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Medicines Management in Acute Hospitals

Hywel Dda University Health Board

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Whilst there are good aspects of medicines management processes, ward relationships and learning, there are weaknesses in corporate arrangements and performance monitoring. There are also issues with facilities, information transfer, performance variation across sites and supporting people to take their medicines.

Summary report

Background

1. The most common therapeutic intervention in the NHS is prescribing of medicines.[1] In 2013-14, Welsh health bodies spent £258 million on purchasing drugs (eight per cent more than 2012-13)[2].

2. 'Medicines management' covers much more than the purchase of drugs. The term covers all the processes and behaviours that influence the clinical and cost-effective use of medicines as well as positive outcomes for patients.

3. Patients' medicines need to be managed well to ensure their treatment and recovery is optimised and to ensure value for money is secured from their medication. Exhibit 1 shows the main sources of harm to patients from poor medicines management.

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

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

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

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

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

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

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

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

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

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

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

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

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

9. In this report we refer to the position at selected hospital sites in Hywel Dda 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. 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: **Whilst there are good aspects of medicines management processes, ward relationships and learning, there are weaknesses in corporate arrangements and performance monitoring. There are also issues with facilities, information transfer, performance variation across sites and supporting people to take their medicines**. The table below sets out our key findings in more detail:

Corporate arrangements: There are some weaknesses in corporate arrangements for medicines management that may be a barrier to ensuring adequate oversight and strategic planning.
• The frequent changes in senior leadership are a risk to improvement in medicines management although county pharmacy leads are continuing to provide leadership at a local level. • Whilst there is an integrated strategy for medicines management it now needs to be updated through a process that ensures greater consultation with pharmacy staff. • In common with other health boards, the pharmacy team has limited involvement in senior decision-making forums and resource constraints in the team means it is not consistently involved in service developments. • There is regular monitoring and scrutiny of financial information but the medicines management savings plan is underperforming. • Individual patient funding request panels do not meet national requirements as there is no lay member and applications are not signed off in advance of the panel meetings.
Workforce: There are particular pressures on pharmacy and whilst services are generally responsive and relationships are good, there are variations across sites and the focus on training needs to increase.
• Whilst the pharmacy staffing profile is similar to the rest of Wales, current pressures on the pharmacy team are resulting in prioritisation of services to particular patient groups. • The pharmacy team is relatively dissatisfied with the level of training it receives, only one member of the team is trained on improvement methodologies and there is no pharmacy resource dedicated to medical and nursing training. • Relationships on the wards appear to be good although the Health Board has a lower than average proportion of wards with named technicians and some measures of ward-based pharmacy vary considerably across sites. • Pharmacy services are generally accessible and responsive although there is scope for improvement outside normal working hours and a decision is due on whether to open pharmacies on Sundays.
Facilities: Pharmacy facilities largely comply with key requirements but there are issues with temperature control and ward medicine storage. All aseptic units have deficiencies although there are particular risks at Glangwili.
• Pharmacy facilities largely comply with the key requirements although there are issues with temperature control at Glangwili and Withybush. • External audit reports have highlighted deficiencies at all aseptic units, with particular risks at Glangwili, and in common with the rest of Wales, the preparation of injectable medicines on the wards is not routinely audited. • The Health Board is taking action to address issues with storage and refrigeration of medicines on the wards highlighted in *Trusted to Care* spot checks.

Processes: There are some good aspects of medicines management processes but there are risks with information transfer between primary and secondary care, variations across sites and supporting patients to take their medicines properly.

- Poor information transfer between primary and secondary care poses safety risks and inefficiencies and the quality of information varies widely across sites.
- Timeliness of medicines reconciliation is generally good across the Health Board and most patients receive a comprehensive review although rates are lower at Glangwili Hospital.
- All patients we sampled had standard drug charts and had their allergy status recorded although pharmacy teams updated the allergy status in five out of every 100 patients reviewed.
- The Health Board's formulary processes are generally in line with the rest of Wales and doctors told us that hard copies of the British National Formulary are more accessible on the wards than electronic copies.
- Electronic prescribing could have wide-ranging benefits for safety and efficiency but is not used on any acute hospital ward.
- The Health Board has comparatively good data on non-medical prescribers but pharmacy staff are not regularly prescribing and there is scope to strengthen the policy framework regarding non-medical prescribing.
- The Health Board has taken direct actions in response to *Trusted to Care* and Prince Philip Hospital was the only Health Board site where we found drug charts that were unclear about whether a dose had been administered.
- The Health Board needs to do much more to assess patients' compliance needs and educate and support patients to take their medicines properly.
- There are safety risks and inefficiencies associated with poor information exchange at discharge although the rate of discharge medication reviews is slightly higher than average.
- The Health Board is taking a range of good actions to improve the use of antimicrobial medicines.

Monitoring: There are weaknesses in arrangements for monitoring medicines management performance and pharmacy staff are having to make more safety interventions than average although there are generally good arrangements for learning when things go wrong.

- There is scope to strengthen performance reporting through the setting and monitoring of key performance indicators, benchmarking and more regular consideration of performance at Board committee level.
- Compared to the rest of Wales, the pharmacy team is more frequently required to make safety interventions about patients' medication.
- There are generally good processes to learn from medication errors and systems failures related to medicines although we were told that certain types of incidents are not being recorded.

Recommendations

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

a. Urgently finalise and clarify the executive accountability arrangements for medicines management.

b. Refresh its Medicines Management Strategy to provide an integrated vision across primary and secondary care, that is developed in full partnership between pharmacy, medical and nursing staff.

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

d. Ensure individual patient funding request panels have two lay members and that all applications are signed off by a clinical lead or head of department in advance of meetings.

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

a. Carry out a review of its ongoing prioritisation of pharmacy services to assure itself that sufficient quality and coverage is being maintained.

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

c. Carry out further work with its pharmacy staff to understand their dissatisfaction with levels of training.

d. Evaluate whether sufficient pharmacy support is provided to training of medical and nursing staff.

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

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

b. Develop a costed option appraisal to fully address the deficiencies in its aseptic units.

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

d. Develop a costed, time bound plan to address the ward medicine storage issues raised in *Trusted to Care.*

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

a. Set out a clear timescale and funding plan for implementing inpatient electronic prescribing, electronic discharge and rolling out access to the Individual Health Record (IHR).

b. Carry out further work to assess/improve the quality of information provided by GPs to support admissions.

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

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

a. Set and routinely monitor a range of key performance indicators for medicines management in hospital and work with other health boards to regularly benchmark performance.

b. 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.

c. Review the decrease in medication-related incidents since 2008 to assure itself that the trend reflects improvement in safety levels rather than a reduced willingness to report incidents, taking into account the views expressed by some staff that some incidents are not being reported.

d. Revisit the arrangements for the Medication Event Review Group with the aim of ensuring greater involvement from medical staff.

Part 1

Corporate arrangements for medicines management

There are some weaknesses in corporate arrangements for medicines management that may be a barrier to ensuring adequate oversight and strategic planning

Leadership and accountability structures

The frequent changes in senior leadership are a risk to improvement in medicines management although county pharmacy leads are continuing to provide leadership at a local level

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.

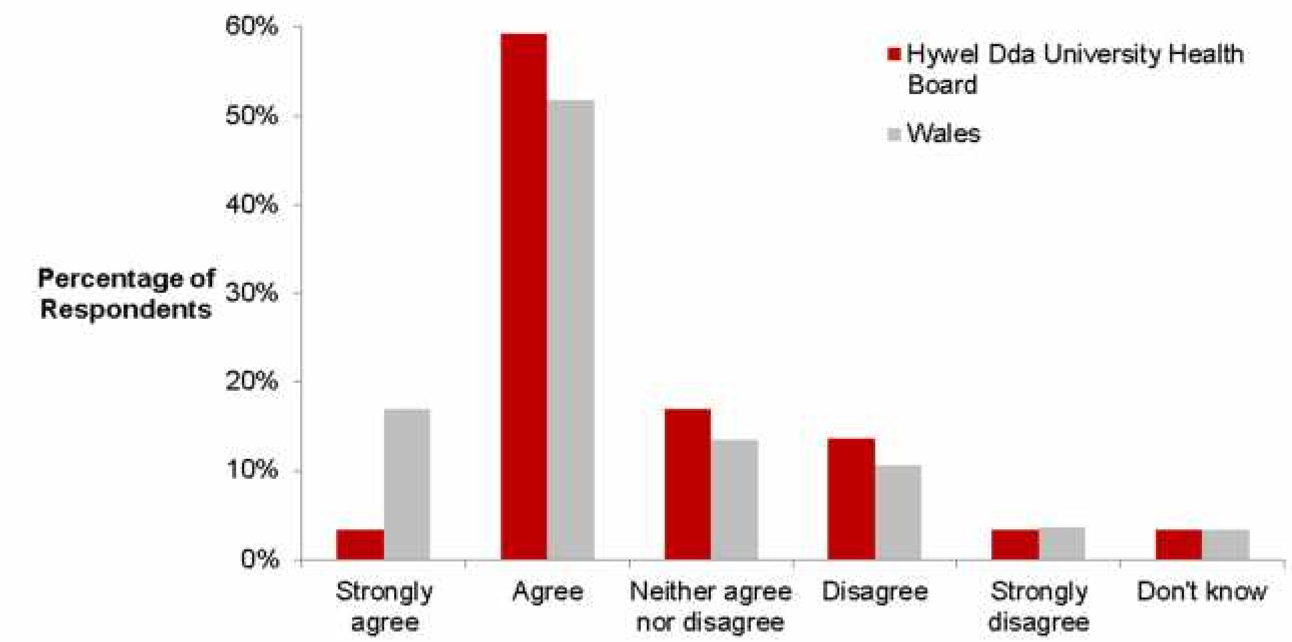
14. Until recently, executive accountability for medicines management sat with the Medical Director but accountability now sits with the Chief Operating Officer. The Head of Medicines Management reports to the Chief Operating Officer. The three counties each have a County Lead (Head of Pharmacy) who is managerially accountable to their County Director and professionally accountable to the Head of Medicines Management. Interviewees said that this arrangement had realised some benefits because it had contributed to progress with integrating the primary and secondary care pharmacists into the county based teams. However, the extended absence of the Head of Medicines Management has meant that other senior medicines management leads have needed to act up into this role. This has created uncertainty and instability although the Health Board is now recruiting to the vacant post of Head of Medicines Management.

