,000 discharges across Wales. At individual health boards, the rate varied between nine and 21 DMRs per 1,000 patients discharged from hospital[45]. The Health Board does not record the number of community referrals for DMR made by secondary care staff. Only two health boards in Wales collate this information.

Antimicrobial stewardship

The Health Board is taking a range of good actions to improve the use of antimicrobial medicines

108. Resistance to antibiotics has increased in Wales.[46] 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 across all areas: costs, defined daily dose, point prevalence, antimicrobial resistance, and the correlation between prescribing practice and problem organisms. Two other health boards in Wales have audited each of these five topics, but audits have not yet been applied across all service areas. The scope of our audit did not cover the findings from these audits.

109. The Corporate MMG has a sub group that looks specifically at antimicrobial management. The sub group has an action plan aimed at eliminating preventable healthcare associated infections. Actions have included the commencement of antimicrobial stewardship ward rounds in the medical assessment unit at UHW, the launch of a smartphone app providing antimicrobial prescribing guidance, piloting of an all-Wales antimicrobial chart and updating the Health Board's antimicrobial guidance.

---

[43] Cardiff University, *Evaluation of the discharge medicines review service*, March 2014

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

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

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

110. Other actions taken by the Health Board include the production of an electronic Good Prescribing Guide with a chapter on antimicrobial prescribing guidance, the appointment of two antimicrobial pharmacists, the first in June 2013 and a second in June 2015 and the use of a credit-card-sized guide for medical staff and students that sets out the preferred antibiotics to be prescribed.

Part 5

Monitoring pharmacy services

There is scope to improve performance reporting, mixed evidence about the effectiveness of learning processes and a need to understand more about the root causes of the pharmacy team's safety interventions

Performance reporting

There is scope to strengthen performance reporting through benchmarking and more regular consideration of performance indicators

111. 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.

112. Whilst the Clinical Diagnostics and Therapeutics Clinical Board is subject to monthly performance review by the executive team, the Pharmacy and Medicines Management Directorate is the focus of these reviews approximately once a quarter. These reviews focus on the extent of progress with implementing the Integrated Medium Term Plan.

113. We reviewed examples of dashboards and performance reports in relation to medicines management. Corporate MMG provides an annual report to the Health System Management Board. This is a brief paper summarising the main work of the group and does not provide performance or outcome information. The dashboard used to monitor progress within the Enabling Medicines Management project covers project timescales, budgetary performance, one quantitative measure of progress towards targets and project risks. Finally, we reviewed the Directorate's Key Performance Indicator (KPI) Scorecard. This provides monthly data on KPIs including dispensing error rates, medicines reconciliation rates, performance of the medicines information service and the percentage of staff with a valid performance review. Many other KPIs are listed, and some data extends back to 2012 but much of the recent data is missing.

114. Given the findings above, we concluded there is scope to strengthen performance reporting and monitoring in relation to medicines management. We found no evidence of benchmarking, many of the KPIs are no longer collected and the arrangements for scrutinising the information appear infrequent or ad hoc. The response to our survey suggests that pharmacy staff rarely get to see performance data because the results of our survey showed 23 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 compares with 39 per cent across Wales.

115. We asked health boards to provide examples of how they monitored patient experience in relation to medicines management. The Health Board receives general patient experience information covering patients' entire hospital episodes via a feedback system called Hippo. However, a self-assessment against the Standards shows that more needs to be done to actively seek the views of patients and

carers. We were also provided with the results of an outpatient pharmacy service satisfaction survey[47] from summer 2014. At UHL, 78 per cent of patients rated their overall satisfaction as excellent or good whilst the figure at UHW was 58 per cent. The main issues related to waiting times at UHW and the privacy in the waiting areas at both sites.

