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Review of Medical Equipment

Cardiff & Vale University Health Board

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The team who delivered the work comprised Anne Beegan, Sara Utley and Sian Davies.

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Day to day maintenance of medical equipment is well managed by the Clinical Engineering department, however medical equipment does not have a high profile in the UHB and the overall management arrangements need to be strengthened to ensure that the limited funds available are prioritised appropriately.

Summary

Introduction

1. Health bodies typically own and maintain thousands of items of medical equipment. Medical equipment can perform numerous functions such as diagnosis, prevention, monitoring, investigation and treatment. It is therefore vital that health bodies manage their medical equipment in such a way as to ensure patient safety and high quality care. Medical equipment, as defined by the National Audit Office, includes all medical devices connected to patients as part of their treatment and care in hospital, and medical devices used for diagnostic and laboratory purposes.

2. Previous reviews by the Wales Audit Office have raised concerns about the age and management of medical equipment in Cardiff and Vale University Health Board (the UHB):

- Our 2011 review of Operating Theatres and Day Surgery highlighted concerns around the maintenance of equipment and the need to ensure a robust equipment replacement programme. Our survey of theatre staff, as part of that review, also highlighted concerns about the reliability of theatre equipment. The report recommended that further work was required to standardise procurement practices regarding equipment and new performance measures were required in relation to equipment.
- Our review of Endoscopy Services in 2007 also raised concerns about the age of equipment and recommended that the UHB assesses and identifies the risks of the use of out-dated equipment and takes action to mitigate those risks.

3. Discussions between the Wales Audit Office and UHB officials indicated that the UHB itself had concerns about the age and management of medical equipment within the organisation. In response to this, we undertook a local review, which examined the UHB's approach to the management of medical equipment and sought to answer the question '*Is the UHB managing its medical equipment effectively*?'.

4. For the purposes of this review, we have focussed on medical devices directly connected to patients, and not diagnostic services in order to keep the review manageable, however the messages from this review will apply. The review has also focused on corporate arrangements as well as a drill down into a number of Clinical Boards and directorates which were considered high users of medical equipment. These included the Clinical Diagnostics and Therapies, and Specialist Services Clinical Boards, and more specifically Radiology, Critical Care and Cardiology.

Our main findings

5. Our overall conclusion is that day to day maintenance of medical equipment is well managed by the Clinical Engineering department. However, medical equipment does not have a high profile within the UHB and the overall management arrangements need to be strengthened to ensure that the limited funds available are prioritised appropriately.

6. The detailed findings from this review were presented to the Director of Finance and Director of Therapies and Health Science on August 21 and are included in Appendix one of this report. The main findings are summarised below.

Despite Clinical Engineering maintaining equipment well, there is a lack of engagement amongst the Clinical Boards and available monies are not always well spent

7. There is a lack of engagement in medical equipment issues across the Clinical Boards. Corporate departments and estates are not sharing risks or communicating effectively and there was very limited involvement from Clinical Boards in the completion of Healthcare Standard 16 – Medical Devices. The lack of cross UHB communication has created issues, which has impacted on the replacement costs for equipment, such as the UHB's MRI scanners, which are essentially now "trapped" following new site developments meaning replacing these machines has become a significant problem.

8. Despite positively having a Medical Equipment Management Group (MEMG) in place, it is not functioning well. The group lacks prominence, has unclear reporting lines and the current membership does not enable decision-making. The MEMG reports to the Capital Equipment Strategy Group, however this group has not met, as it has no capital monies to allocate. Additionally the recent revision to the Board's Quality and Safety Committee has meant that the minutes of the MEMG are no longer received. Therefore, the scrutiny of this group is unclear.

9. The known lack of discretionary monies is leading to disengagement from systems, poor decision making and inequities. Discussions within the UHB focus on new equipment rather than replacing fully depreciated equipment, and submissions for discretionary funding are submitted annually without a clear process of prioritisation linked to strategic planning or clinical risk. Arrangements for the use of charitable funds are in place, but not all Clinical Boards have access to this type of funding potentially leading to inequity.

10. Lack of contingency funds need to be addressed. Failures of equipment potentially affect service provision. At the time of our review, the breakdown of a fully depreciated x-ray machine at Barry Hospital Minor Injuries Unit was affecting the service, potentially meaning the redirection of patients to the main emergency unit at University Hospital of Wales (UHW).

11. There is no strategic approach to the replacement of items below £5,000. The UHB has many items below the capital threshold, such as weighing scales. There needs to be clarity of the responsibility and management of the risk with these items.

12. Equipment is well managed, but there is an emerging maintenance backlog and no plans for staff succession. Staff report high levels of satisfaction with the service provided by the Clinical Engineering department, and the library service is a good use of resources. However, there has been a slight increase in the Planned Preventative Maintenance backlog, and an ageing workforce within Clinical Engineering means succession planning now is important.