15. Accountability structures changed at the time of the audit so that hospital pharmacy became part of the Acute Directorate under the Chief Operating Officer. However, these arrangements are subject to further change because the new Chief Executive is reconsidering the organisational structure and the Chief Operating Officer is soon to leave the Health Board. Until these arrangements are finalised, there will be risks associated with disruption and uncertainty in the leadership of medicines management.

16. 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 the Health Board was 62 per cent, suggesting there is an opportunity to further clarify lines of accountability in the Health Board’s pharmacy team.

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

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 slightly stronger agreement across Wales



Source: Wales Audit Office Survey of Pharmacy Staff

17. 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. Our primary care prescribing report[11] said the MMG is well established as a subcommittee of the Quality and Safety Committee and it has links to a number of other important subcommittees. However, we said that gaps in membership and attendance need to be addressed and the workload further streamlined. During our most recent audit, we were told in interviews that the MMG works well as the forum for taking medicines-related decisions and the decisions are circulated quickly across the Health Board.

18. The MMG should be multidisciplinary to reflect the fact that medicines management is the responsibility of a number of clinical professional groupings. Nursing staff make up 13 per cent of the MMG's membership (compared with an average of nine per cent across Wales) and medical staff make up 33 per cent of the membership (compared with 46 per cent across Wales). Currently, there are five doctors involved in the MMG, one of whom is the chair but they have difficulty attracting hospital doctors to the MMG from across the Health Board. Nursing is represented at Assistant Director level as well as by the medicines management nurse who is part of the pharmacy team.

[11] Wales Audit Office, *Primary Care Prescribing*: Hywel Dda University Health Board, August 2013.

Strategy for medicines management

Whilst there is an integrated strategy for medicines management it now needs to be updated through a process that ensures greater consultation with pharmacy staff

19. The Health Board should have a clear strategic vision for medicines management. Our primary care prescribing report said the Health Board is to be commended for having a five-year strategy for pharmacy and medicines management integrated across primary and secondary care. Alongside the strategy, the Health Board had supporting actions and monitoring arrangements, although links between the annual prescribing plans and the strategy were not explicit. The Health Board has not refreshed the 2011-2015 strategy since it was developed in 2010 and the Health Board recognises that the strategy now needs to be revisited. It was not clear from our audit how the actions from the strategy were being monitored. In response to our document request, the Health Board provided us with a report on actions from 2013 and 2014, the bulk of which refer to primary care prescribing support. These actions do not relate to the strategy.

20. The Health Board informed us that its integrated medium term plan of March 2015 sets out options for further investment to support improved medicines management. The strategy for medicines management will be updated once the new Head of Medicines Management is in post.

21. We surveyed pharmacy staff for their views on the strategy. The results showed that 22 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 49 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.

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 resource constraints in the team means it is not consistently involved in service developments

22. 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. In Hywel Dda there is no pharmacist representation on any senior decision-making forums.

23. 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. In the Health Board, pharmacy has some involvement in the development of new services, for example the front of house development at Prince Philip Hospital, but we were told this does not happen consistently. Pharmacy staff also told us they are struggling to participate in service change project boards because of the current pressures on pharmacy service delivery.

Financial management of medicines management

There is regular monitoring and scrutiny of financial information but the medicines management savings plan is underperforming

24. Secondary care medicines expenditure is reported annually to the Board, quarterly to the executive team and bi-monthly to the MMG. The medicines management annual report to Board states that medicines account for around £90 million of expenditure, and around 30 per cent of this expenditure is in secondary care. The Integrated Governance Committee meets every other month and receives reports on expenditure and scrutinises the medicines management savings plans.

25. The Health Board's medicines management savings plan covers primary and secondary care. The Health Board planned to make medicines management savings of nearly £1.24 million in 2014-15 but at December 2014 it forecast slightly reduced savings of £1.05 million. At 28 February 2015 the secondary care medicines budget was overspent by £2.9 million and was projected to be £3.2 million overspent at the end of the financial year. This represents a deterioration against trend compared to the month six report. The projected year end expenditure on secondary care medicines, at £27.6 million represents an increase of £1.6 million over the 2013-14 outturn of £25.95 million.

26. In response to our survey, 33 per cent of pharmacy staff agreed or strongly agreed with the statement 'Financial savings made in pharmacy services are not impacting on patient outcomes' compared with 38 per cent across Wales. Whilst this reflects only perceptions of a sample of staff, it may suggest the Health Board should reflect on whether its pursuit of savings is impacting negatively on outcomes.

Individual patient funding requests

Individual patient funding request panels do not meet national requirements as there is no lay member and applications are not signed off in advance of the panel meetings

27. Individual patient funding requests (IPFRs) are usually requests from clinicians who want health board approval to use medicines that are not normally funded by the NHS. Health boards need robust processes and effective IPFR panels to ensure appropriate decision-making regarding these requests. An all Wales report from April 2014 recommended that the panels that handle IPFR requests should have at least two lay members, applications should be screened and signed by a clinical lead or head of department in advance of meetings.[12] At the Health Board, the IPFR panel does not have lay members in attendance although they have tried a range of approaches to recruit someone. The Lead Clinical Development Pharmacist reviews all applications and the Head of Medicines Management sits on the panel. All IPFR applications in the Health Board are screened before the panel sits, but applications are not signed off by a clinical lead or head of department.

28. During 2013-14, the IPFR panel at the Health Board considered 62 applications regarding medicines which was around the Wales average of 60[13]. The Health Board's pharmacists/technicians spent slightly less time supporting and attending these panels (156 hours compared with the Welsh average of 193 hours). Pharmacy staff told us they provide support to consultants who wish to prescribe medications that are not in the formulary by guiding them through the IPFR process.

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

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

The medicines management workforce

There are particular pressures on pharmacy and whilst services are generally responsive and relationships are good, there are variations across sites and the focus on training needs to increase

Staff numbers and skill mix

Whilst the pharmacy staffing profile is similar to the rest of Wales, current pressures on the pharmacy team are resulting in prioritisation of services to particular patient groups

29. Pharmacy teams should have the right skill mix, capability and capacity to manage patients' medicines effectively as well as develop and provide broader pharmacy services. Health boards carried out a resource mapping exercise of their own pharmacy teams during late 2014. Exhibit 3 highlights some of the staffing indicators from that exercise and suggests that the Health Board's staffing profile closely matches the Wales average. Staffing costs and numbers are similar to the Wales average when standardised against bed day activity[14]. Whilst the cost per hour of pharmacists and technicians is considerably lower in the Health Board than the rest of Wales, this reflects the smaller absolute size of the Health Board's pharmacy team compared with average. During our fieldwork, several Health Board staff raised the issue that because Hywel Dda has four acute sites, this places additional demands on the pharmacy team. We acknowledge that the need to cover four sites may be a complicating factor for the pharmacy team but we did not consider this issue in detail.

Exhibit 3: The Health Board's staffing profile closely matches the Wales average

		Hywel Dda	Wales average
Staff numbers and skill mix	Total pharmacists and technicians in post (WTE)	114	148
	Ratio of pharmacists to technicians	51:49	51:49
	Pharmacists and technicians (WTE) per 100,000 occupied bed days	39	37
Staffing costs[15]	Average cost per WTE: Pharmacist	£63,100	£63,600
	Average cost per WTE: Technician	£34,800	£35,900
	Pharmacist and technician: cost per hour	£2,900	£3,800
	Pharmacist and technician: cost per occupied bed day	£19.38	£18.68

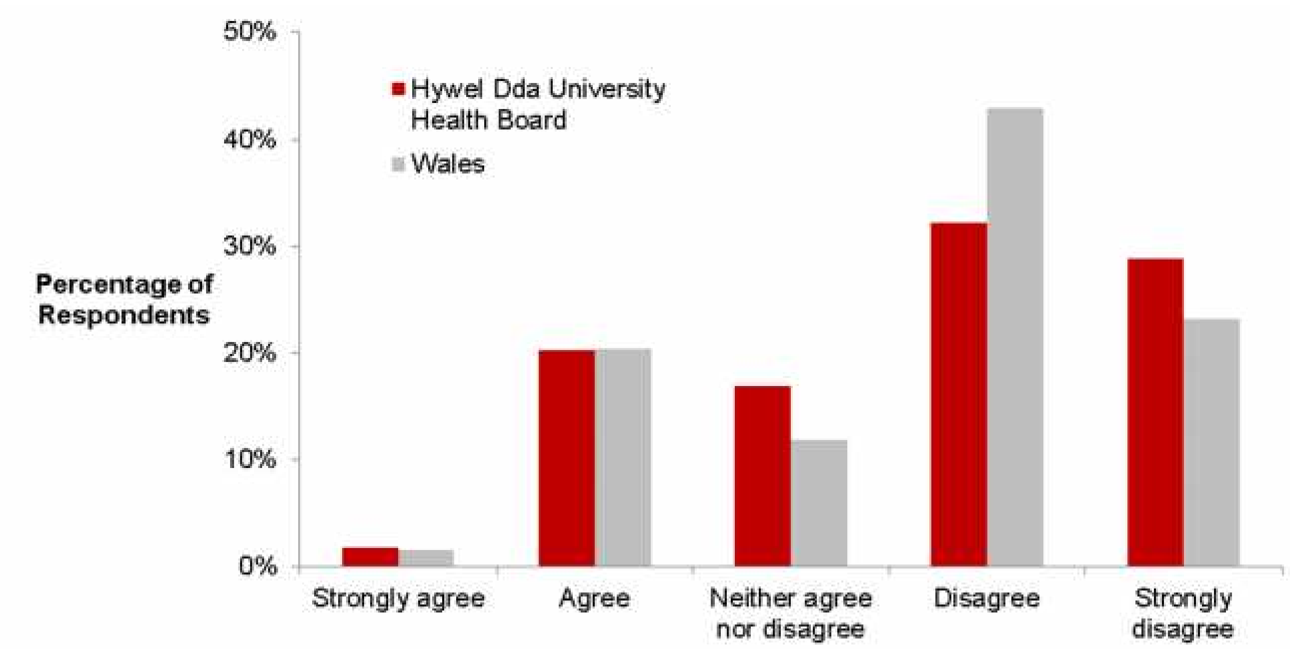
[14] Staffing levels and bed days data reflect acute hospital sites within the Health Board.

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

Source: Resource Mapping Exercise carried out by pharmacy teams across Wales (2014), StatsWales 'NHS beds by organisation and site' (2013-14). These data include only acute-based staff and our analysis exclude the time/resource dedicated to primary care and community pharmacy activities. The bed day data for Hywel Dda include Glangwilli General Hospital but exclude Carmarthen Mental Health Unit.

