GIG CYMRU NHS WALES
Partneriaeth Cydwasanaethau
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Shared Services Partnership
Specialist Estates Services

NHS Estate in Wales

Fire Statistics Report

Fire Incidents and Unwanted Fire Signals 2022

NHS ESTATE IN WALES

FIRE STATISTICS REPORT

2022

Report by

NWSSP - Specialist Estates Services
for the
Welsh Government
on

Fire Incidents and Unwanted Fire Signals 2022

JOB NO: **WG/FI/149**

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CONTENT

1.0 INTRODUCTION

1.1 The effects of fire in any building can be very serious. However, in healthcare premises, fires can have a greater impact due to the presence of large numbers of mobility impaired, vulnerable and dependent patients. Furthermore, it is widely acknowledged that the NHS as a business sector, generates the largest proportion of Unwanted Fire Signals (UwFS) attended by the Fire & Rescue Services (FRS). This can be disruptive to both the patients' well-being and a waste of resources for the NHS and attending FRS. The very high quantity of automatic fire detection throughout the NHS estate, as required by Firecode and British Standards, has a bearing on the number of UwFS.

1.2 This report builds upon the findings and recommendations of the previous report for 2021, published by NHS Wales Shared Services Partnership - Specialist Estates Services (NWSSP - SES) in February 2022. It provides a detailed account of all fire incidents and UwFS reported for the calendar year 1st January 2022 - 31st December 2022, via the online *Fire & UwFS Incident Reporting System.* During this period, a total of 37 fire incidents and 1535 UwFS were reported by NHS Wales.

1.3 This report reinforces the initiatives and recommendations made in previous reports, aimed at supporting NHS Wales in continuing its endeavours to manage and mitigate these adverse incidents.

1.4 For clarification purposes, a false alarm becomes an UwFS when that call is relayed to the FRS. As this report is aimed at reducing the incidence of both fires and fire alarm activations, there will be no differentiation between false alarms and UwFS in this report.

2.0 EXECUTIVE SUMMARY

2.1 There were 37 reported fire incidents during 2022, a 16% increase over the 32 fire incidents reported in 2021. The number of UwFS also rose from 1392 to 1535, representing a 10% increase on the previous year's data. This upward trend may reflect the increase in numbers of people on healthcare sites following the Covid-19 Pandemic.

2.2 Analysis of the fire incidents and UwFS data has indicated some significant trends supporting a number of recommendations, which are highlighted throughout this report.

2.3 Electrical and deliberate fires were the highest causes of fires in 2022 with 11 incidents in each category accounting for 30% respectively. The remaining fires were mainly attributed to the 'cooking' and 'unknown' cause category.

2.4 During 2022, the most significant causes of UwFS were recorded as, system related incidents 435, MCP activations 295, cooking 272 and other environmental effects 199.

2.5 The data also indicates that, for both fire incidents and UwFS, incidents associated with 'General Medical Wards', 'Staff Residences', 'Mental Health Wards' and 'Other Staff Areas', remain significant in a number of areas.

2.6 Whilst organisations are proactively attempting to mitigate fire incidents and UwFS, they are encouraged to continue following the current published standards and guidance contained in BS 5839-1[1], HTM 05-03B[2] and WHTM 05-03H[3].

[1] BS 5839-1:2017 Fire detection and alarm systems for buildings Part 1: Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises.
[2] HTM 05-03B Firecode Health Technical Memorandum 05-03 Operational Provisions Part B Fire detection and alarm systems.
[3] WHTM 05-3H Firecode Welsh Health Technical Memorandum 05-03 Part H Reducing false alarms in healthcare premises.

3.0 BACKGROUND

3.1 The online reporting system currently collects data concerning over 500 NHS buildings including almost 100 hospital sites. The online system shows that there are almost 120,000 actuation devices in the hospital sites alone. It should be noted that systems installed in some NHS premises, are antiquated and in need of replacement, which may have had an effect on the UwFS figures identified in this report.

3.2 Although an increase in the number of incidents has been identified in comparison to 2021, the high number of incidents does not necessarily reflect badly on the standards of fire alarm systems in healthcare premises, or on the standards of maintenance and control that exist. All NHS organisations have maintenance contracts in place for the servicing of fire alarm systems and the NHS is one of the major users of automatic fire detection in the UK. Therefore, statistically, the greater the number of detectors in use, the greater will be the number of UwFS.

3.3 The frequency of UwFS generated from healthcare premises continues to place an unnecessary strain on resources for both the NHS and the FRS. Furthermore, frequent UwFS can result in a loss of confidence in the fire alarm system, potentially leading to a lowering in the standard of fire safety.

3.4 Accordingly, it is essential that all installations are designed and maintained to avoid UwFS, as far as reasonably practicable. **However, avoidance of UwFS should never take precedence over the need for effective detection and early warning in the event of fire.**

3.5 In healthcare buildings, fire alarm systems should be provided in accordance with BS 5839-1, which is supplemented by Firecode HTM 05-03B[4]. These documents both require the installation of an L1 standard of alarm and detection. An L1 standard of coverage means all rooms are provided with automatic detectors with few exceptions.

3.6 Recognising the problem of UwFS in healthcare, WHTM 05-03H[4] of the Firecode suite of documents, focuses specifically on these issues and provides recommendations and guidance on the reduction of such incidents.

3.7 Within Wales, an online reporting system was introduced in 2003 to support the management of fire alarms as well as facilitate and standardise the reporting procedures for fire incidents and UwFS. The information contained in this report is based on the data reported by NHS organisations via this system.

[4] It should be noted that both WHTM 05-03 B and 05-03 H are currently under review.

4.0 FIRE LEGISLATION & FIRECODE

4.1 The Regulatory Reform (Fire Safety) Order 2005 (FSO), is the principal piece of legislation governing fire safety. It applies to virtually all premises in which persons are employed or to which members of the public resort and is based around the principle of fire risk assessment for the protection of 'relevant persons'. The legislation also requires the appointment of a 'Responsible Person' to assume overall responsibility for fire safety within each organisation and ensure compliance with statutory legislation. The legislation is administered by the local FRS.

4.2 Firecode WHTM 05-01 'Managing Healthcare Fire Safety', contains the Welsh Government's fire policy statement and outlines the mandatory requirements for the NHS in Wales, reflecting the requirements of the FSO. It also provides advice on managing fire safety in healthcare premises, and mandates NHS organisations to nominate a Board Level Director (accountable to the Chief Executive) and Fire Safety Manager to take the lead on all fire safety activities.

4.3 The policy aims to minimise the incidence of fire throughout the NHS estate in Wales and to minimise the impact of fire on life safety, delivery of service, the environment and property.

4.4 WHTM 05-01 recommends that the nominated Fire Safety Manager is responsible for ensuring fire incident reporting, monitoring and mitigation of UwFS, and monitoring of inspection and maintenance arrangements of fire safety systems. With regard to fire alarm systems, these responsibilities are outlined in BS 5839-1: Section 7. This recommends that a single named member of the premises management, should be appointed to supervise all matters pertaining to the fire alarm system and who should ensure that appropriate action is taken to limit the rate of UwFS. (Refer to BS 5839-1 Section 7 'User responsibilities' for full text).

4.5 The current edition of BS 5839-1 is dated 2017, whereas the supplementary healthcare guidance detailed in HTM 05-03B is dated 2006. This HTM is currently undergoing a review, due for publication during 2023.

4.6 It is accepted that, where installations incorporate a large number of automatic detectors, complete elimination of UwFS is unrealistic. This is recognised in BS 5839-1 and Firecode WHTM 05-03H, which provides performance indicators for acceptable rates of false alarms based on the number of devices in relation to the number of UwFS generated.

4.7 It follows that where circumstances meet the criteria laid down in BS 5839-1 Clause 32.2, in-depth investigations should be initiated, in order to achieve an acceptable rate of false alarms. Firecode also promotes regular stakeholder meetings at poor performing sites.

4.8 Appendix C of this report contains the performance grading chart. The performance grade is automatically calculated as part of the online reporting

system, based on the ratio of incidents to number of actuation devices installed. NHS organisations should ensure that the number of actuation devices recorded in the performance indicators, accurately reflects those installed within their premises. Appendix D contains details of the performance scores and target reduction for individual sites within the NHS organisations' respective areas.

4.9 Stakeholders, such as the National Fire Chiefs Council (NFCC) (formerly the Chief Fire Officers Association (CFOA)) and the British Fire Protection Systems Association (BFPSA), have taken a proactive approach to address UwFS, with the publication of such documents as *CFOA Guidance for the Reduction of False Alarms & Unwanted Fire Signals.*

4.10 In addition, over recent years the NFCC nationally, have produced a number of protocols aimed at reducing UwFS. Whilst these protocols have focussed attention on reducing UwFS, they have also contributed to an inconsistent approach from the FRS in responding to alarm signals. For example, across the UK some FRS's will not respond to automatic fire alarm actuations unless there is also a 999 call confirming a fire.

4.11 Previous reports have discussed the collaborative attempts of the three FRS's in Wales in working to achieve a consistent approach to the response to fire alarm incidents. Unfortunately, the previously developed protocol, titled *'Welsh Fire and Rescue Services Automatic Fire Alarm Protocol'* aimed at ensuring that calls to in-patient facilities would attract an emergency response under 'blue light' conditions is no longer applicable. Therefore, the mobilisation of appliances may vary according to the individual FRS; noting the location and type of premises, as well as the time the incident occurs, could also influence the FRS response.

4.12 Accordingly, regardless of whether the FRS are initially notified by a local 999 call, central telephonist or Alarm Receiving Centre (ARC), NHS organisations should liaise with their respective FRS to clarify the mobilisation arrangements and ensure that their own procedures reflect the anticipated FRS response.

4.13 To support the FRS, it is imperative that NHS organisations have efficient systems of communication in place to update the FRS on the status of an incident as soon as possible. For example, as soon as it is established that the incident is an UwFS, this should be transmitted to the FRS immediately in order that they can alter the response status of appliances attending the incident. Equally, when it is known or confirmed that a fire actually exists, this information should be relayed to the FRS without delay in order that they may increase their attendance as appropriate.

5.0 REVIEW OF DATA

5.1 FIRE INCIDENTS

During the three-year period from 1st January 2020 to 31st December 2022, a total of 109 fire incidents were reported, 37 of which occurred in 2022.