Medical equipment is recognised as a corporate risk although steps need to be taken to triangulate financial information, incidents and equipment condition to ensure objectives are achieved

13. Although the corporate risk register has recognised the extreme risk that medical equipment poses for the UHB, some controls are not functioning adequately. Incidents relating to equipment are not informing local risk registers, the Capital Equipment Strategy Group has not met and some mitigating actions reflect the old committee structures.

14. There is no single inventory for medical equipment in the UHB. The UHB's asset register is in place however this only captures capital items (i.e. those over £5,000). The picture below £5,000 is less clear with confusion over the responsibility and ownership of some equipment. The Clinical Engineering department maintain the Medusa System, which monitors maintenance of equipment and contains information on all items maintained through the department but there is a lack of information on all the monetary values, which means it is difficult to calculate replacement costs accurately. The lack of one source of complete information makes an accurate reflection of the position on fully depreciated equipment challenging.

15. There are a number of items of equipment which are managed outside the core medical equipment arrangements, such as wheelchairs, patient beds and hoists which need to be clarified.

16. Total value, replacement cost and impact on quality of service provision are unknown. The UHB has estimated the cost to replace out of life equipment at £48 million but this does not include equipment under £5,000. Calculations also do not recognise the clinical risks presented by fully depreciated equipment or any clinical incidents associated with equipment. The UHB also does not have a clear picture on what equipment will need replacing within the next six months or the equipment it needs to support the delivery of its strategy.

17. Equipment related incidents are recorded but are not well communicated nor do they inform risk management. Despite a wealth of information, scrutiny of incident reporting by Clinical Boards is generally weak, although we found that Critical Care had a positive model in place. Additionally incident information is not informing the statement of needs submitted to obtain replacement equipment.