30. Our work across Wales highlighted general perceptions of high workload and too few staff. In the Health Board, 65 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 shows the extent to which staff agreed with the statement 'I have time to carry out all of my work'.

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



Source: Wales Audit Office Survey of Pharmacy Staff

31. Staff interviewed said that there are capacity issues within the pharmacy team and that some wards were not receiving a regular service. This is due to staff sickness absence and delays in recruiting replacement staff. We were also told that the increasing use of locum doctors increases the demand on pharmacist time because locums are not Health Board employees and therefore often need additional support to help them understand the systems and formulary used in Hywel Dda.

32. The current pressures have meant that pharmacy teams are now prioritising the service they provide to the wards. Newly admitted patients and patients due for discharge are being prioritised, which has had the impact of deprioritising the amount of time that teams can dedicate to managing the medicines of other patients. Pharmacy staffing levels are on the Health Board's risk register and the County Lead for Carmarthenshire said he is reviewing the skill mix of his staff to try to resolve the pressures.

Training and development

The pharmacy team is relatively dissatisfied with the level of training it receives, only one member of the team is trained on improvement methodologies and there is no pharmacy resource dedicated to medical and nursing training

33. In our survey, 49 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, on average, nine per cent of their time on receiving or delivering training, education and personal development over the past year. This matches the average across Wales[16].

34. The Quality Delivery Plan[17] 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. The Health Board told us that just one member of secondary care pharmacy staff had been trained to at least bronze level in the Improving Quality Together (IQT) methodology led by 1000 Lives Plus, which represents just 0.7 per cent of its acute pharmacy staff. This was the lowest percentage in Wales, where the figure ranged from 0.7 per cent to 67 per cent. In Wales as a whole, the total proportion of secondary care pharmacy staff trained to at least bronze level is 24 per cent. We were told that the County Leads are promoting the IQT online training package to staff and that more will be completing it in coming weeks.

35. Training for nursing and medical staff can be a key success factor in contributing to good, multidisciplinary engagement in medicines management. The *Professional Standards for Hospital Pharmacy Services* (the Standards) state that pharmacy should support induction and ongoing training of clinical staff. Across Wales, health boards fund an average of 0.7 WTE pharmacy staff to deliver training to medical staff. Hywel Dda has no staff funded for this role. However, pharmacy staff do provide training to pre-qualified medical students who come to the hospitals. The university provides some funding to the Health Board for undergraduate medical training although not enough to cover an additional pharmacist post.

36. Due to their relatively limited experience, junior medical staff are one staff group that is in particular need of training in medicines management. At the Health Board, pharmacy staff are involved in junior doctor induction training through a 20 minute slot on the induction programme. Staff interviewed raised concerns that the junior doctors were overwhelmed with the amount of information they receive at induction so the impact of the pharmacy session may be limited. The pharmacy team provides two additional sessions during the year to give information on the practicalities of prescribing and two sessions on antibiotic prescribing.

37. In our survey, 29 per cent of doctors and 50 per cent of nurses agreed or strongly agreed with the statement 'It is easy for me to keep my medicines management skills up to date'. This compared with 35 per cent of doctors and 47 per cent of nurses across Wales.

38. In our survey, 17 per cent of pharmacy staff, 22 per cent of doctors and 23 per cent of nurses agreed or strongly agreed with the statement 'The Health Board has good controls in place to monitor the performance of medical prescribers'. This compared with 23 per cent of pharmacy staff, 29 per cent of doctors and 32 per cent of nurses across Wales.

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

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

39. The Health Board told us that it ensures ongoing nurse training through competency assessments following incidents, preceptorship training, and awareness campaigns and sessions. The Health Board also commissions Swansea University to provide regular medicines safety workshops to nursing staff and is considering how to develop a more structured approach to medicines-related training for all staff groups. Our interviews found that there is an expectation that all qualified nurses will have undertaken supervised medication rounds and have been assessed as competent to administer medications prior to qualified staff taking up a new appointment. Even so, some ward managers said that when new nurses start on their ward they would be supervised so that the manager could check they are competent. Any issues at an individual practitioner level will be dealt with through retraining and reassessment. Whilst none of the ward managers interviewed had experience of using this process they told us they felt confident to use the process if the need arose. Additional training is provided as needed on the ward, for example, on intravenous drug administration, and staff have been encouraged to complete the e-learning package on medicines management following the *Trusted to Care* reports. Pharmacy staff said that they have done a lot of work with nursing staff on medicines management but this is on an ad hoc basis.

Clinical pharmacy services

Relationships on the wards appear to be good although the Health Board has a lower than average proportion of wards with named technicians and some measures of ward-based pharmacy vary considerably across sites

40. 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'.

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

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

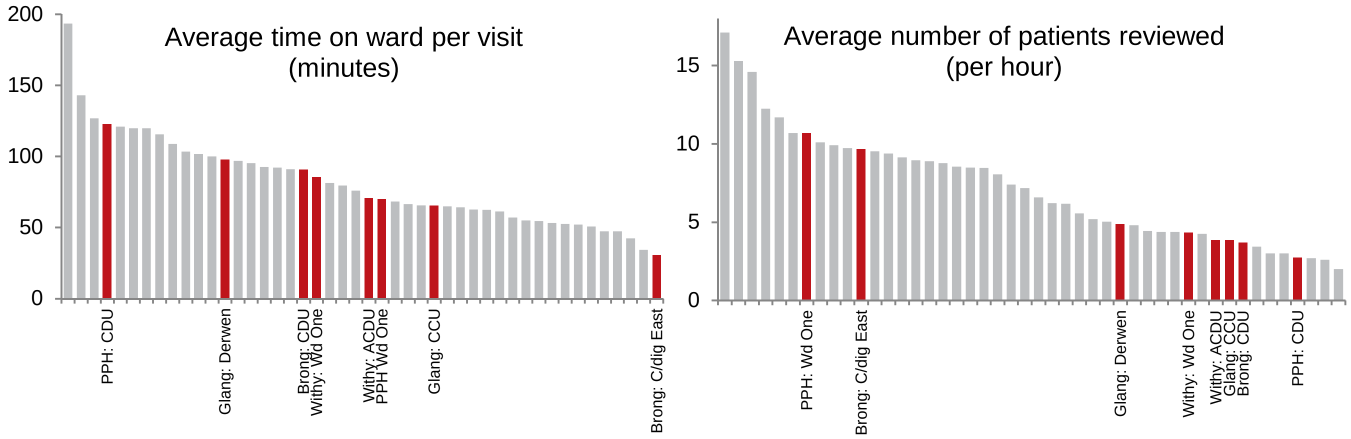
[18] Resource Mapping activity data relating to Pharmacist and Technician staff groups across primary and secondary care.

Exhibit 5: The Health Board has similar results to all Wales other than having the lowest percentage of wards with a named technician and having no wards with a seven-day visiting service

Indicator	The Health Board	Wales	Observations
% pharmacy staff saying there were good or excellent relationships with medical staff	73%	78%	Good relationships between pharmacy, medical staff and nursing staff are essential for an effective multi-disciplinary approach to medicines management. 73% of medical staff agreed that relationships with pharmacy were good or excellent.
% pharmacy staff saying there were good or excellent relationships with nursing staff	88%	88%	78% of nursing staff shared this view. The positive relationships were mentioned to us several times during our hospital visits.
% wards with a named pharmacist	90%	91%	Allocating named pharmacists and technicians to specific wards can assist with working relationships. The Health Board is the lowest in Wales in relation to percentage of wards with a named technician. There was considerable variation across sites. Whilst none of the wards at Bronglais and Withybush has a named technician, the corresponding figures at Glangwili and Prince Philip were 9 per cent and 81 per cent respectively.
% wards with a named technician	25%	50%	
% wards with no visiting service from pharmacy	13%	11%	If there is no routine visiting service to the ward this may suggest that better links need to be forged between pharmacy and the ward teams. The Health Board's performance here is below that of the average across Wales. Paragraph 32 has already highlighted the staffing pressures that pharmacy are experiencing and the fact that certain wards and patient types are being prioritised.
% wards with a 7-day visiting service	0%	5%	
% of pharmacy team recommendations that led to changes	79%	79%	We looked at recommendations made by pharmacy teams about the type and dosage of drug and we calculated the proportion of these recommendations that were followed. If pharmacy staff are unable to influence prescribers this suggests relationships should be strengthened.
% pharmacy staff that agreed or strongly agreed that they are able to influence the prescribing behaviour of doctors and nurses	63%	68%	

43. Exhibit 6 shows that during our clinical pharmacy review, the average time that pharmacy teams spent on the ward per visit was about average in most of the Health Board's wards. However, visits were longer than average at Clinical Decisions Unit at Prince Philip and the visit length at Bronglais, Ceredig East was the lowest of all wards sampled in Wales. The exhibit also shows that the average number of patients reviewed per hour was comparatively low across the Health Board's wards with the exception of Bronglais Ceredig East and Prince Philip Hospital Ward One. A low review rate at acute admissions units may be due to the different pharmacy input required on short-stay units. Profiles across all wards will also be influenced by factors such as complexity of cases and pharmacy visiting practice. The Health Board may want to carry out further analysis of their submitted data in light of local knowledge.

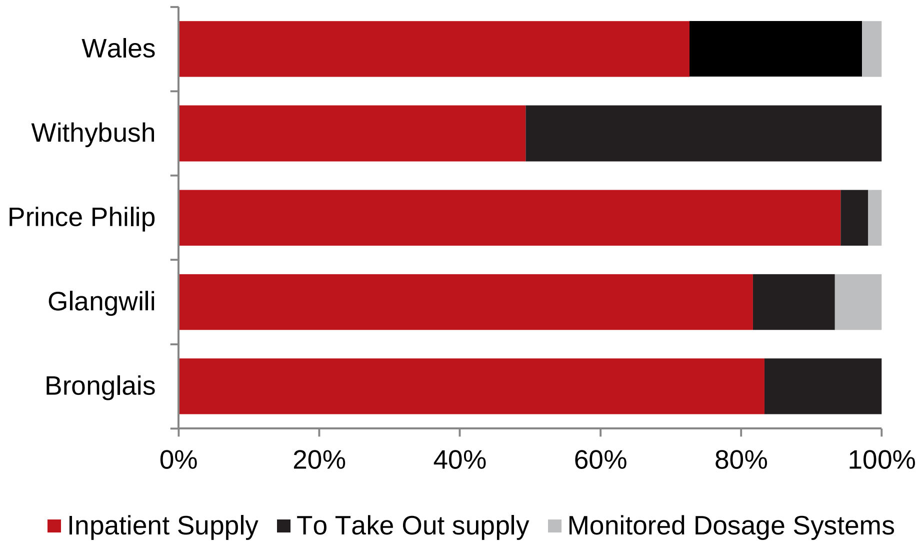
Exhibit 6: Comparison across Wales of the time pharmacy teams spent on the wards per visit and the number of patients they reviewed per hour



Source: Wales Audit Office Clinical Pharmacy Review

44. 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 exhibit shows that pharmacy staff at sampled wards at Withybush were spending comparatively more time supplying take-home medication whilst the proportion of monitored dosage systems was higher than average at Glangwili. The Health Board may want to carry out further work to understand these data, although the casemix of patients included in the clinical pharmacy review may be a key factor in the differences across sites.