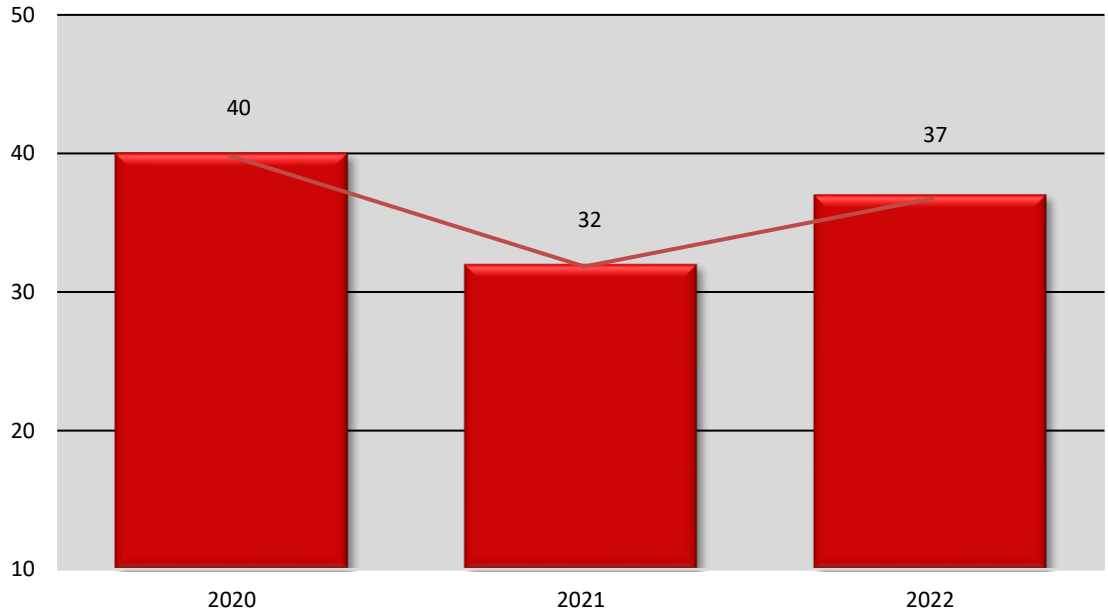


Figure 1 Fire incidents by year illustrating an increase during 2022

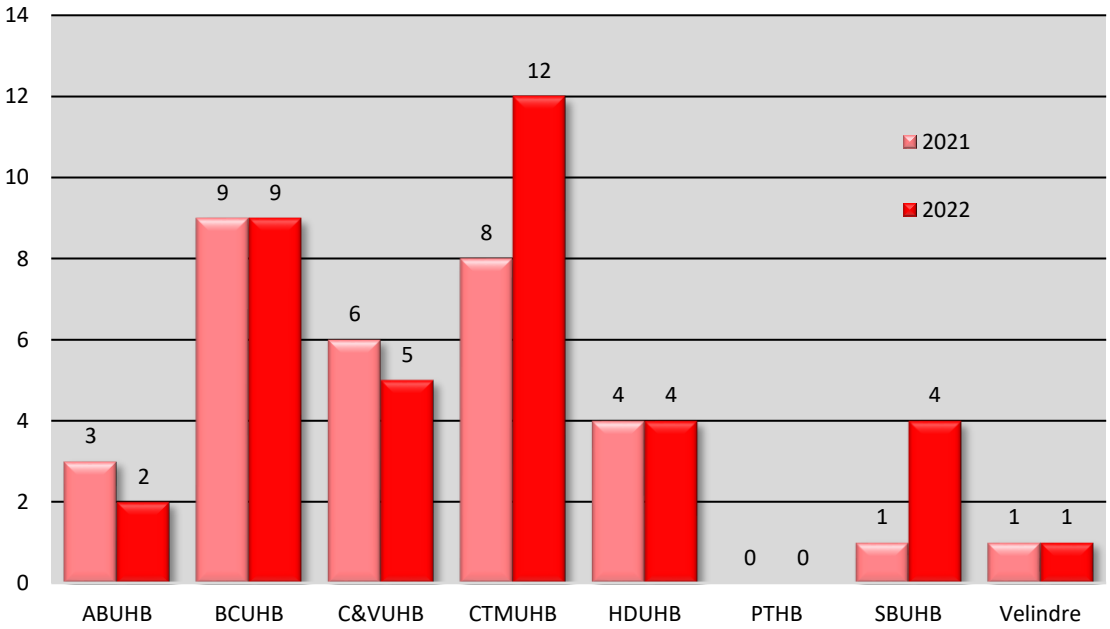


Figure 2 Fire incidents by Health Board 2021 - 2022

Once again, the majority of these fire incidents were dealt with promptly and efficiently by staff prior to the arrival of the FRS. However, costs associated

with several of the reported fire incidents ranged from £12,000 to £200,000, in addition to incidences of patients and staff sustaining minor injuries and burns.

This section looks firstly at the causes of fire incidents, followed by the materials first ignited, how the fires were discovered and finally, the method of extinguishment.

5.1.1 Cause of fire incidents

The following section looks at the main causes of fire incidents which are illustrated in Figures 3 and 4 below.

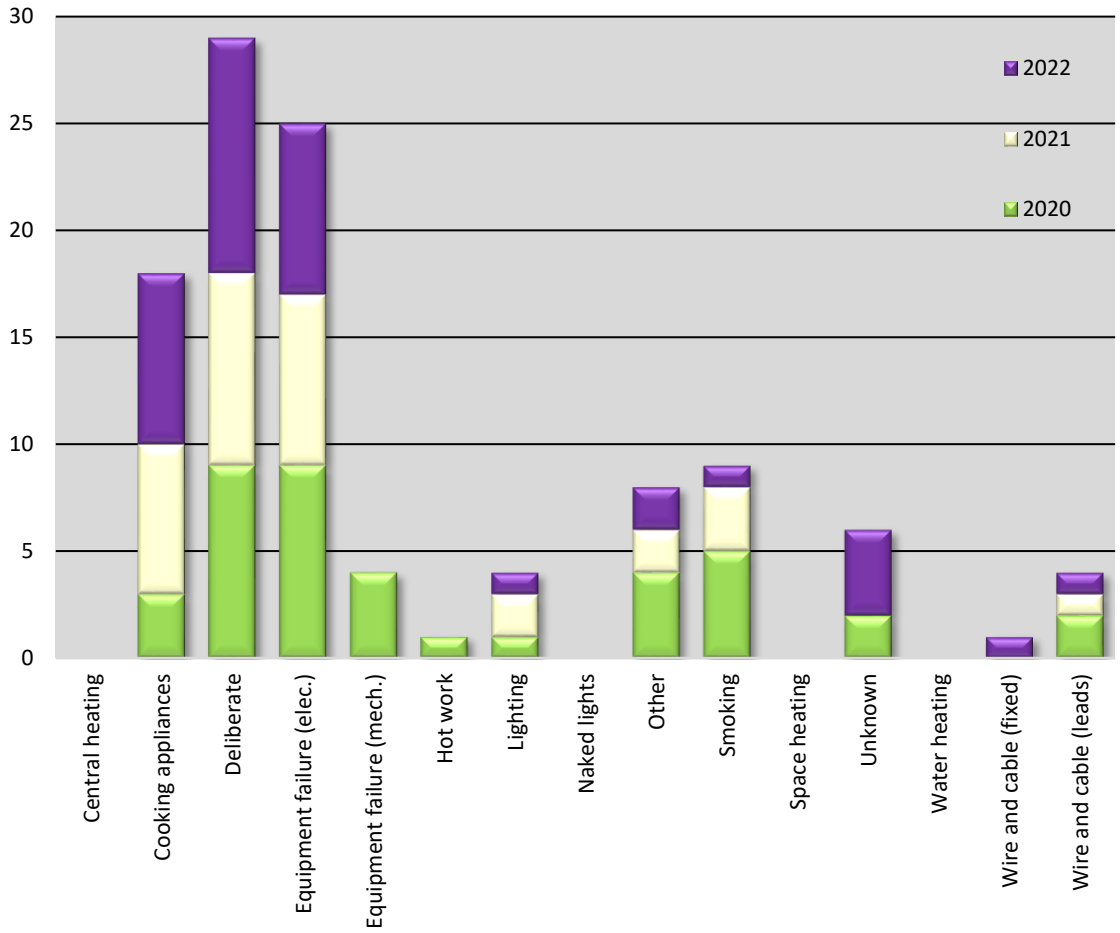


Figure 3 Fires by cause 2020 - 2022

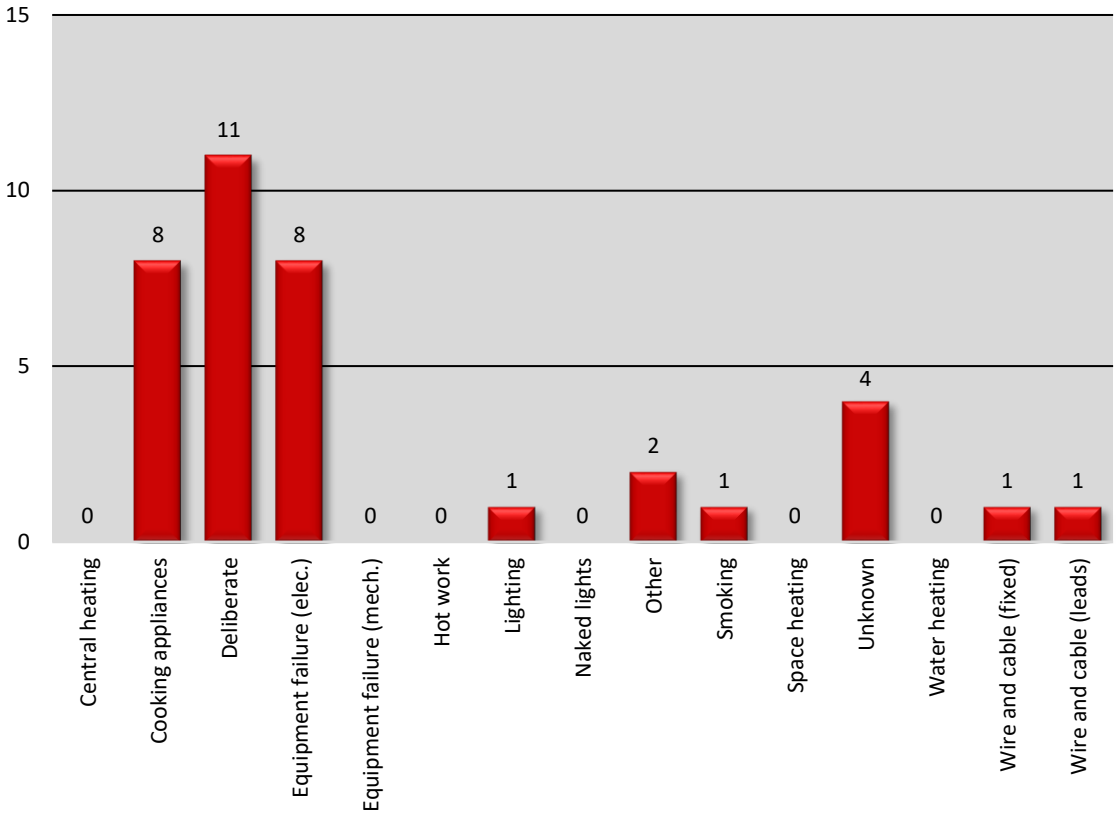


Figure 4 Fires by cause 2022

Figure 4 above shows the cause of fire incidents reported during 2022. These are analysed in depth in the following paragraphs. Appendix A contains a summary of incident causes by organisation.