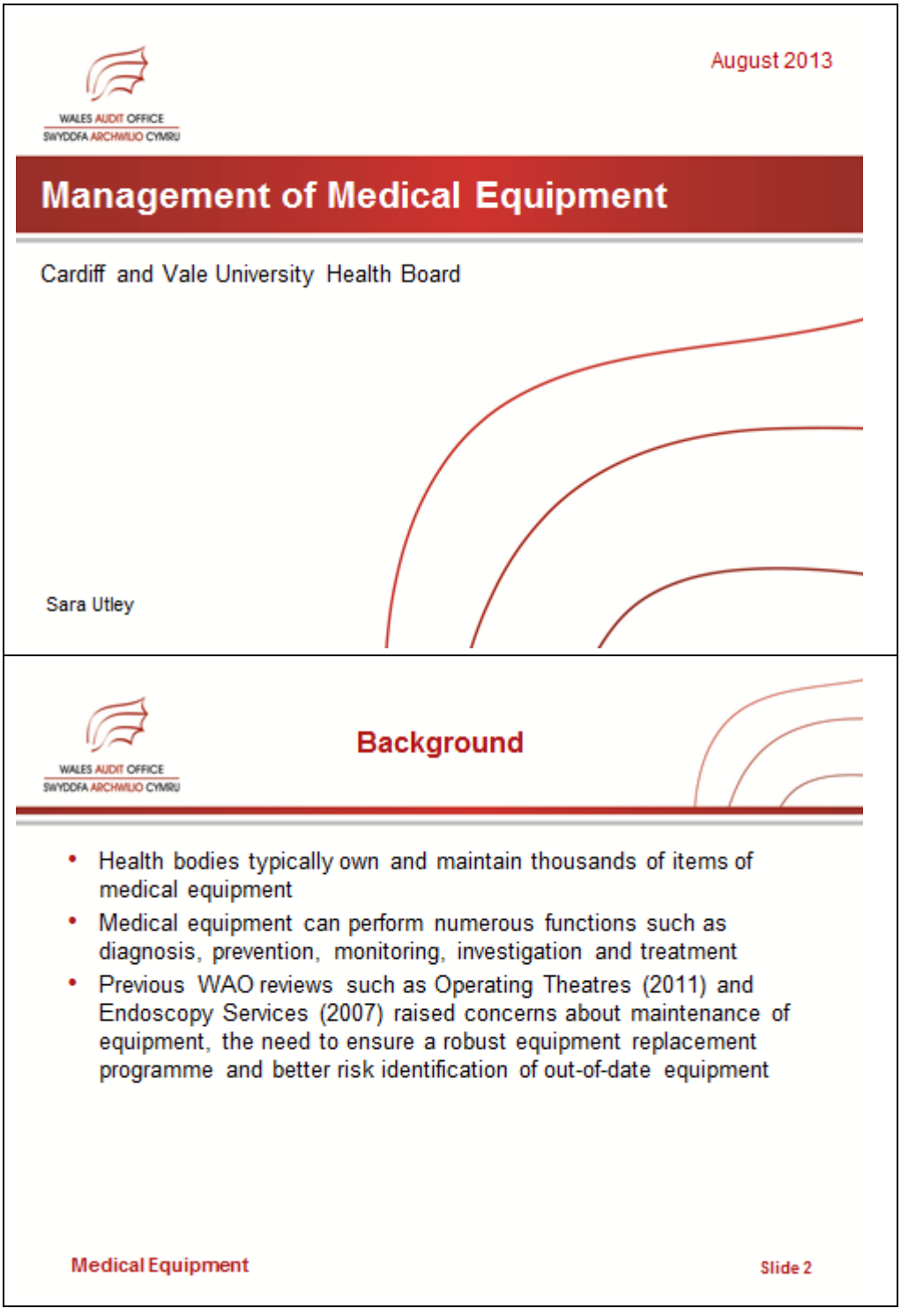
Recommendations

18. Our work has identified a number of recommendations. These are detailed below:

Assurance and Internal Control Processes	
R1	Strengthen assurance and internal controls for the management of medical equipment by putting in place effective committee structures at both the strategic and operational level to ensure clinical boards engage with medical equipment issues and address clinical risk.
Medical Equipment Inventory	
R2	A single inventory of equipment needs to be established, which brings together all the key data items and assesses clinical risk of out of life equipment both above and below £5,000.
Equipment Replacement	
R3	Develop a UHB wide strategic approach to prioritisation of equipment replacement needs ensuring collaboration, consultation and engagement of all areas.
Incidents	
R4	Put in place systems and processes to ensure incidents relating to equipment are fed through to Clinical Boards.
Management of wheelchairs	
R5	Develop a clear approach for the management of standard wheelchairs across the UHB.
Integrated working	
R6	Develop a strategic site plan to ensure that Information Technology, Estates and Equipment collaborate and undertake whole life costing of equipment replacement.
Pathology services	
R7	Ensure that pathology services, in relation to medical equipment, are scrutinised, as these were external to this review

Appendix 1

Presentation of detailed findings to Director of Finance and Director of Therapies and Health Science, 21 August 2013



August 2013

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SWYDDFA ARCHWILIO CYMRU

Management of Medical Equipment

Cardiff and Vale University Health Board

Sara Utley

WALES AUDIT OFFICE
SWYDDFA ARCHWILIO CYMRU

Background

- Health bodies typically own and maintain thousands of items of medical equipment
- Medical equipment can perform numerous functions such as diagnosis, prevention, monitoring, investigation and treatment
- Previous WAO reviews such as Operating Theatres (2011) and Endoscopy Services (2007) raised concerns about maintenance of equipment, the need to ensure a robust equipment replacement programme and better risk identification of out-of-date equipment

Medical Equipment

Slide 2

Approach

- Aim of the review to answer the question: 'Is the UHB managing its Medical Equipment effectively?'
- We have used the NAO definition – '*medical equipment includes all medical devices connected to patients as part of their treatment*'
- Laboratory equipment has been excluded
- Scope included corporate arrangements as well as a drill down into a number of clinical boards and directorates:
  - Clinical Diagnostics and Therapeutics
    - Radiology
  - Specialist Services
    - Critical Care and Cardiology