Safety interventions and medication-related admissions

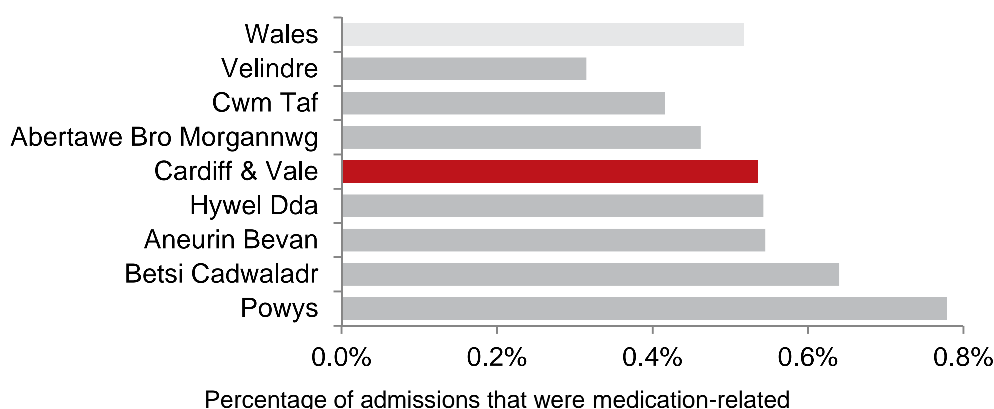
The rate of medication-related admissions is slightly higher than the Wales average and the Health Board needs to do more work to understand the reasons for the pharmacy team's safety interventions

116. 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 learn lessons and prevent repeat incidents.

117. In our survey, 66 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, 74 per cent of pharmacy staff and 64 per cent of doctors agreed or strongly agreed.

118. When something goes wrong with someone's medication it can directly cause an admission to hospital. Exhibit 18 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. The data are taken from NHS Wales Informatics Service but are 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 18: 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.

[47] Survey to evaluate patient satisfaction with the outpatient pharmacy service provided at the University Hospital of Wales and the University Hospital Llandough.

119. 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, 11 per cent of patients seen by the pharmacy team were considered to be admitted due to a medication-related issue[48]. 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 £4.4 million[49].

120. 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 patients are correctly prescribed their insulin. Our clinical pharmacy review identified 28 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 3.5 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 is still high enough to suggest that the pharmacy team is commonly acting as a backstop to find and correct the mistakes of other staff. 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

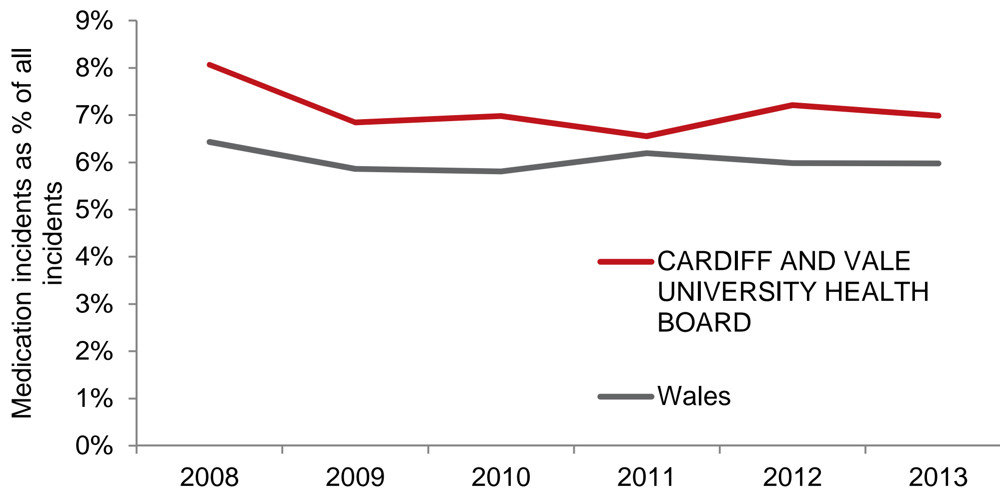
There is mixed evidence about the effectiveness of learning processes and the membership of the new Safe Medicines Practice Group may not be broad enough to ensure sufficient spread of learning

121. 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 19 shows the number of medication-related incidents reported as a percentage of all incidents reported to the NRLS.