5.1.2 Electrical equipment failure (including lighting and wiring) (11 incidents: 30%)

During 2022, 11 fires involving electrical equipment were reported, the same as the previous year. 'Electrical equipment failure' as a cause of fire, accounted for 30% of all reported fire incidents and remains one of the most frequent causes of fires in the NHS in Wales.

This category includes 'equipment failure (elec)', 'lighting' and 'wires & cable (fixed and leads)'. The continued pressure on maintenance budgets across the NHS in Wales presents a challenging environment for estates teams to maintain their planned maintenance schedules, including those of the electrical infrastructure, and Portable Appliance Testing (PAT).

NHS organisations should ensure that they comply with all statutory requirements for electrical inspection and testing.

Figure 5 Example of an electrical related fire involving a small portable fridge

Of the 11 'electrical-related' fire incidents, the majority remained confined to the individual item of equipment. However, there were two serious incidents which led to some significant and costly damage to office space on hospital premises and a complete loss of power to a hospital site for some considerable time.

The risks associated with personal rechargeable equipment such as mobile phones, tablets and e-cigarettes continue to be evident. Instances of patients utilising clinical equipment as charging points via USB connections, have also been reported. It should be noted that measures have been taken in some areas, with the introduction of bespoke charging cabinets, in an effort to manage the activity safely.

These risks and mitigating measures are addressed in WG EFA 2018/007[5] 'Fire risk from personal rechargeable electronic devices'. Of equal importance, WG EFA 2017/003[6] also addresses the replacement and safe disposal of batteries that could present a fire risk if not followed.

[5] Welsh Government Estates & Facilities Alert 2018/007 *Fire risk from personal rechargeable electronic devices* was issued on 5th December 2018.
[6] Welsh Government Estates & Facilities Alert 2017/003 *Guidance for correct use and disposal of batteries used in health and social care equipment* was issued on 6th September 2017.

Summary of main points

- Fires involving electrical equipment remain one of the most common cause of fires across the NHS in Wales.
- The recurring number of electrical fire incidents highlights the importance of on-going maintenance and testing of both fixed installations and portable appliances.
- Fire risks associated with the use of mobile technologies and rechargeable lithium-ion batteries are addressed in WG EFA 2018/007 and WG EFA 2017/003.

5.1.3 **Deliberate** (11 incidents: 30%)

In 2022, deliberate fire-raising accounted for 11 incidents (30% of all fires), an increase of 2 fires on the previous year.

Almost half of these fires were started by patients within the Mental Health sector; the ignition of furnishings, fittings and clothing typically being identified as the source of materials ignited first. The remaining fires were all as a result of malicious activity and deliberate fire-setting either internally, or externally within the hospital grounds/healthcare settings.

Figure 6 Example of deliberate ignition to the internal area of a lift within a Mental Health Ward

Deliberate fire-raising within the Mental Health sector continues to be a serious concern and subject to FRS Enforcement Notices and prosecution. Greater focus on the management and control of ignition sources within Mental Health Facilities continues to be a priority.

Figure 7 Example of a malicious fire incident involving deliberate fire setting to external areas, in close proximity to healthcare premises

Accordingly, in conjunction with the local fire risk assessment which should identify any problematic areas, NHS organisations should continually review the potential for deliberate fire-raising particularly in the Mental Health sector.

Guidance on the prevention, management and detection of arson is contained in Firecode WHTM 05-03 Part F *Arson Prevention in NHS Premises*, which also advises that arson prevention should form an integral part of all staff fire training.

As noted in the previous report, there have been no reported instances of deliberate fire-raising within derelict/disused buildings on NHS premises; however, this still remains a concern due to the number of these potentially vulnerable buildings in existence across the healthcare estate. SESN 19/06[7] provides comprehensive guidance and recommendations for the management of unoccupied buildings, including the need for fire risk assessments.

Summary of main points

- Deliberate fire-raising has increased by 2 incidents on the previous year.
- Almost half of the incidents involved the Mental Health sector, where typically furnishings, fittings and clothing were the first materials ignited.

[7] Specialist Estates Services Notification (SESN) 19/06 Fire management of derelict or unoccupied buildings

- NHS organisations should continually review the potential for deliberate fire-raising, particularly within the Mental Health sector where greater control of ignition sources is necessary to mitigate the risk.

- Reference should be made to WHTM 05-03 Part F and SESN 19/06 which provide comprehensive guidance on Arson control.

5.1.4 **Cooking** (8 incidents: 22%)

Cooking related activities account for 8 incidents (22% of all fires) during 2022; an increase on the 7 reported fires for 2021. The majority of these incidents were as a result of food being left unattended in local kitchens within departmental areas on hospital premises, involving microwaves, toasters and an electric hob. There were instances of food being left unattended, appliances malfunctioning and combustible items being left on top of an electric hob.

Summary of main points

- Cooking related activities should not be left unattended at any time.

- A review on the safe use of cooking appliances should be implemented in order to ensure staff utilise the cooking equipment correctly, and that they are maintained for safe use.

5.1.5 **Unknown** (4 incidents: 11%)

In 2022, fires recorded as ‘unknown’ totalled 4 incidents, an increase on the previous year where there were no incidents reported in this category. Two of these incidents occurred in a biomass boiler, the second instance being re-ignition from the first reported fire, the initial cause being unknown. The remaining 2 incidents are reported to have been potentially started via discarded cigarette ends, but with no definitive evidence, suggesting a more appropriate cause category such as smoking, could have been assigned.

Summary of main points

- There was an increase on the number of fires with causes recorded as ‘unknown’.

- Some of these incidents could have been better recorded in a more appropriate category such as smoking.

5.1.6 Material first ignited

The following chart indicates the generic categories of the materials first ignited, which broadly aligns with the associated causes of fire. The 10 incidents allocated to the ‘other’ category, could be assigned a more specific description of materials such as electrical insulation, fittings, other furnishings or textiles.

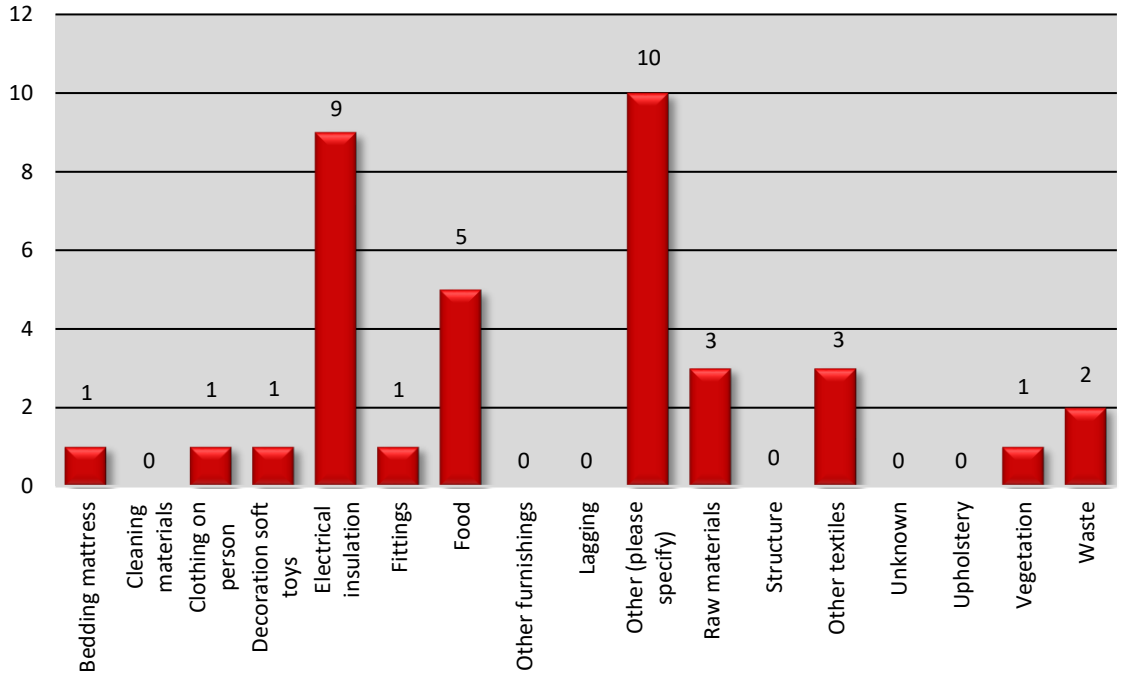


Figure 8 Material first ignited

5.1.7 Discovery of fires

Of the 37 reported incidents in 2022, 21 (57%) were discovered by people, with the remaining 16 (43%) incidents raised by automatic means, albeit 3 of these were incorrectly categorised as 'other'.

This highlights that initial awareness of persons present within the building, can be more effective than automatic means in the very early stage of a fire incident. This further emphasises the importance of regular and relevant fire training which in turn, may lead to earlier intervention and a reduction in fire spread. It should also be noted that more accurate reporting is required to correctly categorise the method of discovery for each incident.