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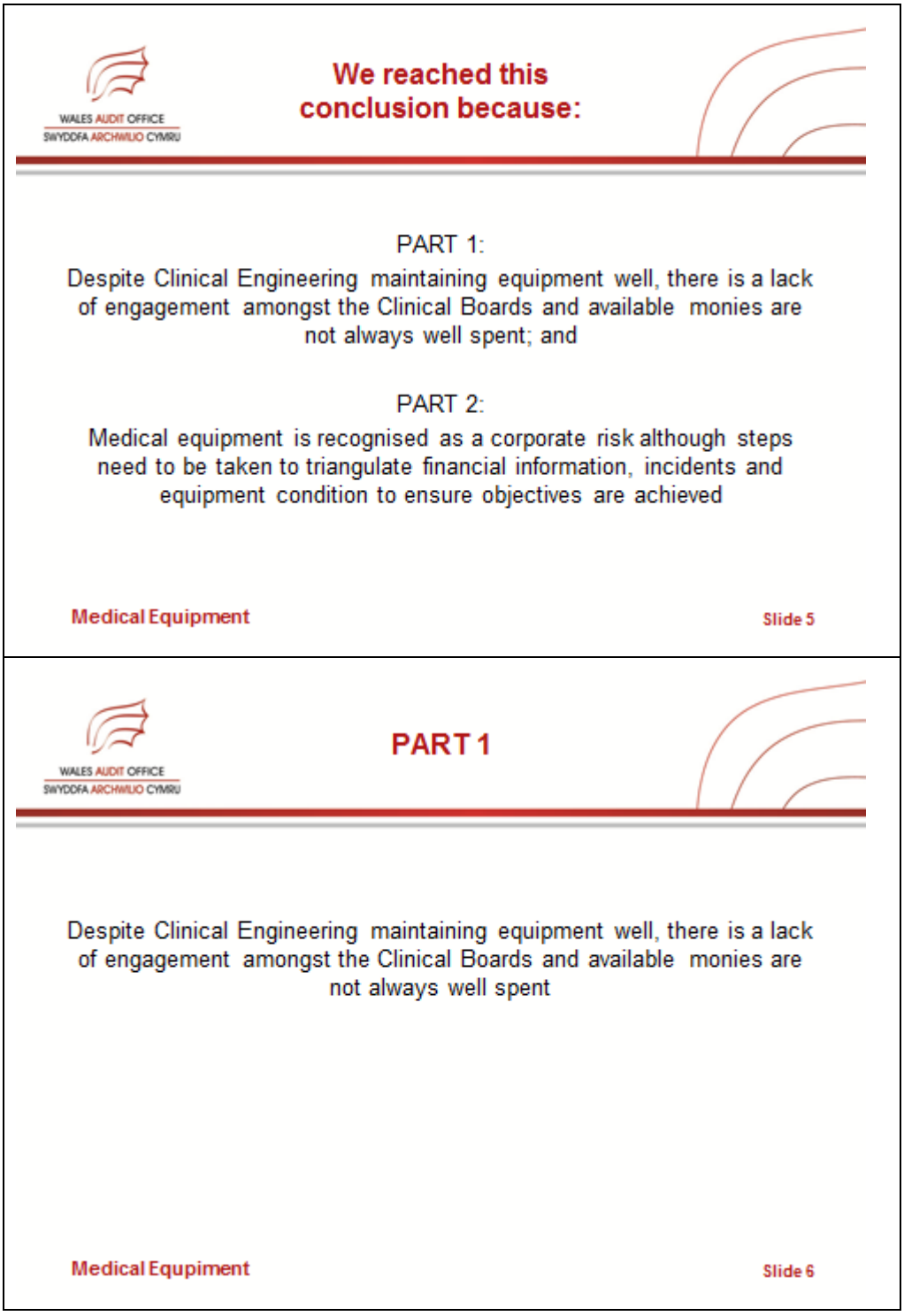
Overall conclusion

Day to day maintenance of medical equipment is well managed by the Clinical Engineering department, however medical equipment does not have a high profile in the UHB and the overall management arrangements need to be strengthened to ensure that the limited funds available are prioritised appropriately