[48] 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.

[49] We used a cost per admission of £456, the figure used in Cardiff University's Evaluation of the Discharge Medicines Review Service, March 2014. The Health Board told us there were 87,399 inpatient admissions in 2013-14 (Wales Audit Office Core Medicines Management Tool). Eleven per cent of this is 9,614.

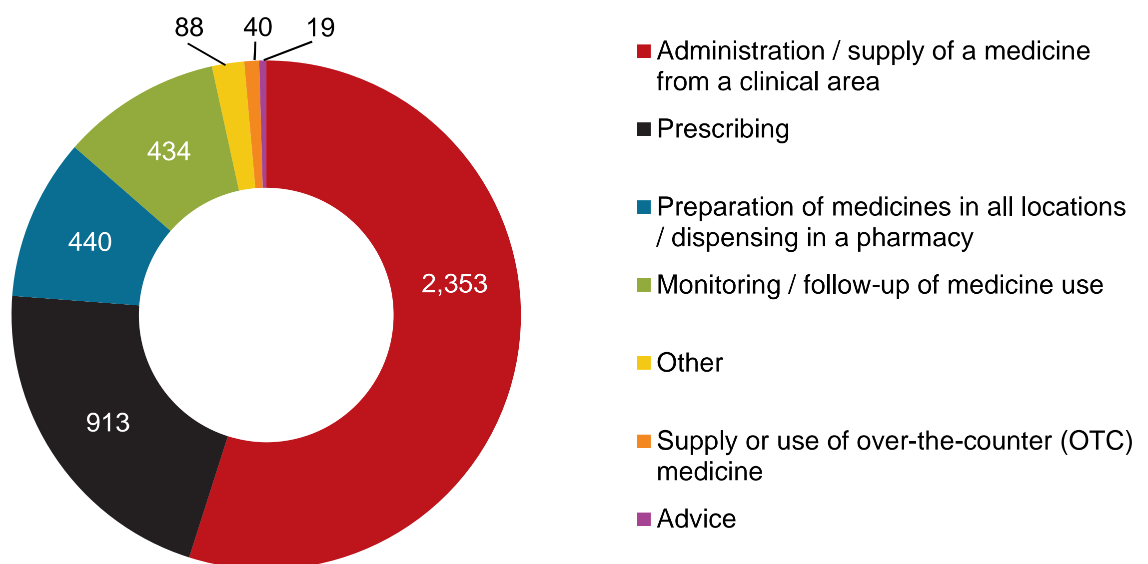
Exhibit 19: There has been a small decrease in the proportion of incidents that were medication related although the rate remains higher than the Welsh average



Source: NRLS, NHS Commissioning Board Special Health Authority

122. Exhibit 20 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 20: 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 link https://www.eforms.nrls.nhs.uk/staffreport/help/AC/Dataset_Question_References/Medicine_incident_details/MD01.htm

123. Our survey showed that the Health Board's pharmacy staff had less confidence that incidents would be reported and used appropriately. We found that 60 per cent of pharmacy staff agreed or strongly agreed with the statement 'Medicines-related incidents/errors are reported and handled appropriately at this hospital', compared with 71 per cent across Wales. When asked whether they agree with the statement 'Information obtained through incident/error reports is used to make patient care safer', 62 per cent agreed or strongly agreed (compared with 70 per cent across Wales).

124. 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. The General Pharmaceutical Council has highlighted good practice at the Health Board regarding the process of learning from errors. Anyone involved in a dispensing error has a discussion with their manager and is asked to reflect on contributing causes. The findings are anonymised and shared through a pharmacy newsletter. A separate newsletter entitled MARCH (Medicines Are Regularly Causing Harm) is being used by the Health Board to raise awareness of potential medicines safety issues. However, there is scope to strengthen the way that staff learn from errors. As highlighted in paragraph 60, findings of an audit of the aseptic facilities in the Health Board raised a specific concern about the lack of any recording of errors, near misses and complaints in aseptics. The Health Board's self-assessment against the Standards also recognises scope for improvement, noting that in relation to dispensing, 'near misses are not reported' and Datix incidents are 'not reported back.' The Health Board is in the process of implementing e-Datix which has potential to improve these matters.