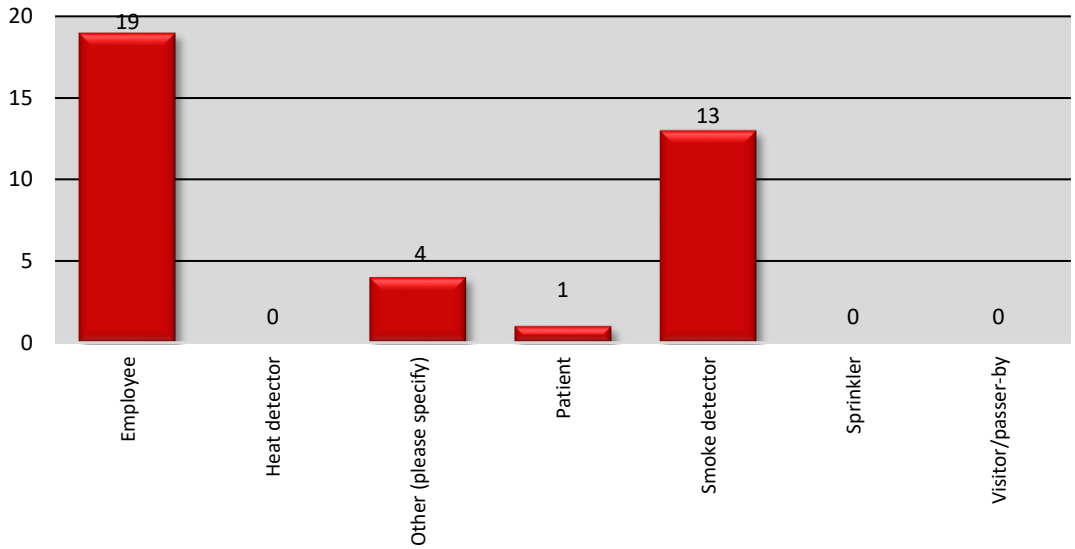


Figure 9 Discovery of fires

5.1.8 Methods of extinguishment

Figure 10 below gives an indication of the methods of extinguishment of all fires that occurred during 2022, some of which involved a combination of different methods. For example, 14 fires (38%) were extinguished as a result of intervention from staff utilising portable extinguishers and/or dousing with water. A further 12 fires (32%), were dealt with via the removal of burnt items, equipment isolation and/or self-extinguishment. Of the remaining fire incidents, 6 (16%) were extinguished by 'other' methods and equipment isolation or with no method recorded and 5 (14%) were extinguished by the FRS.

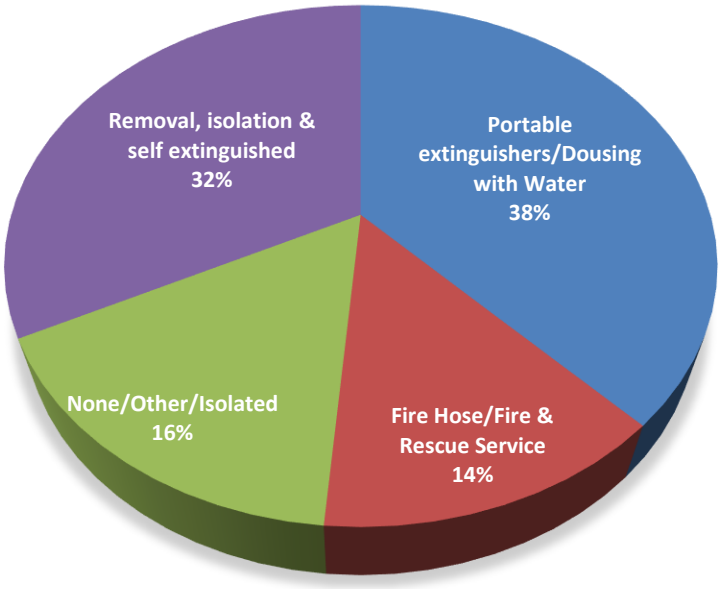


Figure 10 Methods of extinguishment

Summary of main points

- Generally, the materials first ignited correlate with the cause of the fire i.e. electrical insulation/electrical failure.
- As in previous years, most fires were discovered by people before the automatic fire detection activated.
- Most fires were extinguished locally via the use of portable extinguishers, without the intervention of the FRS.
- Early intervention, where it is safe to do so, and where the correct procedures have been followed, continue to ensure that fire incidents remain relatively small and less damaging.

5.2 UNWANTED FIRE SIGNALS

Between the 1st January 2022 and 31st December 2022, 1535 UwFS were reported, utilising the online Fire & UwFS Incident Reporting System. As can be seen from Figure 12 below, this demonstrates an increase of 143 (10%) UwFS incidents reported by NHS organisations in Wales during 2022.

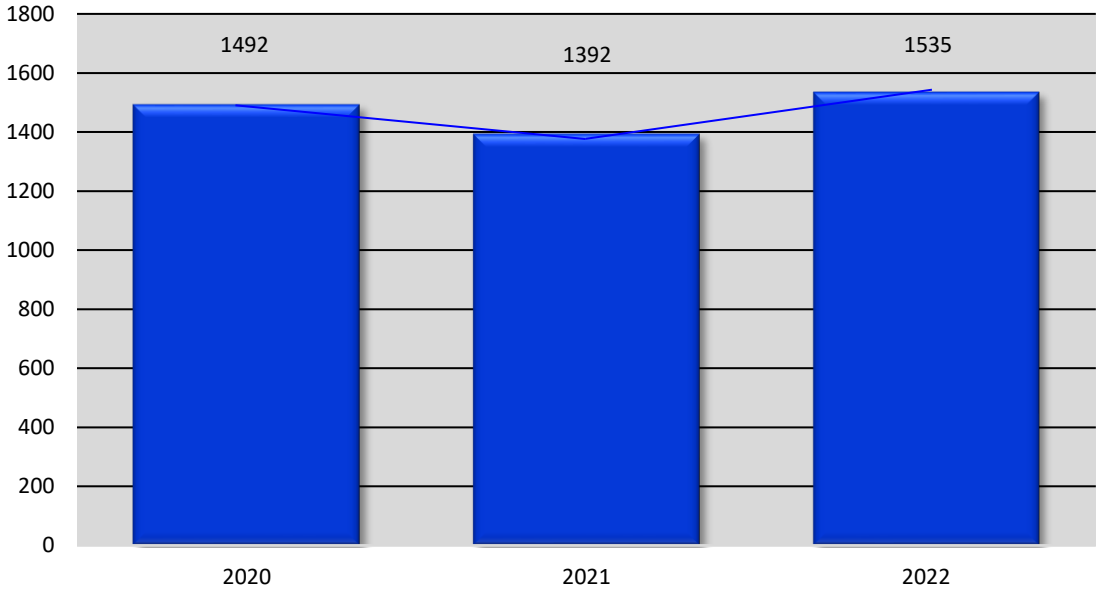


Figure 11 UwFS by year

Recorded evidence highlights an element of under-reporting by the Health Boards still exists. For example, there are a number of known UwFS not being recorded within Swansea Bay University Health Board (SBUHB), where the majority of reported incidents come from 2 specific sites and little or no reporting from the remaining Health Board premises. This creates a distorted view of the actual situation in respect of the number of UwFS experienced across the NHS in Wales.

NHS organisations are once again reminded that the reporting of Fire Incidents and UwFS is mandated by the Welsh Government and supports enhanced performance management.

Figure 13 demonstrates an increase in reported UwFS incidents, with the exception of 3 health boards, however this could be attributed to the increased footfall on healthcare sites following the Pandemic.

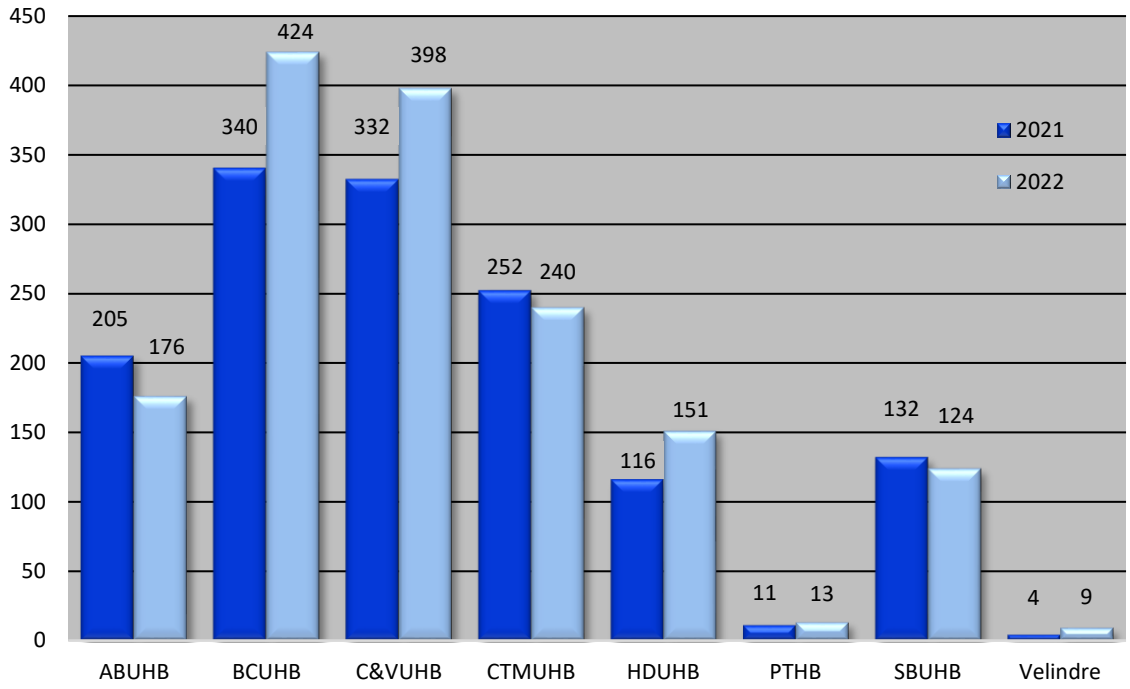


Figure 12 UwFS comparison 2021 - 2022

5.2.1 Causes of UwFS

The Categories of False Alarms defined in WHTM 05-03H (see Appendix E of this report and illustrated in Figure 13 below) are quite rudimentary which restricts the ability to accurately define the cause of the fire alarm activation. Accordingly, during the 2019 reporting year, it became a mandatory requirement for Health Boards to record a Specific Cause for each recorded UwFS (as detailed at Appendix F of this report).