Medical Equipment Slide 4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We reached this conclusion because:
PART 1:
Despite Clinical Engineering maintaining equipment well, there is a lack of engagement amongst the Clinical Boards and available monies are not always well spent; and
PART 2:
Medical equipment is recognised as a corporate risk although steps need to be taken to triangulate financial information, incidents and equipment condition to ensure objectives are achieved
Medical Equipment
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PART 1
Despite Clinical Engineering maintaining equipment well, there is a lack of engagement amongst the Clinical Boards and available monies are not always well spent
Medical Equpiment
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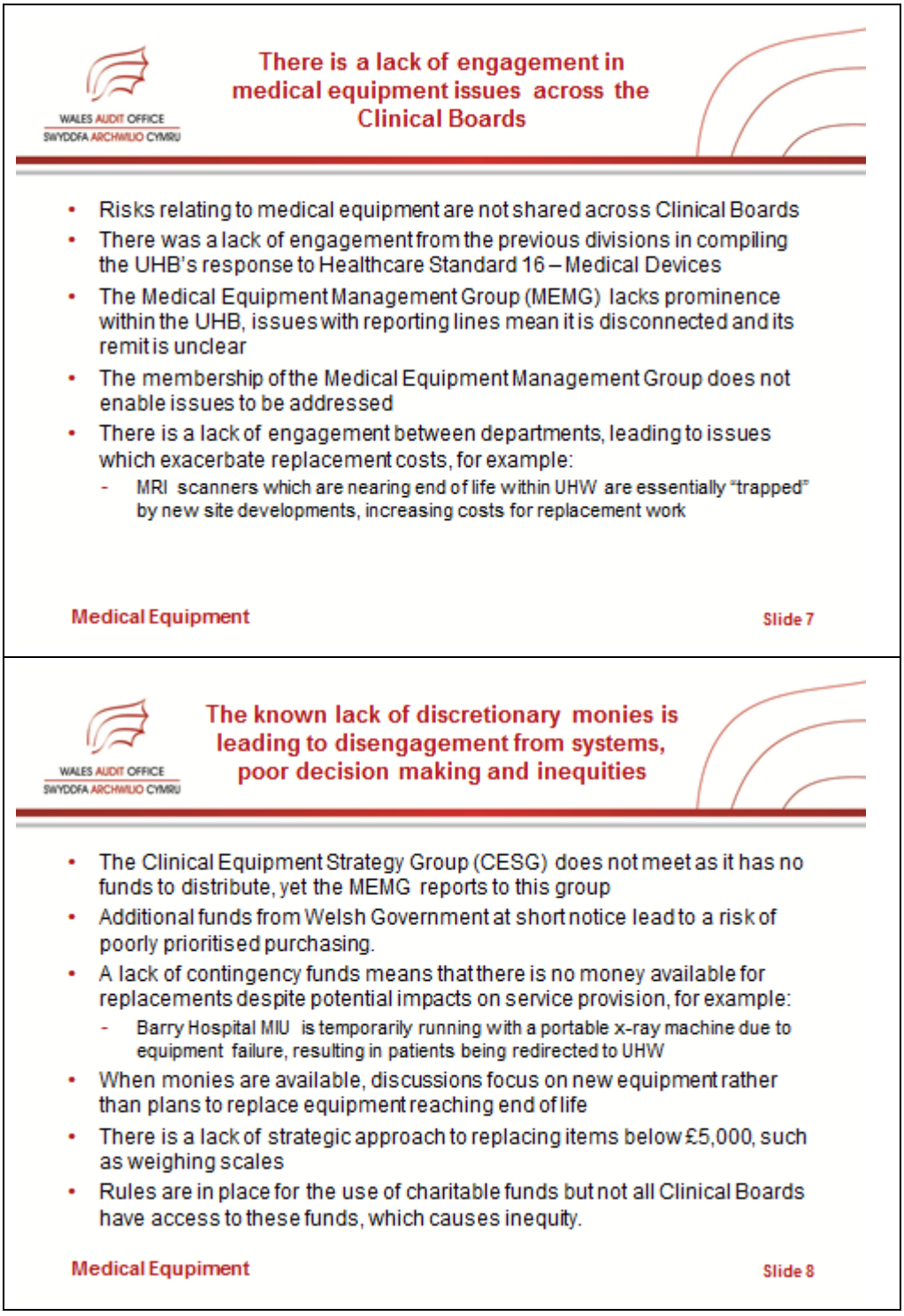
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There is a lack of engagement in medical equipment issues across the Clinical Boards
Risks relating to medical equipment are not shared across Clinical Boards
There was a lack of engagement from the previous divisions in compiling the UHB's response to Healthcare Standard 16 – Medical Devices
The Medical Equipment Management Group (MEMG) lacks prominence within the UHB, issues with reporting lines mean it is disconnected and its remit is unclear
The membership of the Medical Equipment Management Group does not enable issues to be addressed
There is a lack of engagement between departments, leading to issues which exacerbate replacement costs, for example:
MRI scanners which are nearing end of life within UHW are essentially "trapped" by new site developments, increasing costs for replacement work
Medical Equipment
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The known lack of discretionary monies is leading to disengagement from systems, poor decision making and inequities
The Clinical Equipment Strategy Group (CESG) does not meet as it has no funds to distribute, yet the MEMG reports to this group
Additional funds from Welsh Government at short notice lead to a risk of poorly prioritised purchasing.
A lack of contingency funds means that there is no money available for replacements despite potential impacts on service provision, for example:
Barry Hospital MIU is temporarily running with a portable x-ray machine due to equipment failure, resulting in patients being redirected to UHW
When monies are available, discussions focus on new equipment rather than plans to replace equipment reaching end of life
There is a lack of strategic approach to replacing items below £5,000, such as weighing scales
Rules are in place for the use of charitable funds but not all Clinical Boards have access to these funds, which causes inequity.
Medical Equpiment
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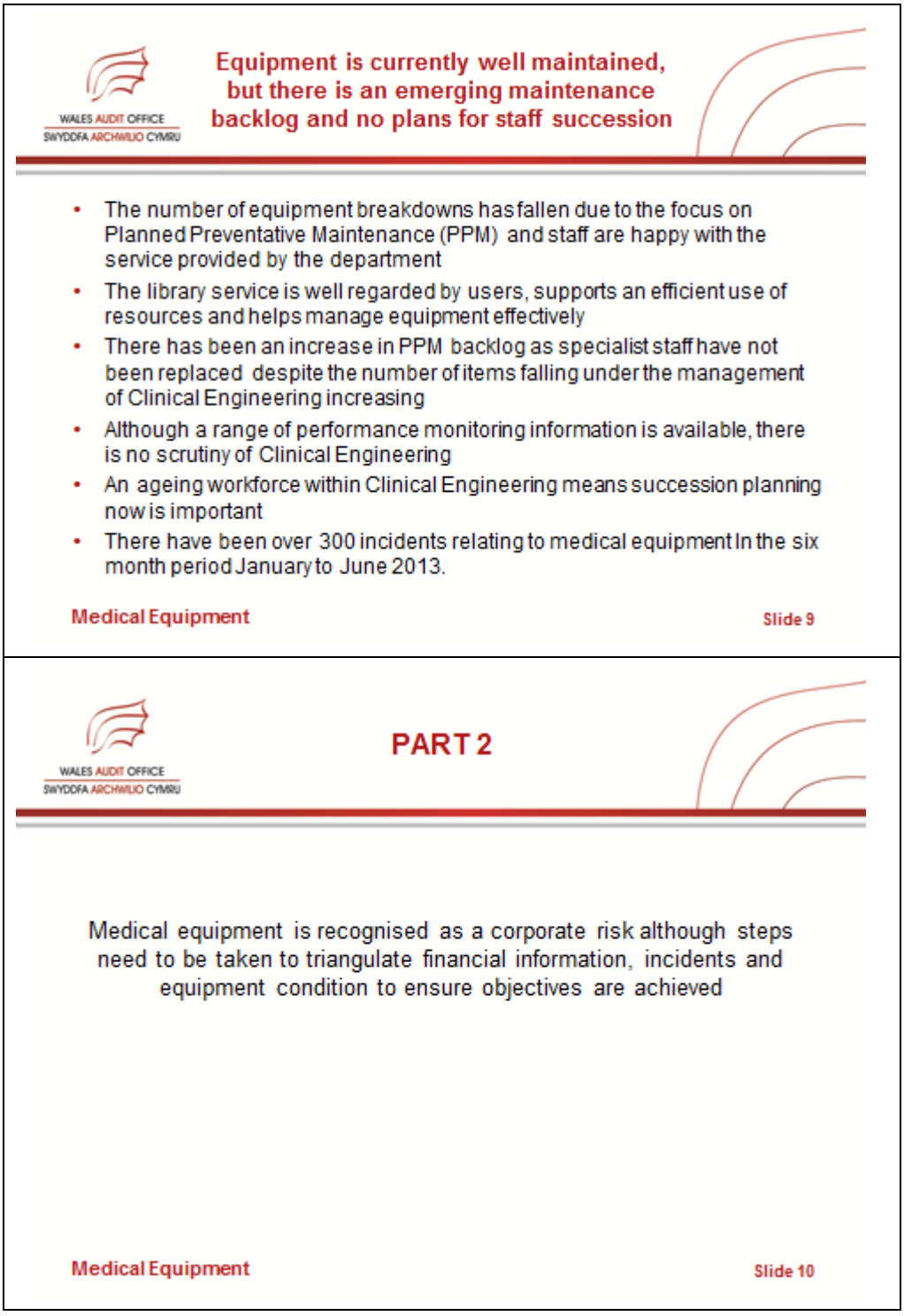