125. 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[50] has calculated that four in 100 hospital bed days are caused by adverse drug reactions in the United Kingdom. On this basis it is likely that within the Health Board, the cost of adverse drug reactions would equate to approximately £10.3 million per year[51].

126. 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 five occasions where pharmacy teams identified symptoms of potential adverse drug reactions or side-effects when reviewing patients. This represents a rate of six occurrences for every 1,000 patients reviewed and matches the average across Wales.

127. In our survey, 74 per cent of pharmacy staff and 36 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 and 31 per cent of doctors across Wales.

128. 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[52]. The Health Board has recently stood down its Safe Medicines Practice Group after an internal review concluded there were too many committees in existence. The group had representation from all

[50] The Academy of Medical Royal Colleges, *Protecting resources, promoting value: A doctor's guide to cutting waste in clinical care*, November 2014

[51] Stats Wales data shows that the total number of bed days in the Health Board in 2013-14 was 622,836 and the cost of an inpatient bed day across Wales is £413 on average.

[52] Medicines and Healthcare Products Regulatory Agency, *Improving medication error incident reporting and learning*, 20 March 2014

Clinical Boards. The main medicines safety group is now called the Medication Safety Executive. The group meets monthly within the Directorate and is attended by the Service Director for Pharmacy and Medicines Management, the Associate Medical Director for Patient Safety, the Nurse Advisor for Medicines Management and the Consultant Pharmacist for Medicines Safety.
Ensuring multi-professional engagement and Health Board-wide learning from a group with such a limited membership may present a challenge and the Health Board should keep these arrangements under review to ensure that they provide adequate oversight of medicines safety issues. However, the group does produce briefings to share lessons and learning arising from national and local issues, raise awareness on relevant Health Board policies and revised medicine advice. The briefing is distributed widely and paper copies are made available to staff without access to computers.

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 12 documents from the Health Board.
Clinical pharmacy review	The clinical pharmacy review was completed by pharmacy teams on the following wards: • UHW – wards A1M, A7, C6 • UHL – wards West 1, East 6, MEAU The review aimed to record activity of pharmacy teams during ward visits.
Interviews	We interviewed a small number of staff including: 'Service Director for Pharmacy and Medicines Management, Clinical Board pharmacists, Medical Director, Nurse Advisor in Pharmacy and ward sisters.'
Walkthroughs	We visited both 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: • UHW – wards A6 Trauma, A1 Medicine • UHL – wards Charles Radcliffe, West 6
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 144 responses from doctors (87 per cent of whom were consultants). Across Wales we received 413 responses from doctors. In the Health Board we received only 28 responses from nurses (and across Wales we received 377 responses from nurses).
Survey of pharmacy staff	We carried out an online survey of pharmacy staff to ask their views on the effectiveness of medicines management within the organisation. We received 68 responses in total, with 52 coming from staff based at UHW and 16 from staff based at UHL. 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 National Reporting and Learning System, data from the Cardiff University review of the Discharge Medicines Review Service and the NHS Wales pharmacy resource mapping exercise 2014.

Wales Audit Office
24 Cathedral Road
Cardiff CF11 9LJ

Tel: 029 2032 0500
Fax: 029 2032 0600
Textphone: 029 2032 0660

E-mail: info@wao.gov.uk
Website: www.wao.gov.uk

Swyddfa Archwilio Cymru
24 Heol y Gadeirlan
Caerdydd CF11 9LJ

Ffôn: 029 2032 0500
Ffacs: 029 2032 0600
Ffôn Testun: 029 2032 0660

E-bost: info@wao.gov.uk
Gwefan: www.wao.gov.uk