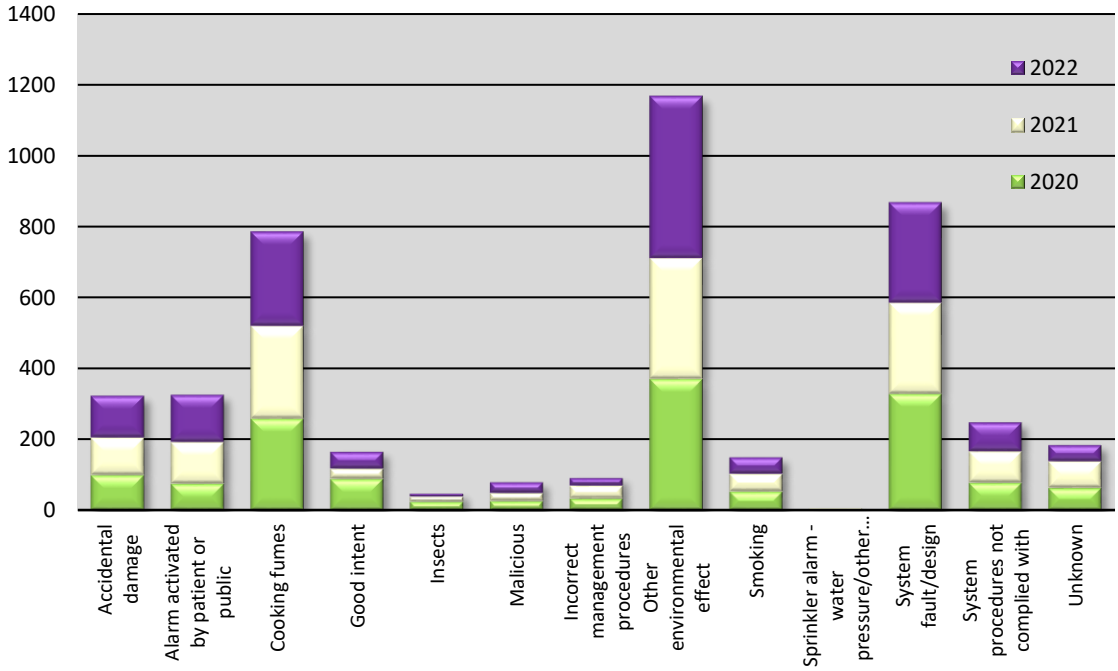


Figure 13 UwFS by cause 2020 - 2022

The following section analyses the 'specific cause' of UwFS data reported.

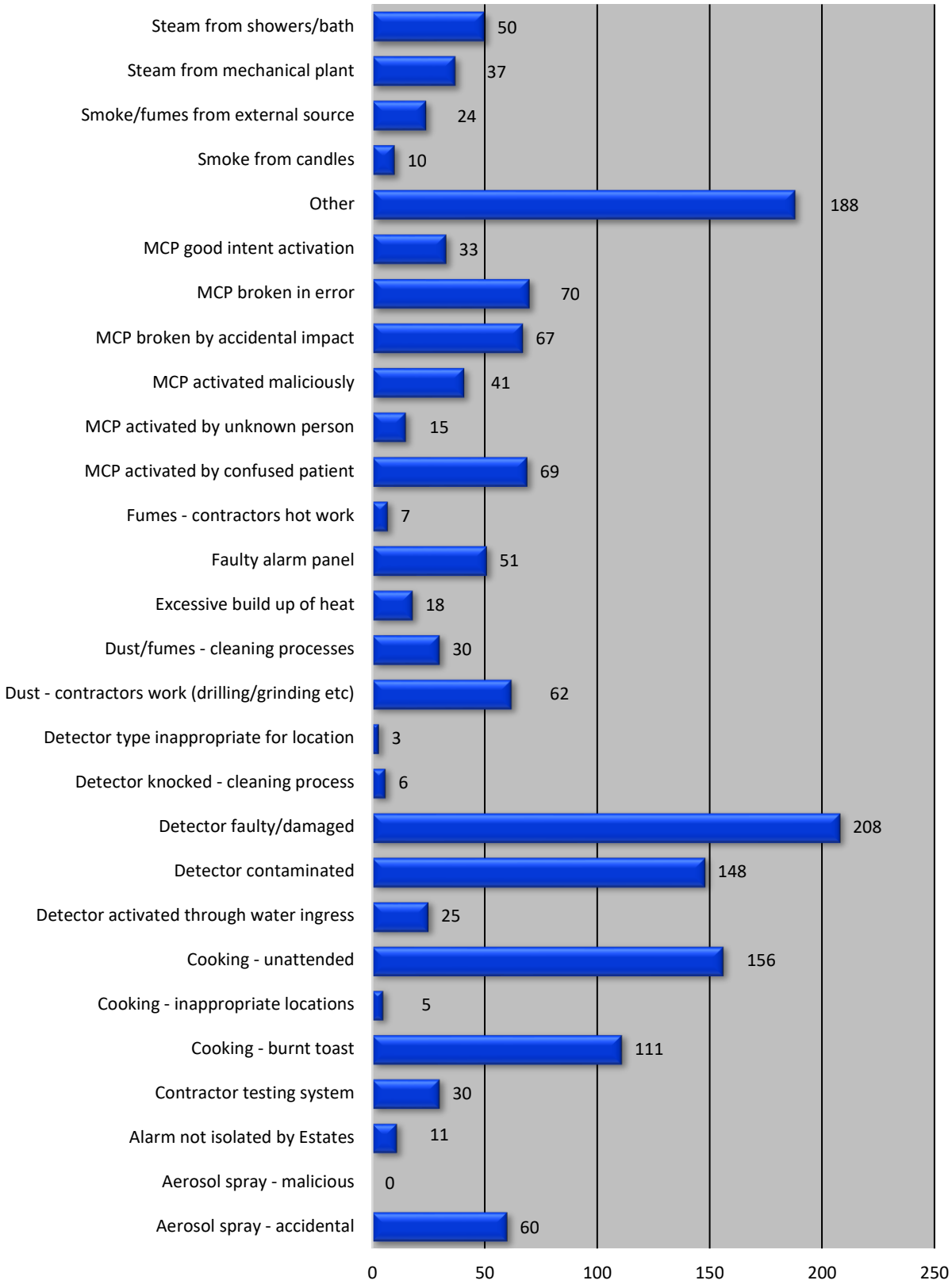


Figure 14 UwFS by Specific cause 2022 (1535 incidents)

5.2.2 System Related Issues

'System related issues' includes the following specific causes:

- Detector activated through water ingress
- Detector contaminated
- Detector faulty/damaged
- Detector type inappropriate for location
- Faulty alarm panel

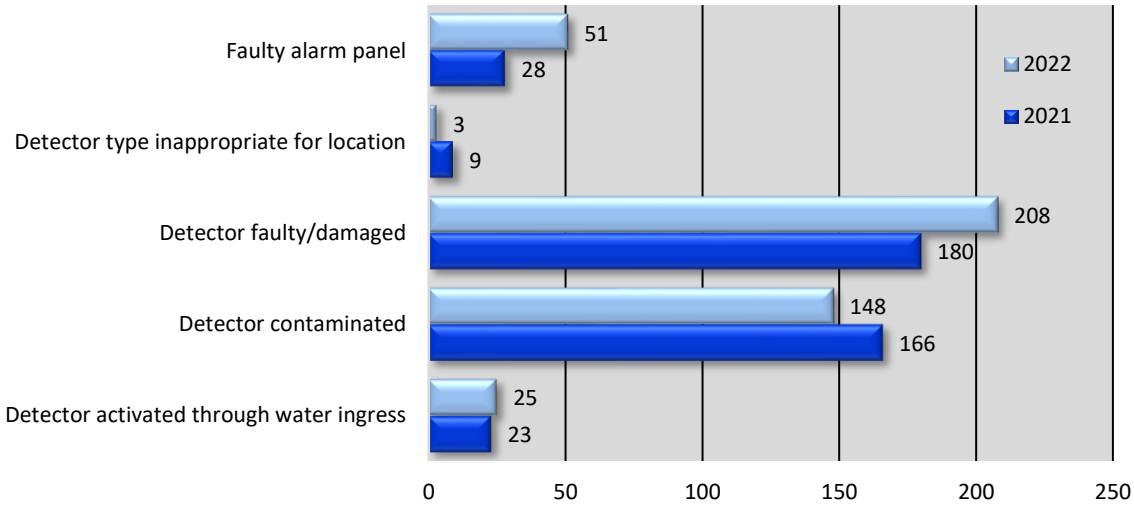


Figure 15 UwFS as a result of system related issues

During 2022, there were 435 reported incidents attributed to 'system related issues', an increase of 7% on the 406 reported incidents of 2021.

Of the 435 recorded incidents, 208 were due to 'detector faulty/damaged' (15% increase) and 148 were due to 'detector contaminated' (11% decrease), accounting for 356 (81%) of system related activations. Robust maintenance and testing undertaken in accordance with BS5839-1, should assist in mitigating system faults. Equally, system design issues should be identified through periodic testing, whereby non-conformities should be prioritised for action accordingly.

Ageing fire alarm systems across the NHS estate continue to be a contributory factor to the 'system related' incidents. As detection devices age they become less effective and more prone to faults. Older equipment is becoming obsolete, presenting maintenance challenges due to the unavailability of spares, as is the case in a number of premises across NHS Wales. This demonstrates a need for life-cycle replacement programmes.

Summary of main points

- System related issues have risen during this reporting period, reinforcing the necessity for robust maintenance and testing regimes and where necessary, replacement programmes.

5.2.3 Manual Call Point (MCP) activations

This section examines incidents attributed to alarm activations via the use of MCP's, which have increased from 253 to 295 during 2022.