Exhibit 7: The type of medications being supplied by pharmacy teams varied considerably between sites. At Withybush half of the recorded activity was the supply of take-home medication.



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

45. Ward rounds are a route by which pharmacy staff 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 pharmacy staff 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.

46. In the Health Board none of the pharmacy team's 100 visits to the wards were as part of ward rounds. Interestingly, our survey highlighted differing views about the statement 'Clinical pharmacy staff are regularly involved in multidisciplinary ward rounds'. Twelve per cent of pharmacy staff agreed or strongly agreed with the statement, compared to 32 per cent of doctors and 23 per cent of nurses. These figures are lower than those across Wales as a whole, where 40 per cent of pharmacy staff, 38 per cent of doctors and 35 per cent of nurses agreed or strongly agreed with the statement. Pharmacy staff said that they try to be on the ward and available to answer queries at the same time as the ward round although in practice this is often not possible. Reasons given are that ward rounds are scheduled at different times of the day and that consultant's patients may be located in various wards around the hospital.

47. Exhibit 8 shows the pharmacy staff's views on how their team could be more effective and compares their opinions with those of doctors and nurses. Whilst pharmacy staff thought the priority should be for them to spend more time on the wards, doctors and nurses thought the pharmacy team should be doing more to support patient discharges.

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

Priority	Views of pharmacy staff	Views of doctors	Views of nurses
1 (Highest)	Increase the amount of time spent on the wards	Improve/put in place processes to support discharge	Improve/put in place processes to support discharge
2	Take part in post-take ward rounds	Increase the amount of time spent on the wards	Improve/put in place an on-call service
3	Improve/put in place processes to support discharge	Take part in post-take ward rounds	Improve the continuity of pharmacy staff who support the ward/patients
4	Improve the continuity of pharmacy staff who support the ward/patients	Improve the continuity of pharmacy staff who support the ward/patients	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	Take part in post-take ward rounds
6	Improve/put in place an on-call service	Change the timing of the routine visits to wards	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 there is scope for improvement outside normal working hours and a decision is due on whether to open pharmacies on Sundays

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

49. 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. Withybush Hospital pharmacy is open on Sunday mornings and the Health Board is currently auditing the impact of this extended service on the ability of wards to discharge patients on a Sunday. The audit will inform decisions on whether Sunday opening should be rolled out to other hospitals.

Exhibit 9: Pharmacy weekday opening hours vary between hospitals but are around the Wales average. There is no scheduled weekend service to wards at Bronglais and Prince Philip hospitals

Hospital	Total no. of hours open to A&E/ outpatients		Total no. of hours open to provide clinical services to the wards		Total no. of hours where at least one member of Pharmacy staff is present on-site	
	Mon-Fri	Sat-Sun	Mon-Fri	Sat-Sun	Mon-Fri	Sat-Sun
Bronglais	38	4	40	0	43	4
Glangwili	41	3	42	0	42	3
Withybush	40	6	46	0	46	6
Prince Philip	43	3	43	0	43	3
Wales average	**42**	**5**	**43**	**4***	**43**	**6**

Source: Wales Audit Office Core Medicines Management Tool

** The all-Wales average has not been amended since the Health Board's data for Glangwili was changed from 3 hours to 0 hours and the data for Withybush was changed for 6 hours to 0 hours.*

50. Exhibit 10 shows the results of our survey of medical and nursing staff in relation to the accessibility and responsiveness of pharmacy services.

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

Exhibit 10: Satisfaction with pharmacy accessibility and responsiveness is generally better than the average across Wales although staff were less satisfied with arrangements outside normal hours

	The Health Board	Wales
'It is easy to contact the pharmacy team in normal working hours'		
% medical staff that agreed or strongly agreed	92%	85%
% nursing staff that agreed or strongly agreed	93%	91%
'It is easy to contact the pharmacy team outside normal working hours'		
% medical staff that agreed or strongly agreed*	35%	30%
% nursing staff that agreed or strongly agreed	48%	52%
'The pharmacy team responds in reasonable timescales to my requests in normal working hours'		
% medical staff that agreed or strongly agreed	89%	81%
% nursing staff that agreed or strongly agreed	72%	83%
'The pharmacy team responds in reasonable timescales to my requests outside normal working hours'		
% medical staff that agreed or strongly agreed	34%	29%
% nursing staff that agreed or strongly agreed	43%	51%

Source: Wales Audit Office Surveys of Medical and Nursing staff.

** More than a quarter of doctors answered 'Don't know' to this question.*

51. During our walkthroughs, nursing staff told us that they have excellent access to pharmacy staff in hours and there were no concerns raised about contacting pharmacy support out of hours. As part of an effort to improve access to pharmacy, the Health Board's hospitals have recently reminded ward staff of the arrangements for contacting pharmacy staff out of hours and for accessing the emergency drug cupboards via the site manager at any time of day or night. This was part of joint work by pharmacy and nursing to actively drive down the number of '5' codes (Medicine not available) used on drug charts.

Part 3

Medicines management facilities

Pharmacy facilities largely comply with key requirements but there are issues with temperature control and ward medicine storage. All aseptic units have deficiencies although there are particular risks at Glangwili

Compliance with key requirements for pharmacy facilities

Pharmacy facilities largely comply with the key requirements although there are issues with temperature control at Glangwili and Withybush

52. A Welsh Health Building Note[20] 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 Bronglais General Hospital (BGH), Glangwili General Hospital (GGH), Withybush General Hospital (WGH) and Prince Philip Hospital (PPH) comply (☑), partially comply (☐) or do not comply (☒).

Findings
Location
Is the pharmacy on the ground floor and accessible from the main corridors/circulation routes?
☑ BGH: The pharmacy is on the lower ground floor and is accessible.
☑ GGH: The pharmacy is on the ground floor and accessible from main circulation routes.
☑ WGH, PPH: The pharmacy is on the ground floor close to the hospital main entrance.
Boundary security
Is entry to pharmacy strictly controlled through the use of swipe cards or similar?
☑ BGH: There is a pin code entry system on the two entrances from the main corridor. There is also a hatch which is locked with bolts from inside the dispensary.
☑ GGH: There is a swipe card entry system on main door. The door to the dispensary from the waiting room can only be opened from inside the dispensary.
☑ WGH: There is a pin code entry system on the entrance from the main corridor.
☑ PPH: There is a pin code entry system on the entrance from the main corridor. There is also a hatch which is locked with shutters from inside the dispensary.
Were steps taken to verify the auditor's identification upon arrival at the pharmacy?
☑ BGH: The auditor walked up to the hatch and asked to see the pharmacist. The pharmacist showed the

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

Findings
auditor into the dispensary. The auditor was not asked for identification.
☑ GGH: The auditor walked into the waiting area and asked to see the pharmacist. A member of staff asked to see the auditor's photo ID badge and verified her identity before showing her into the dispensary.
☑ WGH: The auditor walked into the waiting area and asked to see the pharmacist. A member of staff showed her into the dispensary. The auditor was not asked for identification.
☑ PPH: The auditor met the pharmacist at the main entrance to the hospital. The pharmacist showed her into the dispensary. The auditor was not asked for identification.
Storage area and temperature
Were all items stored above the floor?
☑ BGH, GGH, WGH and PPH: All items in the dispensary were stored off the floor.
Are there good arrangements to regulate the temperature below 25 degrees, particularly in areas used to store bulk items?
☑ BGH: Air conditioning in all areas. Ambient temperature monitored using wireless Comark monitoring system and kept below 25 degrees.
☒ GGH: No air conditioning and no thermometer. There may be legal risks to these arrangements because intravenous fluids and other bulk items are being stored in conditions that are not likely to be compliant with the manufacturer's guidelines on temperature regulation.
☐ WGH: There is air conditioning but it does not always keep the temperature below 25 degrees. Ambient temperatures monitored using wireless and displayed on computer screen.
☑ PPH: Air conditioning is in place in all areas and set at 22 degrees. Ambient temperature monitored and recorded. Separate room for clinical trials has its own air conditioning and temperature monitoring system.
Controlled drugs
Is there a separate, lockable and alarmed controlled drugs store?
☑ BGH, WGH and PPH: There is a separate, lockable and alarmed store.
☐ GGH: There is a separate lockable store but it does not have its own alarm.
Fridges
Do all fridges in pharmacy have an external temperature display? And were these displays showing readings of between two and eight degrees?
☑ BGH, GGH, WGH and PPH: 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?
☑ BGH: There is constant monitoring of fridge temperatures with an automatic alert system (in hours and out of hours) when temperatures go out of range. Out of hours, Comark system will alert switchboard and on call pharmacist who will attend and investigate.
☑ GGH: There is constant monitoring of fridge temperatures with an automatic alert system (in hours and out of hours) when temperatures go out of range. Out of hours, the fridge alarm will alert switchboard and on call pharmacist who can check it online from home and attend and investigate.
☑ WGH: There is constant monitoring of fridge temperatures with an automatic alert system (in hours and out of hours) when temperatures go out of range. Out of hours, the fridge alarm will alert switchboard and

Findings
on call pharmacist who will attend and investigate.
☑ PPH: There is constant monitoring of fridge temperatures with an automatic alert system (in hours and out of hours) when temperatures go out of range. Out of hours, the fridge alarm will alert switchboard and on call pharmacist who will attend and investigate. *Are all fridges in the pharmacy lockable?*
☑ BGH, GGH, WGH and PPH: All fridges in the pharmacies are lockable.
Emergency medicine store
Is there a specific store where medicines can be accessed when pharmacy is not staffed?
☑ BGH: The store is behind the first entrance door into the pharmacy. Store was well organised. Items can be remotely released into the store from the robot.
☑ GGH: The store is located inside the co-ordinating manager’s office. Store was well organised.
☑ WGH: The cupboard is located on a corridor on the second floor near wards. Store was well organised.
☑ PPH: There is an emergency cupboard on the main corridor opposite the canteen. Store was well organised. *Is there a clear system for recording which items have been taken from the emergency store?*
☑ BGH: Practitioner writes in a note book to record the drugs they have removed from the store. A technician checks what items taken and replaces stock every morning.
☑ GGH: Practitioner writes in a paper file to record the drugs they have removed from the store. A technician checks what items taken and replaces stock every morning.
☑ WGH: Practitioner writes on a paper sheet to record the drugs they have removed from the store. A technician checks what items taken and replaces stock every morning.
☑ PPH: Alphabetical list of drugs with expiry dates on a checklist for the practitioner to fill in. A technician checks what items taken and replaces stock every morning.
Dispensary
Does the dispensary have benches and worktops of a colour that contrasts with white medicine labels?
☑ BGH: The worktops are pale grey.
☑ GGH: The worktops are brown wood effect.
☑ WGH: The worktops are blue.
☑ PPH: The worktops are speckled. *Does the dispensary have dedicated hand washing facilities?*
☑: BGH, GGH, WGH and PPH: The dispensaries have dedicated hand washing facilities.