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Equipment is currently well maintained, but there is an emerging maintenance backlog and no plans for staff succession
The number of equipment breakdowns has fallen due to the focus on Planned Preventative Maintenance (PPM) and staff are happy with the service provided by the department
The library service is well regarded by users, supports an efficient use of resources and helps manage equipment effectively
There has been an increase in PPM backlog as specialist staff have not been replaced despite the number of items falling under the management of Clinical Engineering increasing
Although a range of performance monitoring information is available, there is no scrutiny of Clinical Engineering
An ageing workforce within Clinical Engineering means succession planning now is important
There have been over 300 incidents relating to medical equipment In the six month period January to June 2013.
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PART 2
Medical equipment is recognised as a corporate risk although steps need to be taken to triangulate financial information, incidents and equipment condition to ensure objectives are achieved
Medical Equipment
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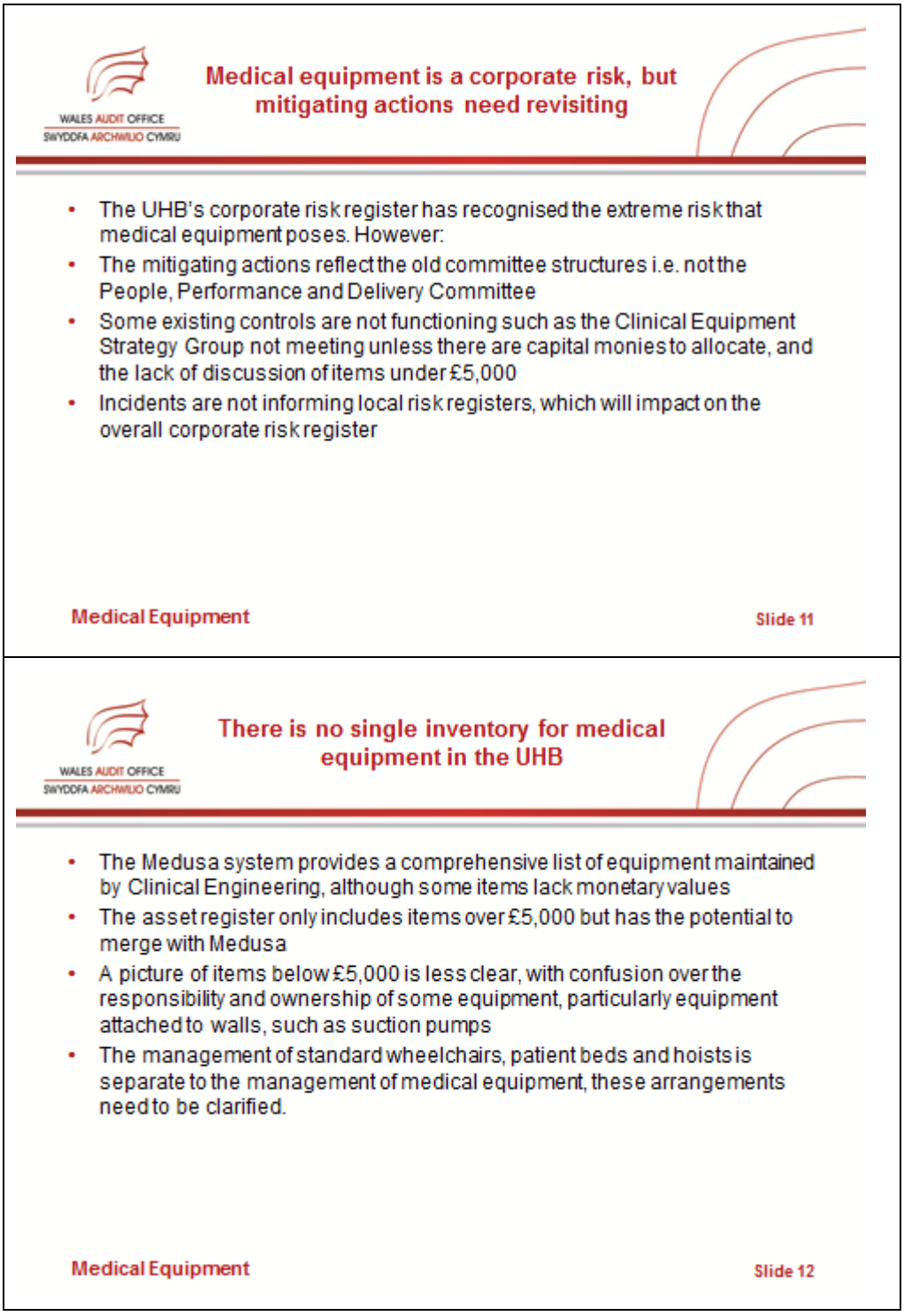
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Medical equipment is a corporate risk, but mitigating actions need revisiting
The UHB's corporate risk register has recognised the extreme risk that medical equipment poses. However:
The mitigating actions reflect the old committee structures i.e. not the People, Performance and Delivery Committee
Some existing controls are not functioning such as the Clinical Equipment Strategy Group not meeting unless there are capital monies to allocate, and the lack of discussion of items under £5,000
Incidents are not informing local risk registers, which will impact on the overall corporate risk register
Medical Equipment
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There is no single inventory for medical equipment in the UHB
The Medusa system provides a comprehensive list of equipment maintained by Clinical Engineering, although some items lack monetary values
The asset register only includes items over £5,000 but has the potential to merge with Medusa
A picture of items below £5,000 is less clear, with confusion over the responsibility and ownership of some equipment, particularly equipment attached to walls, such as suction pumps
The management of standard wheelchairs, patient beds and hoists is separate to the management of medical equipment, these arrangements need to be clarified.
Medical Equipment
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Total value, replacement cost and impact on quality of service provision are unknown