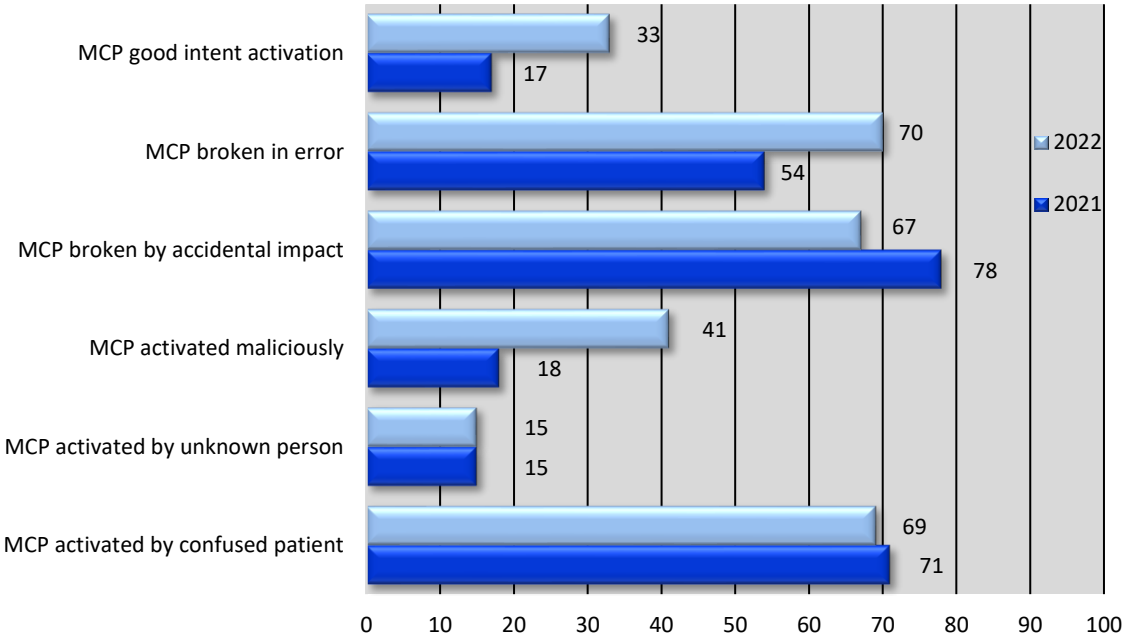


Figure 16 Specific cause attributed to activation of MCP's

MCP related incidents account for almost 20% of all UwFS. NHS organisations should ensure all future installations and upgrades include protective covers to MCP's (some with screechers) in accordance with BS 5839-1. Furthermore, consideration should be given to expediting the retrofitting of covers to MCP's that are prone to malicious activity and accidental damage.

Where it is thought the use of lift covers may not be a practical deterrent in the Mental Health sector, or it is perceived that the Perspex covers could be fashioned into weapons, the use of key operated MCP's may be considered, evidence of which can be seen at a number of Mental Health facilities.

Although there has been a reduction in the accidental impact of MCP's from 78 incidents down to 67, sympathetic siting of MCP's at installation stage, in order to avoid risk from accidental impact, would assist in reducing these types of incidents further.

There were 70 and 69 incidents recorded in the categories of 'MCP broken in error' and 'MCP activated by confused patient'; an overall increase of 11% on the incidents reported in 2021.

Incidents in the 'MCP activated maliciously' category, have more than doubled from 18 incidents in the previous reporting year, to 41 during 2022, suggesting a need for a more robust system for the monitoring, management and security of MCP's.

Despite positive action being taken by some NHS organisations to reduce the number of actuations in this category, it remains clear that there is considerable scope for further reductions. However, activation of an MCP with good intent should never be discouraged.

Summary of main points

- MCP related activations account for almost 20% of all UwFS.
- NHS organisations should all ensure future fire alarm installations and upgrades incorporate protective covers to MCP's, including the fitting of screechers where necessary.
- Consideration should be given to the installation of key operated MCP's where actuation of these devices are prone to accidental activation or malicious activity.
- More sympathetic siting of MCP's should be considered in order to avoid activation via accidental impact from such things as cleaning materials, contractors' equipment, trolleys and wheelchairs. This principle is also of importance regarding MCP's broken in error and activated by confused patients.

5.2.4 Cooking Related Activity

'Cooking related activity' includes incidents where notable 'specific causes' were:

- Cooking - unattended
- Cooking - inappropriate locations
- Cooking - burnt toast

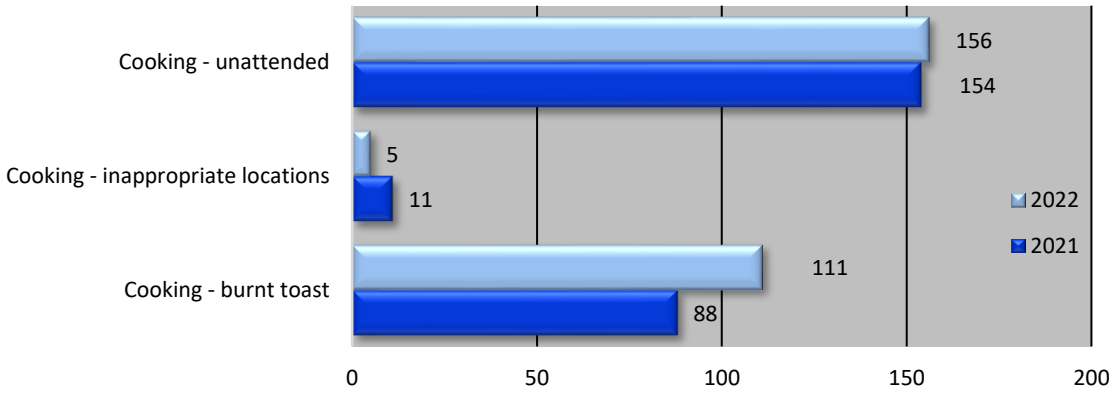


Figure 17 UwFS as a result of cooking related activity

Cooking related activities accounted for 272 UwFS, a 7% increase on the previous year; overall, this accounts for almost 20% of all UwFS. Of significant concern, is the number of reported incidents where cooking activity has been left unattended, this being 156, 102 of which occurred in one Health Board (Betsi Cadwaladr University Health Board - BCUHB). As in 2021, a

large proportion of these incidents (97 - 95%) occurred in staff residences, the majority of which (54 incidents) are recorded in either local kitchens or corridor/circulation areas, the latter resulting from kitchen doors being left open.

As in the previous reporting period, this number of reported incidents within BCUHB, particularly regarding staff residences, is disproportionate in relation to the other health boards, and requires further investigation and control measures.

Summary of main points

- Cooking related activities account for almost 20% of all UwFS.
- The disproportionate number of incidents reported in relation to ‘cooking - unattended’ particularly within BCUHB, requires further investigation and control measures.
- The highest number of incidents can again be credited to staff residences. This highlights a necessity for improvements to management and a raising of awareness to the dangers of unattended cooking.
- A high proportion of incidents in staff residences occurred as a result of kitchen doors being left open.
- Cooking and associated activities should only take place in approved locations, installed with the appropriate detection and/or carried out away from installed detection systems, such as food trolleys in ward areas.

5.2.5 Environmental Effects

'Environmental effects’ include incidents where notable ‘specific causes’ were:

- Aerosol spray - accidental/malicious
- Excessive build-up of heat
- Smoke from candles
- Smoke/fumes from external source
- Steam from mechanical plant
- Steam from showers/bath

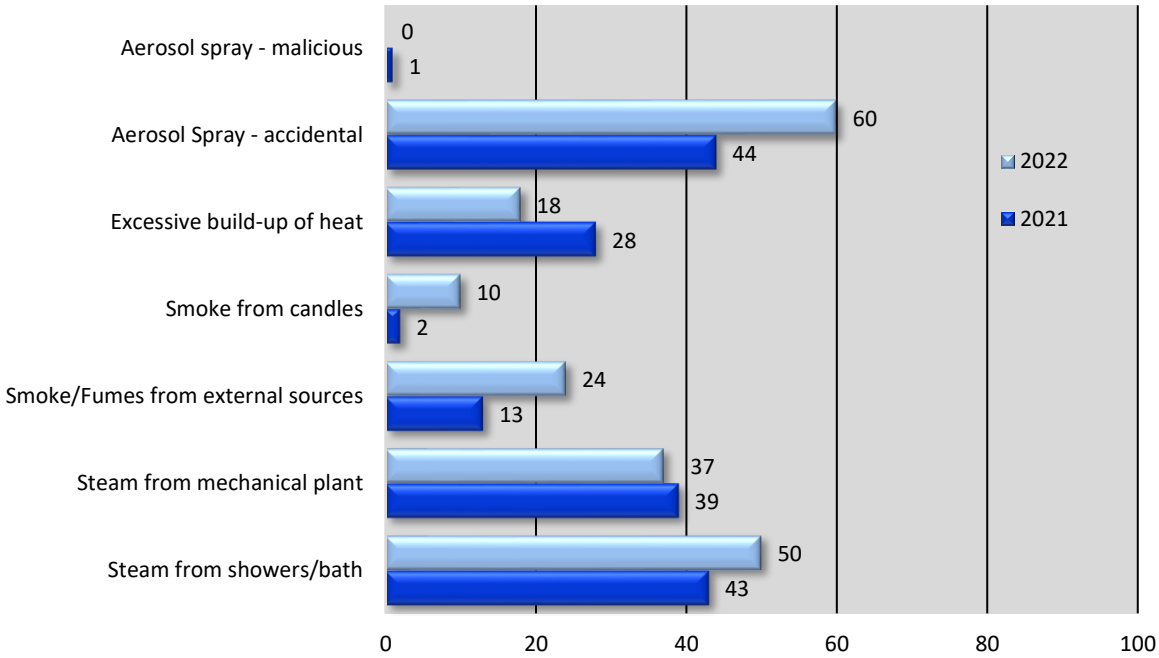


Figure 18 UwFS as a result of Environmental Effects

Cumulatively, there were 199 recorded incidents attributed to environmental effects. 'Aerosol spray - accidental' and 'steam from showers/bath' were the highest recorded specific causes, with 110 incidents, an increase of 26% on the previous year. Activations were caused by both staff and patients; however, evidence suggests some of these could have been due to deliberate excessive use of deodorant by patients.

It should be noted that although assigned the correct 'Specific Cause' e.g. 'Aerosol spray – accidental', there were incidents allocated to the incorrect 'Cause' category, such as 'Accidental damage', not necessarily an 'Environmental Effect'.

Summary of main points

- The highest specific cause in this category was 'Aerosol spray - accidental' (60 incidents), with a mix of staff and patients using deodorant in close proximity to detector heads.
- 'Steam from showers/bath' was the second highest specific cause (50 incidents), with patients in private rooms and staff in residences, allowing excessive steam to develop and interfere with nearby detection systems.