Source: Wales Audit Office observations of hospital pharmacies

Preparation of aseptics and injectable medicines

External audit reports have highlighted deficiencies at all aseptic units, with particular risks at Glangwili, and in common with the rest of Wales, the preparation of injectable medicines on the wards is not routinely audited

53. Aseptic facilities are sterile units used to prepare high-risk medicines such as chemotherapy injections, intravenous feeds for premature babies and certain antibiotics. The Health Board does not operate any licensed aseptic facilities but it does have three unlicensed aseptic facilities. Exhibit 11 shows the high level findings in the Health Board from the inspections of the All Wales Quality Assurance Pharmacist.

Exhibit 11: All Wales Quality Assurance audit reports for unlicensed aseptic units have highlighted deficiencies, particularly in Glangwili

Location of unlicensed aseptic unit	Date last inspected	High level findings
Bronglais	November 2013	7 moderate deficiencies
Glangwili	August 2013	4 major deficiencies and 5 moderate deficiencies
Withybush	July 2013	5 moderate deficiencies

Source: All Wales Pharmaceutical Quality Assurance Audit Reports

54. The concerns raised as a result of inspections of the aseptic units are recorded on the Health Board's risk registers. The unit at Glangwili General Hospital was found to be at significant risk particularly around the physical structure of the unit. There is a plan to upgrade the aseptic facilities through a capital programme but so far, bids for funding have not been successful. The results of a more recent inspection are imminent and the Health Board anticipates that the findings will be more critical than previously. If the Health Board had to close any of its aseptic units it would have to outsource aseptic production to Bristol or Bath which could result in transport difficulties and potential delays in accessing aseptic medications.

55. Some injectable medicines are prepared on the wards with some wards preparing intravenous antibiotics on a daily basis while others rarely do so. These preparation processes should be subject to annual audits but across Wales we found that such audits are rarely carried out.[21] The Health Board stated that all wards had a risk assessment in place for injectable medicine preparation, but no wards had conducted an audit of aseptic practices in the past year. Three health boards in Wales were unable to provide this information. A fourth health board stated that no risk assessments or audits had taken place.

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

Facilities for storing medicines on the wards

The Health Board is taking action to address issues with storage and refrigeration of medicines on the wards highlighted in *Trusted to Care* spot checks

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

- BGH: The drugs cupboard for one unit was positioned on an adjacent ward resulting in two nurses needing to leave their ward to collect controlled drugs. A drug room door had a key pad but was wedged open. Drugs trolleys were properly locked and secured to the wall although one trolley was not fixed securely.
- GGH: The rooms storing drugs were not lockable and one had the door wedged open. Drugs and syringes were left out on work surfaces.
- WGH: Most drugs cupboards were locked and secure although one medicines storage/ preparation room had no secure lock.
- PPH: The treatment room containing drug cupboards did not have a door so was not lockable although it was behind the nursing station. A syringe and discharge medicines were left on top of the worktop in the treatment room. Medicine trolleys were locked to the wall on completion.

57. During our ward visits, staff told us that there were some issues with storage and layout of wards which were difficult to change. The Health Board recognises there are storage issues and a medicines management nurse, reporting to the Head of Medicines Management, reviews the storage issues. The Director of Nursing told the Quality and Safety Committee in August 2014 that action had been taken to address the storage issues that were immediately addressable and that the committee would see progress documented against the action plans in February 2015. This was subsequently moved to the June committee to ensure that all aspects of the Health Board were actioned together.

58. Our clinical pharmacy review found that 97 per cent of patients reviewed had a functioning, lockable cabinet. This compares with 94 per cent across Wales. Most staff interviewed on the wards said that the lockers worked well. One issue raised was that some lockers have white surfaces so that it can be difficult to see white tablets.

59. 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. Three per cent of the Health Board's wards have automated vending machines (based in the clinical decisions unit and emergency department at Glangwili Hospital), compared with an eight per cent average across Wales.

60. The *Trusted to Care* spot checks across Wales also revealed issues with the refrigeration of medicines on the wards. During our ward visits, we found that all wards had fridges although procedures for monitoring the fridge temperature were not in place for all of them. None of the fridges had alarms.

61. The Health Board is engaging with a national group that was set up to address the issues that have arisen from the *Trusted to Care* spot checks. The Medicines Administration, Recording, Review and Storage (MARRS) group is led by the Chief Pharmaceutical Officer for Wales and its aims include the agreement of national specifications for ward fridges and medicine cupboards.

Medicines management processes

There are some good aspects of medicines management processes but there are risks with information transfer between primary and secondary care, variations across sites and supporting patients to take their medicines properly

Admission information from GPs

Poor information transfer between primary and secondary care poses safety risks and inefficiencies and the quality of information varies widely across sites

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

63. Exhibit 12 shows the pharmacy team's assessment of the quality of information provided by primary care to support admissions, which was carried out during the clinical pharmacy review. In the Health Board overall, the percentage of patients with no information was higher than the rest of Wales, but this was almost entirely due to a very poor level of information at Withybush[22].

Exhibit 12: The quality of patient information provided by primary care to support admissions was very poor at Withybush, average at Prince Philip and better than average at Bronglais and Glangwili

	No information	Limited information	Standard information	Comprehensive information
Bronglais	33%	0%	0%	67%
Glangwili	26%	5%	37%	32%
Withybush	91%	5%	0%	5%
Prince Philip	47%	13%	20%	20%
Hywel Dda	56%	7%	17%	20%
Wales average	**41%**	**18%**	**20%**	**22%**

Source: Wales Audit Office Clinical Pharmacy Review (patient log of 134 patients)

[22] These data include only the patients reviewed in the clinical pharmacy review that were admitted via a GP, therefore Exhibit 12 includes data from 57 Hywel Dda patients and 362 patients from across Wales. Hywel Dda may have taken a slightly different approach to other health boards in completing this aspect of the clinical pharmacy tool. If information from GPs was received but only after a request from pharmacy, this was recorded as 'No information.'

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.

64. In our survey, 45 per cent of hospital doctors, 12 per cent of pharmacy staff and 32 per cent of nurses in the Health Board agreed or strongly agreed with the statement that admission information for elective patients was sufficient. Across Wales the results were 37 per cent of doctors, 26 per cent of pharmacy staff and 40 per cent of nurses agreeing or strongly agreeing. For emergency patients, only 14 per cent of hospital doctors 10 per cent of pharmacy staff and 11 per cent of nurses agreed or strongly agreed with the statement that '…it is easy to access sufficient written/electronic information about patients' existing medication'. These results were almost identical to those across Wales.

65. Interviews with Health Board staff found that there were differences in the quality of information that patients brought in depending on whether they were elective or non-elective admissions. Elective patients are told at pre-assessment to bring any regular medication into hospital with them and are also provided with written information saying the same thing. But ward staff said that patients did not always remember to bring their medications with them. For patients arriving through non-elective routes, GPs typically have no knowledge of the admission and therefore will not provide any information to support the admission. In these instances, nursing staff will ask the patients' friends or relatives to bring the medications in from home.

66. The Health Board does not have guidance for GPs to stipulate what information to provide when their patients are admitted. Problems with the transfer of medication information between primary and secondary care is a risk area 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. Pharmacy staff do not routinely monitor or audit the quality of information provided and there is no mechanism to feedback any concerns to GP practices.

67. When patients arrive in hospital with limited information about their medicines, pharmacy teams often telephone GP surgeries to secure a patient's drug history but the quality of this information varies by GP practice. Some GPs will provide the patient with a letter detailing all their medications but for others the pharmacy technician or specialist nurse will phone the surgery to ask them to fax information. We heard that patients may not know all the medications they are prescribed and may not be taking all the medications they are regularly prescribed. We were told that they usually have the right information within 24 hours although in some cases it could take longer. Pharmacy staff were aware that the quality of the information provided by GPs was of variable quality but were not aware of any audits or feedback to GPs.

68. The 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. Evaluations carried out at Cardiff and Vale University Health Board suggest that the 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 43,573 emergency admissions at Hywel Dda in 2013-14, this could have saved approximately 2,500 hours of pharmacy time, which equates to 1.4 whole time equivalent pharmacy staff [23]. 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

Timeliness of medicines reconciliation is generally good across the Health Board and most patients receive a comprehensive review although rates are lower at Glangwili Hospital

69. 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 *Professional Standards for Hospital Pharmacy Services* (the Standards) state that within 24 hours of admission, patients' medicines should be reviewed or 'reconciled' to avoid unintentional changes to their medication[24]. Of the 133 patients' reviewed as part of our clinical pharmacy audit where a medicines reconciliation date had been recorded, 94 (71 per cent) had received a medicines review within one day of their admission[25]. At individual hospital sites, the figure ranged from 58 per cent at Glangwili to 89 per cent at Withybush. The average across Wales was 64 per cent.

70. During their hospital stay, patients should have their medicines reviewed regularly. In response to our survey, 57 per cent of pharmacy staff, 56 per cent of doctors and 59 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'. These figures are lower than for Wales as a whole with 65 per cent of pharmacy staff, 67 per cent of doctors and 67 per cent of nurses agreed or strongly agreed with the statement. 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 13 summarises the key data on medication reviews from our clinical pharmacy review.