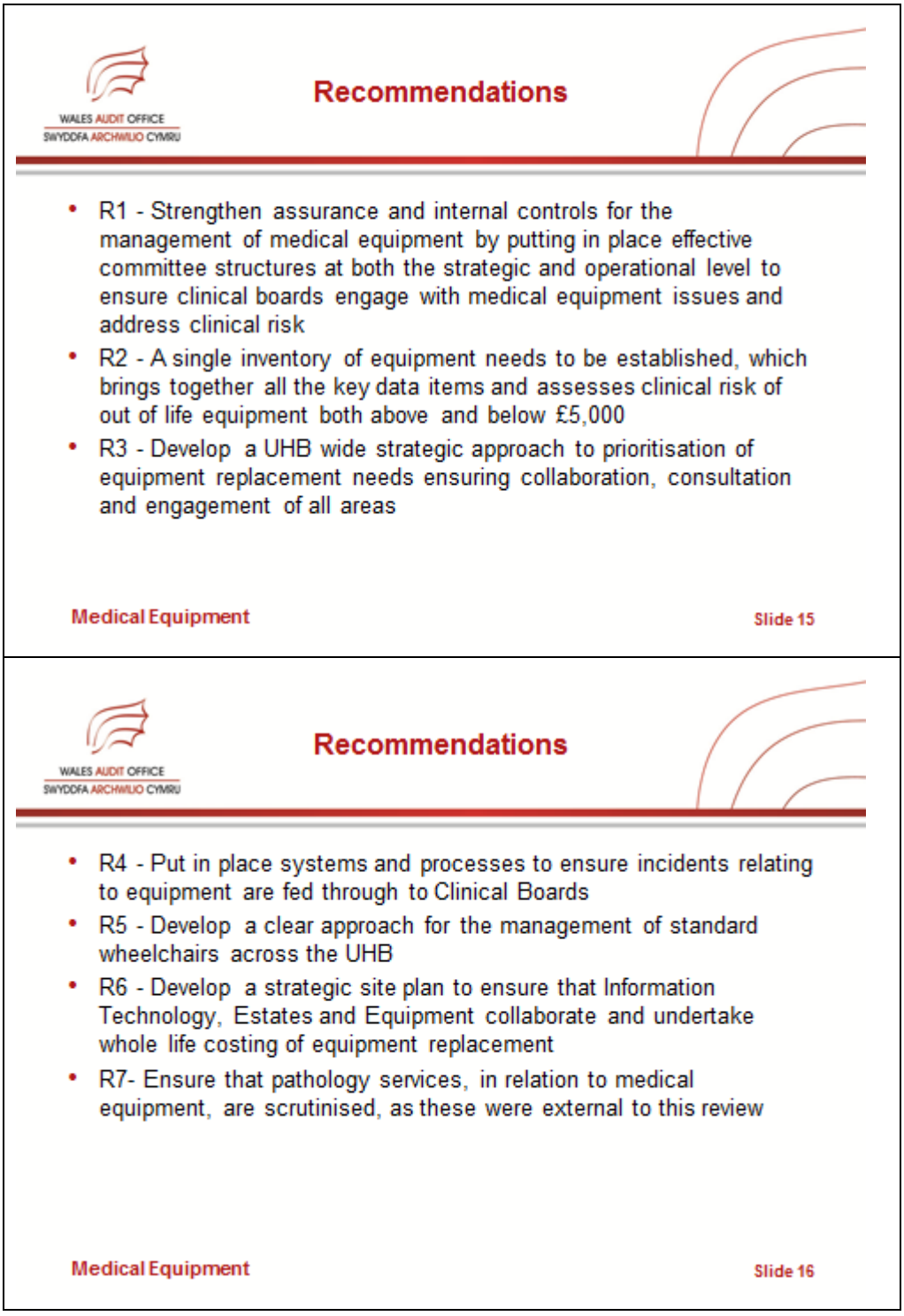
- The UHB has estimated its out of life replacement cost as £48 million but this does not include equipment under £5,000
- There is no recognition of the clinical risks presented by the impact of fully depreciated equipment and consideration of clinical incidents relating to fully depreciated equipment has not been made
- There is no clear picture on what equipment will need replacing within the next six months
- Equipment needs to support the delivery of the UHB's strategy have not been identified.