5.2.6 'Other'

Figure 15 illustrates that incidents recorded within the 'other' specific cause category accounted for 188 incidents, almost identical to the 185 incidents reported in 2021. Further analysis of these incidents reveals that many of

these should have been allocated to a more relevant specific cause. Figure 20 illustrates these incidents, realigning the causes to the topic areas covered in paragraphs 5.2.2 to 5.2.5 above.

More accurate categorisation of incidents will provide improved management information supporting mitigation measures.

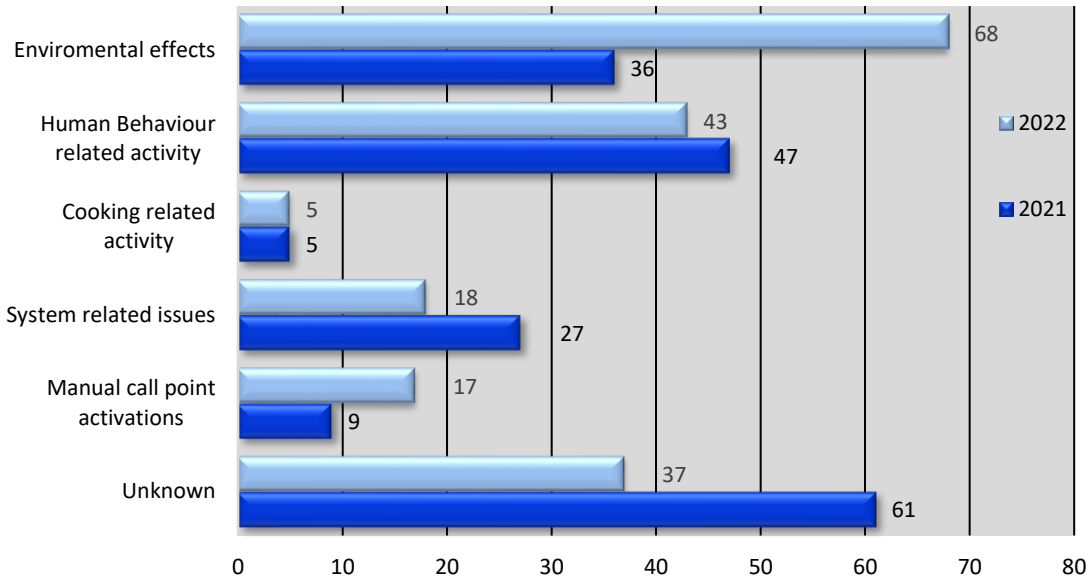


Figure 19 Break down of 'Other' category UwFS aligned with paragraphs above

Summary of main points:

- There is a continuing trend in the recording of UwFS incidents within the 'other' specific cause category, with similar numbers between the 2021 and 2022 reporting periods.
- The majority of these 'other' category incidents should again have been recorded in more appropriate specific cause categories to improve the accuracy of management information.

5.2.7 Contractor Related Activity

'Contractor related activity' includes the following 'specific causes':

- Alarm not isolated by estates
- Contractor testing system
- Detector knocked - cleaning process
- Dust - contractors work (drilling/grinding etc)
- Dust/fumes - cleaning process
- Fumes - contractors hot works

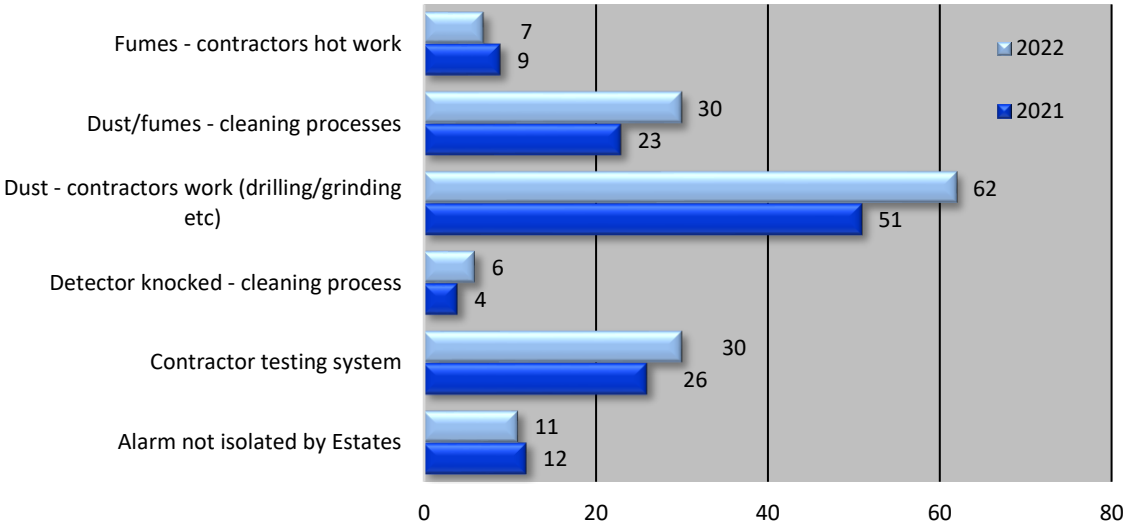


Figure 20 UwFS as a result of contractor related activity

There were 146 incidents involving 'contractor related activity', an increase on the 125 reported in 2021. It should be noted that where cleaning processes have been included, a number of sites utilise the services of contractors for this type of task.

The incidents recorded under these categories, emphasise the importance of utilising robust Control of Contractor policies and Permits to Work, including procedures for isolation of detectors etc.

Summary of main points

- There has been an increase in the number of contractor related incidents, from those reported during the previous year.
- Control of Contractor policies and Permits to Work need to be reinforced to mitigate these adverse incidents.

5.3 COMBINED DATA OF FIRE INCIDENTS & UWFS 2022

5.3.1 Fires and UwFS by Time

Figure 21 illustrates the incidence of Fire and UwFS analysed on an hourly basis. In respect of fire incidents, there is a relatively even spread of incidents across the 24 hour period. However, there is a marked difference with UwFS. The number of UwFS rises sharply from approximately 05:00 hours, with some fluctuations and a steady decline until 17:00 hours, where again there are a small number of fluctuations, before falling again between 21:00 and 23:00 hours.