[23] 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 1WTE works 37.5 hours per week, 47 weeks per year.

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

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

Exhibit 13: Compared with the rest of Wales, a greater proportion of patients in Hywel Dda received a comprehensive medication review. There was wide variation in the percentage of patients identified as having a compliance issue

	% of patients receiving a comprehensive medication review	% reviews where compliance or drug issue was found
Bronglais	100	21
Glangwili	24	24
Withybush	51	0
Prince Philip	76	41
Wales average	**44**	**20**

Source: Wales Audit Office Clinical Pharmacy Review (patient log of 134 patients)

Medicines administration charts

All patients we sampled had standard drug charts and had their allergy status recorded although pharmacy teams updated the allergy status in five out of every 100 patients reviewed

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

72. As well as using the Inpatient medication Administartion Record, ward staff have recently piloted the value of using an additional form to monitor the detailed reasons for missed doses. This form is an updated version of one that was originally developed and used in Carmarthenshire NHS Trust. This form is pinned to the front of the drugs chart. The evaluation of the value of the form and a decision on its continued use will be taken shortly.

73. 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 97 per cent of patients had their allergy status recorded on the drug chart. This compares with 98 per cent across Wales. Our clinical pharmacy review identified 33 occasions where pharmacy teams updated a patient’s allergy status, equivalent to 5.2 amendments for every 100 patients reviewed. This was close to the average across Wales (five amendments for every 100 patients reviewed).

Formulary processes

The Health Board's formulary processes are generally in line with the rest of Wales and doctors told us that hard copies of the British National Formulary are more accessible on the wards than electronic copies

74. A formulary is a health board's preferred list of medicines that staff can use as a reference document to ensure the safe and cost effective prescribing. The Health Board's formulary is available on the intranet and is integrated across primary and secondary care. We were told that the process for updating the formulary has improved with fair and open discussions at the Clinical Formulary Group meetings; if this group cannot reach a decision then a final decision is taken by the whole MMG.

75. In response to the survey for this audit, 49 per cent of medical staff and 76 per cent of nurses said they agreed or strongly agreed that the formulary (and supporting documents/guidance) met their needs. This compared with 45 per cent of medical staff and 74 per cent of nurses across Wales. We were told that some doctors want to prescribe outside of the formulary. Pharmacists said that they spend time contacting doctors to inform them that something is not available particularly as there is a high turnover of hospital doctors. Some hospital prescribing off formulary comes to light after a patient has been discharged where the primary care pharmacists would pick it up.

76. We scored organisations on the number of mechanisms they have in place to share information with staff about changes to the formulary[26]. The Health Board scored 41 points out of a possible 50 compared with an average of 38 across Wales.

77. 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 14 shows the percentage of medical staff that agreed or strongly agreed with the statements about the BNF when on the wards.

Exhibit 14: Medical staff in the Health Board said hard copies of the BNF are more accessible than electronic copies

	Health Board	Wales
The most up-to-date version of the BNF is readily available in hard copy	74%	60%
I can easily access the BNF using a computer	37%	40%
I tend to access the BNF using a smartphone	13%	22%

Source: Wales Audit Office survey of medical staff

[26] 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

Electronic prescribing could have wide-ranging benefits for safety and efficiency but is not used on any acute hospital ward

78. 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[27]. 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.

79. None of the Health Board's wards have implemented electronic prescribing. This is in line with the situation across Wales, although some health boards are currently implementing electronic prescribing in outpatients and are actively seeking funding to implement electronic prescribing for inpatients.

Non-medical prescribing

The Health Board has comparatively good data on non-medical prescribers but pharmacy staff are not regularly prescribing and there is scope to strengthen the policy framework regarding non-medical prescribing

80. 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[28].

81. 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. Hywel Dda has 26 nurses, nine pharmacists and 10 other non-medical professional who are independent or supplementary prescribers. Of these, 18 nurses, six pharmacists and two other non-medical professionals are regularly prescribing.

82. In response to our survey, 11 per cent of pharmacy staff, 29 per cent of doctors and 22 per cent of nurses agreed or strongly agreed with the statement 'Staff trained in non-medical prescribing are regularly using these skills'. This compares with 29 per cent of pharmacy staff, 28 per cent of doctors and 33 per cent of nurses across Wales. Our clinical pharmacy review showed that pharmacy staff rarely prescribe on the wards. At the Health Board, pharmacy staff wrote just one prescription during the audit where a total of 629 patients were reviewed (0.2 per cent). Across Wales, the rate was higher, at 1.5 prescriptions for every 100 patients reviewed.

[27] 1000 Lives Plus, *Achieving prudent healthcare in NHS Wales*, June 2014.

[28] 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.

83. Independent prescribers are located on the admissions unit at Glangwili where they are able to add or remove drugs from a patient's chart. They are also located in the frailty clinic in Prince Philip where they are able to support the best use of medicines in a patient's care. The Head of Medicines Management was keen to train more pharmacists to become independent prescribers but we were told that pharmacists are reluctant to take this on given the demands on the existing service provided by pharmacy staff.

84. Exhibit 15 shows how the Health Board compares to others in Wales relating to non-medical prescribing policies.

Exhibit 15: The Health Board had in place two 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	No	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

85. In response to our survey, 14 per cent of pharmacy staff, 14 per cent of doctors and 24 per cent of nurses across Wales agreed or strongly agreed with the statement 'The Health Board has good controls in place to monitor the performance of non-medical prescribers'. In the Health Board 12 per cent of pharmacy staff, 16 per cent of doctors and 16 per cent of nurses agreed or strongly agreed[29]. The Health Board told us its main mechanism for monitoring competence of non-medical prescribers is through the Datix incident reporting system.

Administration of medicines

The Health Board has taken direct actions in response to *Trusted to Care* and Prince Philip Hospital was the only Health Board site where we found drug charts that were unclear about whether a dose had been administered

86. *Trusted to Care* highlighted serious problems in the way that medicines are administered and recorded. All organisations have produced actions plans to respond to *Trusted to Care*. The Health Board has carried out a range of activities to address the issues raised. This includes joint weekly meetings between medical staff, nurses, pharmacists and the Chief Operating Officer and improved guidance and training on sedation and mental capacity. All pharmacy staff have completed the online course on professionalism run by the Wales Centre for Pharmacy Professional Education.

[29] A third of pharmacy staff and half of the doctors and nurses replied 'Don't know' to this question.

87. The Health Board is also using an approach to drug rounds that aims to minimise errors and disruptions during medicine dispensing and administration. The Health Board has designated certain ward areas as Medication Safety Zones, using red doors, red curtains and signs. These zones aim to provide an interruption-free area for staff to concentrate on their medicines-related tasks. The safety zones are part of the Seeing Red initiative that has been piloted at Withybush General Hospital and also involves nursing staff wearing red tabards when carrying out medicines management tasks. Written on the tabards is a 'Do not disturb' message that seeks to ensure staff are not distracted from their focus on medications. The initiative is due to be rolled out across the Health Board.

88. In response to our survey, 83 per cent of pharmacy staff, 37 per cent of doctors and 62 per cent of nurses agreed or strongly agreed with the statement 'The organisation has taken appropriate action in relation to the Trusted to Care report (the Andrews Report)'. This is similar to the all Wales results of 82 per cent of pharmacy staff, 34 per cent of doctors and 66 per cent of nurses.

89. *Trusted to Care* mentions delayed and omitted doses, and particular problems with confused and immobile patients being unable to take their pills without supervision and therefore not getting their medication on time, or at all. There can be justified reasons why a dose is missed, such as the patient refusing to take their medicines. However, sometimes doses are missed because the drug is not available on the ward or sometimes poor record keeping means it is not clear from the drugs chart whether a dose has been omitted or not. The latter is particularly dangerous because when the drugs chart has not been properly completed it risks the patient being given their medication twice. Our clinical pharmacy review covered 134 patients over a 24-hour period across eight wards in the Health Board. The audit identified 14 occurrences where a drug was not available and 12 occasions where it was unclear whether a dose had been omitted or not. Pharmacists have undertaken their own weekly admissions audits in one ward per hospital per week looking at five patients per ward to see how many doses omitted over the previous 24 hours. There is ongoing debate within the Health Board about how best to use the data from the weekly audits to improve practice.

90. Exhibit 16 provides a breakdown of the reasons why patients were not given their medicines and compares this with the situation across Wales.

Exhibit 16: Only Prince Philip Hospital had instances where it was unclear if a dose had been omitted or not.

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 in charts	X	2	3	4	5	6	No code
Bronglais	12%	0%	7%	76%	5%	0%	0%
Glangwili	10%	0%	21%	34%	14%	21%	0%
Prince Philip	25%	0%	18%	34%	4%	4%	15%
Withybush	0%	0%	0%	68%	14%	19%	0%
Hywel Dda	**15%**	**0%**	**12%**	**50%**	**8%**	**9%**	**6%**
Wales average	**18%**	**0%**	**8%**	**45%**	**8%**	**9%**	**12%**

Source: Wales Audit Office clinical pharmacy review (patient log of 134 patients)

91. 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. 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, two patients were self-administering and 21 were self-administering in a limited way. One patient had been risk assessed. Our clinical pharmacy review found that only four per cent of wards in the Health Board have a procedure for self-administration (compared with 25 per cent across Wales), however we were told that the Health Board has developed a policy on 'self-administration of patients' own medicines' for use across all inpatient areas. The Health Board said that the policy contains a standardised risk assessment tool and this is being rolled out on a ward-by-ward basis as wards teams undergo the associated training. The policy and tool focus specifically on self administration of insulin and has been agreed in line with the implementation of the Think Glucose programme within the Health Board.

Supporting patients with compliance

The Health Board needs to do much more to assess patients' compliance needs and educate and support patients to take their medicines properly

92. Studies[30] have shown that up to half of all patients do not take their medicines as intended. Not taking medicines appropriately also has important implications for patient safety and can result in considerable waste, particularly when you consider that the Health Board spent £26.8 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.

93. We scored organisations by considering the actions they take to support people to comply with their medicines[31]. The Health Board scored 12 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 or setting up medicines education groups for these patients. The Health Board rarely assesses patients to ensure that medicine containers and packaging are best suited to their abilities to self-medicate (for example, through the provision of easy-to-open containers), and patients are rarely provided with reminder charts if they are on a complex medication regimen. Our interviews with ward staff found that they would use a range of tactics if patients refuse medication and patients are reassured, advised and encouraged to take their medications as prescribed. They would offer different formats such as syrups or patches if the patient has difficulty swallowing.