Medical Equipment Slide 13

Equipment related incidents are recorded but are not well communicated nor do they inform risk

- Although the Patient Safety Manager is able to identify themes and trends from incidents, a lack of capacity affects the ability to disseminate this information
- Reported incidents involving medical equipment are not communicated with Clinical Engineering to ensure that old or broken down equipment are not contributory factors. In the six month period January to June 2013, there were 346 incidents relating to medical equipment
- Incidents are not being used to inform the statement of need submitted to discretionary funds for capital monies
- Scrutiny of incident reporting by Clinical Boards is generally weak, although the Critical Care directorate have a positive model in place

Medical Equipment Slide 14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Recommendations
R1 - Strengthen assurance and internal controls for the management of medical equipment by putting in place effective committee structures at both the strategic and operational level to ensure clinical boards engage with medical equipment issues and address clinical risk
R2 - A single inventory of equipment needs to be established, which brings together all the key data items and assesses clinical risk of out of life equipment both above and below £5,000
R3 - Develop a UHB wide strategic approach to prioritisation of equipment replacement needs ensuring collaboration, consultation and engagement of all areas
Medical Equipment
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Recommendations
R4 - Put in place systems and processes to ensure incidents relating to equipment are fed through to Clinical Boards
R5 - Develop a clear approach for the management of standard wheelchairs across the UHB
R6 - Develop a strategic site plan to ensure that Information Technology, Estates and Equipment collaborate and undertake whole life costing of equipment replacement
R7- Ensure that pathology services, in relation to medical equipment, are scrutinised, as these were external to this review
Medical Equipment
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