94. 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 four per cent.

95. The results of our clinical pharmacy review found that 22 per cent of patients reviewed in the Health Board were found to have compliance issues. This ranged from 0 per cent at Withybush to 41 per cent at Prince Philip. Across Wales, the average was 20 per cent.

96. Hospital pharmacies across Wales are not generally doing enough to provide medicines information to patient groups with particular information needs. Across the 18 hospitals we surveyed, five produce targeted information for young children, seven cater for the visually impaired, and eight provide medicines information in non-English languages. Across the Health Board, the provision of information is mixed. The Health Board's pharmacies do not provide specific information for young children, while only Glangwili and Prince Philip hospitals provide focused support to patients with visual impairments. All hospitals except Withybush support patients using non-English language material.

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

[31] 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.

97. 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. We concluded that some pharmacy helplines are under-utilised despite their importance in helping patients manage their medicines. Across Wales, the use of helplines ranged from six to 66 contacts per 100 opening hours (the average was 32 contacts). Exhibit 17 summarises key data about the pharmacy phone lines available within the Health Board. Helplines are available for patients in Bronglais, Withybush and Prince Philip Hospitals but not in Glangwili[32]. Although it is not open at weekends, the helpline at Withybush is well utilised with twice the number of contacts compared to the all Wales rate.

Exhibit 17: Although it is not open at weekends, the helpline at Withybush is better utilised than those at Bronglais and Prince Philip hospitals

	Total no. of hours open (Mon-Fri)	Total no. of hours open (Sat-Sun)	Average no. of contacts per 100 hours of opening
Bronglais	43	4	6
Withybush	40	0	63
Prince Philip	43	3	13
Wales average[33]	**40**	**4**	**32**

Source: Wales Audit Office Core Medicines Management Tool

Supporting discharge

There are safety risks and inefficiencies associated with poor information exchange at discharge although the rate of discharge medication reviews is slightly higher than average

98. It is good practice for hospital staff to begin planning a patient's discharge as soon as possible.[34] 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 closely matched the Wales average at 46 per cent.

99. A patient's discharge from hospital can be delayed for various reasons. Exhibit 18 summarises the views of doctors, nurses and pharmacy staff about the most common causes of delays to discharge that are medicines-related. The Health Board should do further work to understand the differing views expressed below and to understand the real reasons for delayed discharge, as a means to streamlining discharge processes.

[32] Whilst there is no dedicated phone line, patients at Glangwili are given the phone number of the pharmacy department.

[33] 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.

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

Exhibit 18: Pharmacy staff, doctors and nurses had differing views about the most common causes of medicines-related delays to discharge

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

Source: Wales Audit Office surveys of pharmacists and medical staff

100. 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.' Each of the Health Board's hospitals has a standard template that sets out the information to be provided to GPs upon a patient's discharge, but only Bronglais and Prince Philip hospitals apply it across all specialties. In Wales, 17 out of 18 hospitals that we reviewed have a similar template in place, but only 10 apply it across all specialties.

101. The Standards state that organisations should 'monitor the accuracy, legibility and timeliness of information transfer. Each of the Health Board's hospitals has audited the quality and timeliness of discharge information in the past two years. Our primary care prescribing report found long term issues with discharge information and recommended that Health Board improves its discharge arrangements and develop standard discharge advice letters to ensure it has more effective care handover arrangements between consultants and GPs.

102. In our survey, 18 per cent of pharmacy staff, 18 per cent of doctors and 45 per cent of nurses agreed or strongly agreed with the statement 'The discharge information about patients' medicines provided to GPs is of high quality'. This compared with 41 per cent of pharmacy staff and 30 per cent of doctors and 43 per cent of nurses across Wales. Pharmacists at the Health Board, therefore, had particularly negative views about the quality of discharge information provided to GPs.

103. In the Health Board, 19 per cent of wards produce electronic discharge summaries. This compares with 34 per cent across Wales. In Bronglais they are printing out the discharge summary so that the pharmacist can check the details, although this happens only for surgical patients. A copy then goes to the GP and the community pharmacy at the same time at discharge. This is something that is working well and the Health Board would like to roll out more widely.

104. The Health Board would like to introduce full electronic discharge such as the Medicines Transcribing and e-Discharge (MTeD) system. The Health Board has consulted with GPs about what information they would like to get from the hospitals. However, some hospitals still do not have wifi which is a barrier to implementing electronic solutions.

105. We were told of some actions to help discharge patients. In Glangwili there is a prescription tracking system so ward staff can see at a glance on a computer screen what is happening to their TTO before discharging patients. One ward was flagging which patients used a monitored dosage system in order to ensure medicines are ready at discharge. Monitored dosage systems take a long time to put together so the ward was providing pharmacy with 48 hours' notice ahead of these patients being discharged.

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.[35] Whilst DMRs appear to be effective, they are essentially correcting issues that have arisen in a patient's episode of care. It could be argued that expenditure on DMRs could be better spent upstream to prevent these issues that later require correction, for example by improving the quality and timeliness of information sharing at the transfer of care between primary and secondary care. At the Health Board 1,108 DMRs were carried out in 2013-14 at a cost of approximately £76,000[36].

107. The Health Board funded 18 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.[37] 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.[38] 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 antimicrobial cost and point prevalence across all areas, and the correlation between prescribing practice and problem organisms in some areas. Defined daily dose and antimicrobial resistance have not yet been audited. Three health boards in Wales have audited each of these five topics but only one has applied this work across all of its service areas. The scope of our audit did not cover the findings from these audits.

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

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

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

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

109. The Health Board has set up the Antimicrobial Management Committee as a sub group of the MMG. The Health Board has 0.5 WTE antibiotic pharmacists based in each of the four acute hospitals. However, the antibiotic pharamcists' roles extend beyond the acute setting and into primary care and at the time of our audit, these pharmacists were not solely dedicated to antimicrobial issues. Work is being undertaken at each site to carry out the Chief Medical Officer's work on antibiotic stewardship alongside consultant microbiologists. They are focused on reducing the level of *Clostridium difficile* infections. As at January 2015 the Health Board was not on trajectory to achieve the Tier one 18-month reduction target although they reported that they should still achieve the target by September 2015.

110. The Health Board's antibiotic pharmacists have implemented a number of actions since being appointed. These include the production of comprehensive antibiotic treatment guidelines across the Health Board, with a list of restricted antibiotics; and the distribution of credit card sized summary guidelines to all doctors, and to junior doctors at induction. The Health Board also has a target to reduce expenditure on antibiotics in secondary care to save £50,000 by the end of 2014-15. At August 2014 they were behind target and overspending on antibiotics.

Monitoring pharmacy services

There are weaknesses in arrangements for monitoring medicines management performance and pharmacy staff are having to make more safety interventions than average although there are generally good arrangements for learning when things go wrong

Performance reporting

There is scope to strengthen performance reporting through the setting and monitoring of key performance indicators, benchmarking and more regular consideration of performance at Board committee level

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. The Health Board has set no key performance indicators for secondary care medicines management. The Integrated Governance Committee receives information only on financial management of the medicines management savings plans. There is scope to strengthen performance reporting and monitoring in relation to medicines management. We found no evidence of benchmarking or comparison, many of the KPIs are no longer collected and the arrangements for scrutinising the information appear ad hoc. This conclusion is supported by the results of our survey that 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.

113. We asked health boards to provide examples of how they monitored patient experience in relation to medicines management. The Health Board did not provide us with any information on how it monitors patient experience.

Safety interventions and medication-related admissions

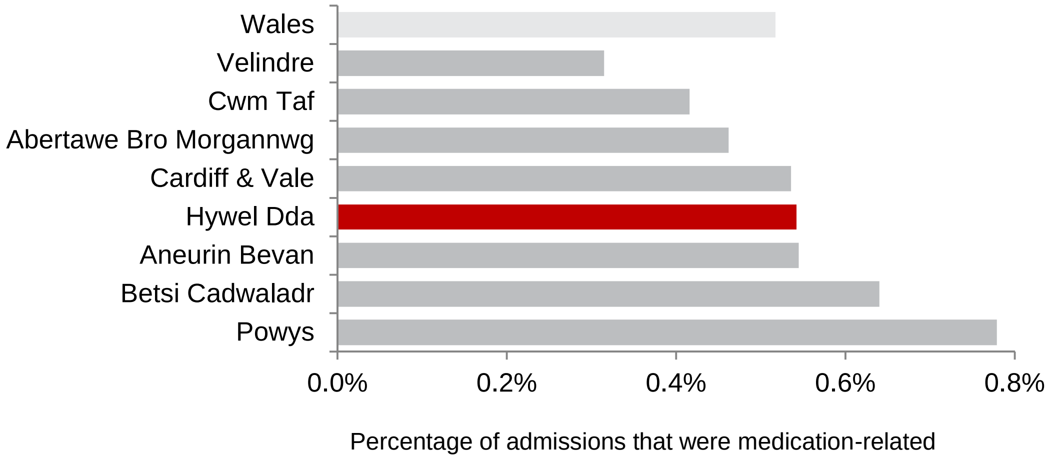
Compared to the rest of Wales, the pharmacy team is more frequently required to make safety interventions about patients’ medication

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

115. In our survey, 83 per cent of pharmacy staff and 74 per cent of doctors and 73 per cent of nurses 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 and 78 per cent of nurses agreed or strongly agreed.

116. When something goes wrong with someone's medication it can directly cause an admission to hospital. Exhibit 19 shows the results of a national audit on the rate at which patients were admitted to hospital as a result of problems with their medication. The rate of these admissions at the Health Board is slightly higher than the Welsh average. Data is taken from the NHS Wales Informatics Service but is complicated by the fact that coding teams take differing approaches to coding the causes of admissions. The scale of the problem with medication-related admissions is therefore potentially understated.

Exhibit 19: 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.

117. 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[39]. 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 £3 million[40].

118. The Health Board is aware of the issues of medication-related admissions and has undertaken an audit at Prince Philip Hospital that shows that 50 per cent of patients attending due to a fall are likely to be readmitted to AMU within a month possibly with a more major fall. One reason is due to medications causing dizziness due to anti-hypertensives but there are also issues with polypharmacy. The Health Board would like to appoint a pharmacist to the AMU to review admissions for falls to review the medications of these patients although funding had not been agreed.

[39] 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.

[40] We used a cost per admission of £456, the figure defined in Cardiff University's Evaluation of the Discharge Medicines Review Service, March 2014. The Health Board told us there were 60,137 inpatient admissions in 2013-14 (Wales Audit Office Core Medicines Management Tool). Eleven per cent of this is 6,615.

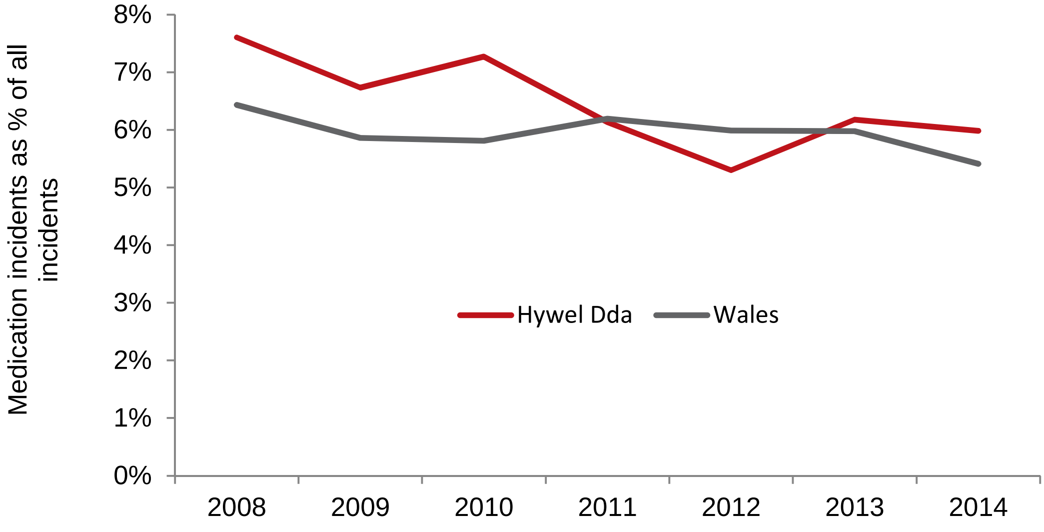
119. Part of the pharmacy team's role is to make important interventions when a patient's safety is at risk. Such patient safety interventions may be necessary, for example, to ensure that patients with a medication allergy are not prescribed those drugs and ensuring that insulin-dependent diabetic patient are correctly prescribed their insulin. Our clinical pharmacy review identified 38 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 six occurrences for every 100 patients reviewed which is higher than the Wales average of 4.1 occurrences for every 100 patients reviewed. The Health Board should consider these data further and decide whether more pharmacy team resources should be diverted to addressing the root causes and stopping errors and near misses happening, rather than correcting them once they have been made.

Learning when things go wrong

There are generally good processes to learn from medication errors and systems failures related to medicines although we were told that certain types of incidents are not being recorded

120. 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 20 shows the number of medication-related incidents reported as a percentage of all incidents reported to the NRLS.

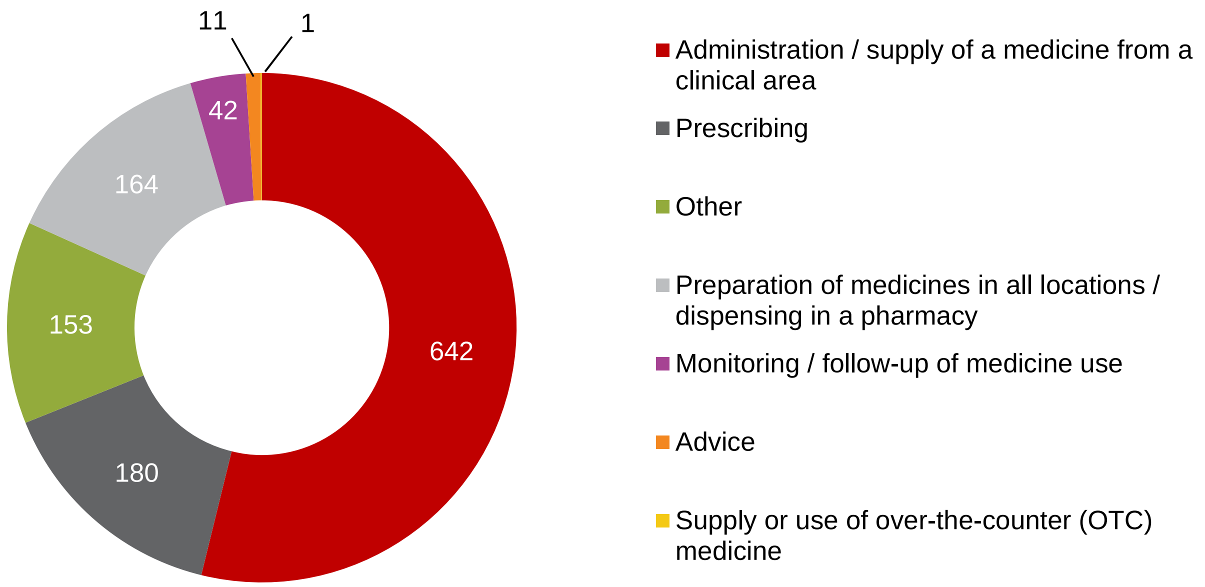
Exhibit 20: Since 2008, there has been a reduction in the proportion of incidents that were medication related. The rate is now just above the Welsh average



Source: National Reporting and Learning System (NRLS), NHS Commissioning Board Special Health Authority. Data for 2014 include incidents reported before 31 March 2014.

121. Exhibit 21 shows the types of medication-related incidents that were reported by the Health Board to the NRLS over a six year period to March 2014. 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 21: 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*

122. In our survey, 74 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', 74 per cent agreed or strongly agreed (compared with 70 per cent across Wales).

123. 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. We were told that nursing staff and pharmacists are confident in reporting medication errors and adverse reactions using the Datix incident reporting system although medical staff are less likely to use Datix. However, interviews with senior pharmacists suggest near misses are not always reported through Datix. As interventions by pharmacists are relatively common (as shown in paragraph 119), we were told that unless an untoward incident had happened, these incidents would not be reported in Datix.

124. The Health Board investigates all incidents reported on Datix. A lead pharmacist in each hospital reviews all incidents where medications are involved and will provide additional advice and information to the lead investigator. The Health Board has undertaken work to look at what medications are involved in incidents across all their hospitals. In our interviews we were told that Datix is cumbersome and difficult to use to generate local reports that could show patterns although they are uncovering issues with the newer anticoagulants.

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[41] has calculated that 4 in 100 hospital bed days are caused by adverse drug reactions in the United Kingdom. In the Health Board, adverse reactions represent an approximate cost of £6.1 million per year in bed days alone[42].

126. When patients experience adverse reactions as a result of their medicines, staff should report these events to the Medicines and Healthcare Products Regulatory Agency via the Yellow Card Scheme. In this Health Board in 2013-14, hospital pharmacists and doctors reported adverse reactions in equal measure, with nurses and other healthcare professionals contributing to a lesser extent. Our clinical pharmacy review identified seven occasions where pharmacy teams identified symptoms of potential adverse drug reactions or side-effects when reviewing patients. This represents a rate of 11 occurrences for every 1,000 patients reviewed, nearly twice the rate seen across Wales (six occurrences per 1,000 patients reviewed).

127. In our survey, 48 per cent of pharmacy staff, 37 per cent of doctors and 15 per cent of nurses agreed or strongly agreed with the statement 'Use of the Yellow Card Scheme is promoted effectively in this Health Board'. This compared with 59 per cent of pharmacy staff 31 per cent of doctors and 29 per cent of nurses[43] across Wales. In 2013 the Health Board appointed the Lead Clinical Development Pharmacist as the Yellow Card champion to promote the use of yellow card reporting. The Health Board now has a champion based in each department and they are teaching doctors about the importance of completing Yellow Cards. While our survey found a slightly higher proportion of doctors in the Health Board think that the Yellow Card Scheme is promoted effectively compared to Wales, the overall rate is still low. There may be an opportunity to further promote the Yellow Card Scheme to increase the contribution made by nurses and other healthcare professionals.

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[44]. The Health Board has a Medication Event Review Group (MERG) which is a sub group of the MMG Sub Committee. The MERG aims to review all reported errors and near misses involving medication, which includes prescribing, preparation, dispensing and administration of medication; the aim being to prevent similar near misses/errors reoccurring. This group meets regularly and has strong pharmacist and nursing representation. Learning from incidents is addressed through global emails, newsletters and dissemination routes for nurses and doctors. However, at the time of our audit, MERG was struggling to attract medical representation. Ensuring multi-professional engagement and Health Board-wide learning from a group with such a limited membership may present a challenge. The Health Board should keep this group under review and continue with its efforts to recruit medical representation.

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

[42] Stats Wales data shows that the total number of bed days in the Health Board in 2013-14 was 371,351 and the cost of an inpatient bed day across Wales is £413 on average.

[43] 40 per cent of nurses said they did not know.

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

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. The tool was an Excel-based spreadsheet.
Document request	We requested and reviewed approximately 24 documents from the Health Board.
Clinical pharmacy review	The clinical pharmacy review was completed by pharmacy teams on the following wards: • Bronglais General Hospital – Ceredig East, Clinical Decision Unit • Glangwili General Hospital – CCU, Derwen • Withybush General Hospital – ACDU, Ward One • Prince Philip Hospital – Clinical Decision Unit, Ward One The tool aimed to record activity of pharmacy teams during ward visits.
Interviews	We interviewed a small number of staff including: Head of Medicines Management, County Leads for Pharmacy and Medicines Management, Hospital Pharmacists, Medical Director, Director of Nursing, and ward managers.
Walkthroughs	We visited all acute hospitals within the Health Board where we carried out an observation within the hospital pharmacy/dispensary. We also visited the following wards where we spoke to staff and carried out a drug chart review: • Bronglais General Hospital – Ceredig Ward • Glangwili General Hospital – Teifi Ward, Coronary Care Unit • Withybush General Hospital – Acute Clinical Decision Unit, Medical Admissions Unit • Prince Philip Hospital – Care of the Elderly, Elective Orthopaedics
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 39 responses from doctors (26 of whom were consultants). Across Wales we received 413 responses from doctors. In the Health Board we received 56 responses from nurses (and across Wales we received 377 responses from nurses).
Survey of pharmacy staff	We carried out an online survey pharmacy staff to ask their views on the effectiveness of medicines management within the organisation. We received 59 responses in total, with 17 staff based at Bronglais General Hospital, 22 based at Glangwili General Hospital, 9 based at Prince Philip Hospital and 11 based at Withybush General Hospital. 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.

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