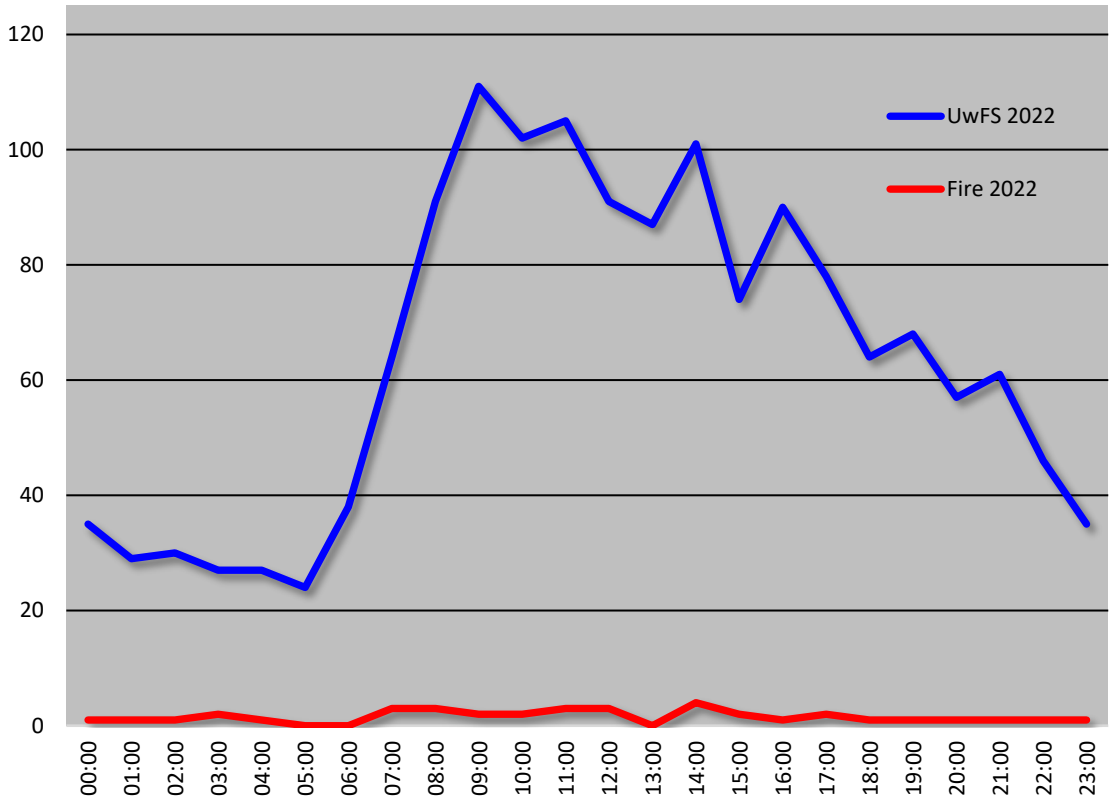


Figure 21 Fires and UwFS by Time

5.3.2 Fire and UwFS by Area

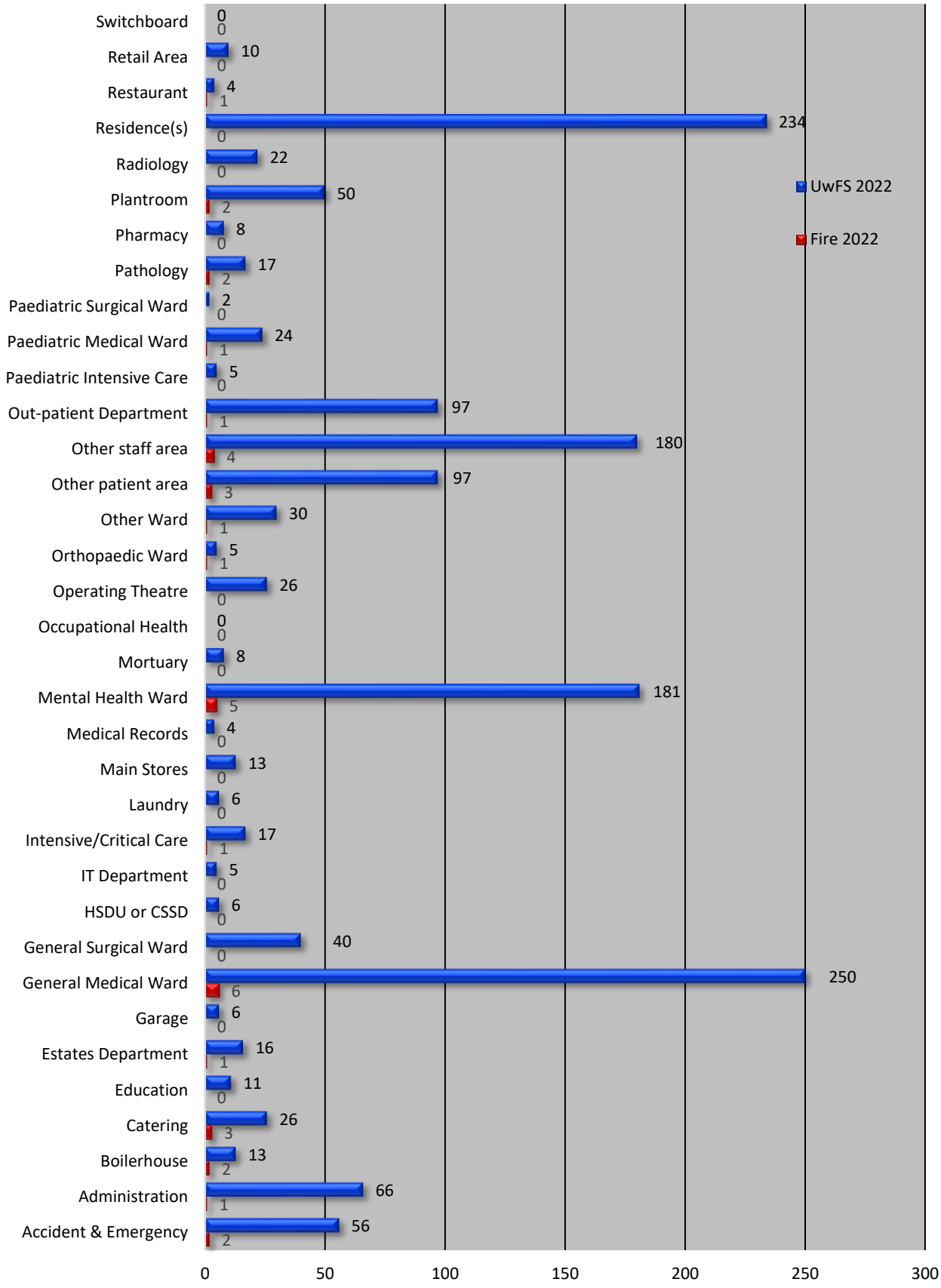


Figure 22 Fire and UwFS by Area

As indicated in Figure 22 above, the highest incidence of fires (coloured red) originated in the ‘General Medical Ward’ category, accounting for 6 (16%) of all fire incidents. This was followed by ‘Mental Health Ward’ with 5 incidents (14%) and ‘Other Staff Area’ accounting for 4 incidents (11%).

With regard to UwFS (hatched in blue), the highest category is attributed to General Medical Wards accounting for 250 incidents (16%), an increase on the 219 incidents reported during 2021.

‘Staff Residences’, ‘Mental Health Wards’ and ‘Other Staff Areas’ account for 234, 181 and 180 respectively, the latter of which being the only category showing a decline compared with last year’s report.

5.3.3 Fire and UwFS by Room

This section of the report examines the breakdown of both fire and UwFS by the room of origin (see Figure 23).

Of the 37 fire incidents reported,11 were recorded in the ‘Other’ category, some of which could have been assigned to a more appropriate category such as ‘bathroom’.

Of particular note, is the significant increase in reported fires in local kitchens, rising from 5 in 2021 to 9 in 2022, an 80% increase.

A further 5 fires occurred in single bedrooms, a slight decline on the 6 fires reported in the same category during 2021, but where 4 out of the 5 fires were caused by deliberate means involving the Mental Health sector.

Of the 1535 UwFS incidents, 585 UwFS incidents occurred in corridors or circulation routes, a notable increase on the number of incidents reported in 2021. 219 of these occurred as a result of actuation of MCP’s, a marginal increase on the previous year, but also demonstrating a continuing rise over the 3 year period from 2020 - 2022.

As noted previously, careful siting of MCP’s or the provision of additional protection, together with an increased awareness of the need for care when manoeuvring equipment in the vicinity of MCP’s, can have a positive effect in reducing the number of incidents.

There were 195 incidents reported in the ‘Other’ room category, an increase on the 179 incidents reported in 2021 and again displaying a continued rise on the same 3 year period as detailed above. As previously reported, a large number of these incidents should have been recorded in more specific categories, as listed in the online system.

The ‘local kitchens’ category returned a figure of 129 incidents, a slight increase on the previous year’s figure, the majority (84%) attributed to poorly managed cooking related activities, e.g. burnt toast and unattended cooking.

Of the 89 incidents associated with ‘Single bedrooms’, almost a third of specific causes were identified as ‘steam from showers/bath’ (25), with ‘other’ accounting for 21. There are continuing concerns regarding half of these incidents occurring as a result of vaping, but being incorrectly recorded in the ‘other’ specific cause category.

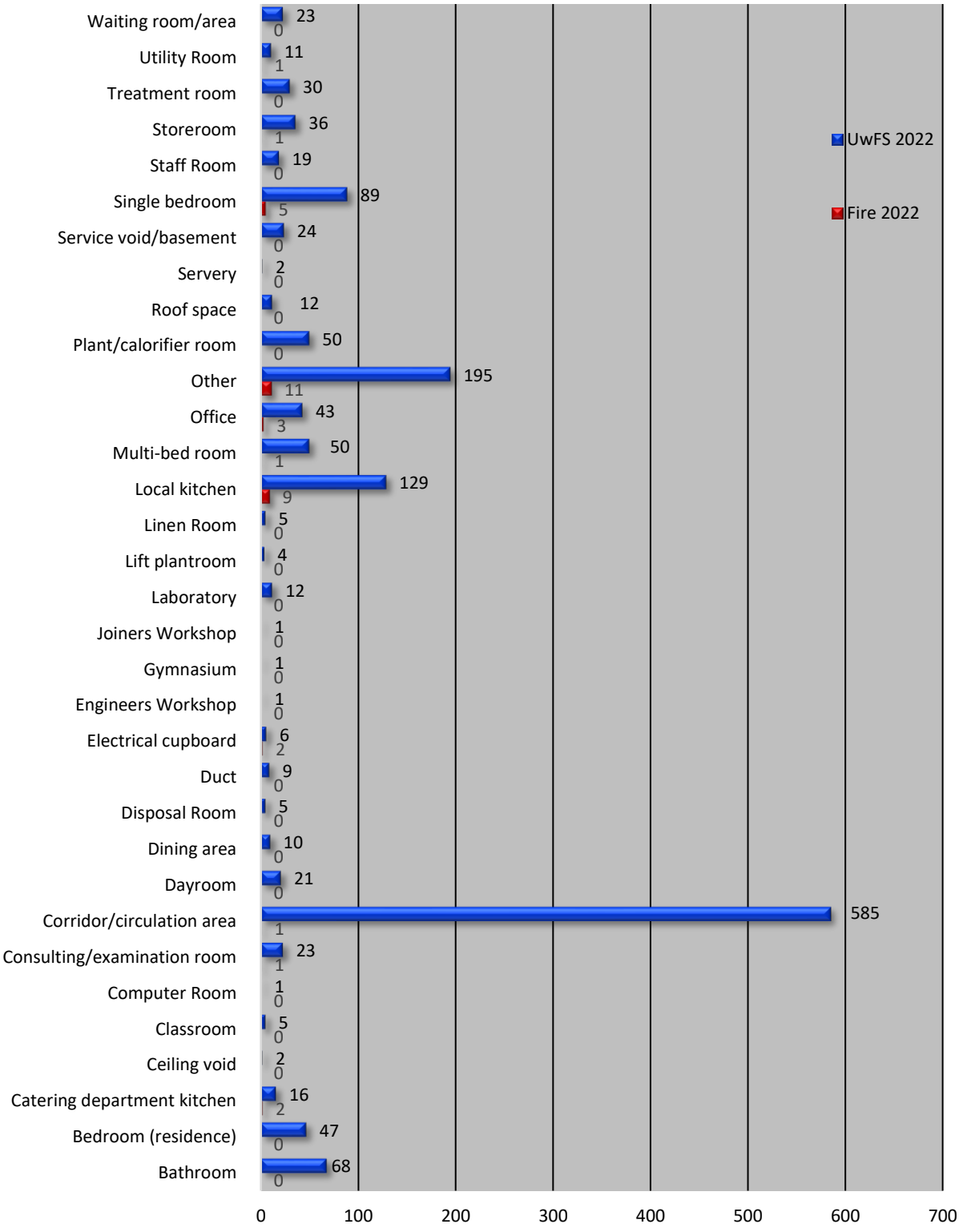


Figure 23 Fire and UwFS by Room

Summary of main points

- The data shows the rate of fire incidents to be fairly constant through a 24-hour period. UwFS incidents show a sharp increase during the working day, with fluctuations extending to early evening, before tailing off. Human activity can be linked to UwFS and again, highlights the need for measures to make staff, patients and visitors aware of the bad practices that cause UwFS.

- The fire and UwFS by area data, shows that ‘Mental Health Wards’, ‘Other Staff Areas’, ‘Staff Residences’ and ‘General Medical Wards’ remain the primary areas where UwFS occur, with ‘General Medical Wards’ exhibiting the highest number of fire incidents for 2022. This demonstrates a repetitive reporting theme and indicates that NHS organisations should focus on these sectors to reduce incidents and risk.

- The analysis of data by rooms has highlighted that as in 2021, most UwFS incidents originate in ‘corridors/circulation areas’, ‘other’, ‘local kitchens’ and ‘single bedrooms’. It should be noted that many of the ‘other’ incidents could have been reported in a more relevant category.

6.0 CONCLUDING COMMENTS AND RECOMMENDATIONS

6.1 The analysis of fire incidents and unwanted fire signal data has indicated some significant trends. During 2022, 37 fire incidents were reported, reversing the downward trend seen during the previous year and representing a 16% increase in reported fires. Whilst this is of concern, it should be remembered that figures could be affected by the rising footfall seen on health care premises following the Pandemic.

6.2 There is an obvious need to maintain a clear focus on the causes of fires and on how these might be prevented, particular attention again being paid to the control of ignition sources within the Mental Health sector. The more fires that occur, no matter how minor, the greater the chances of a serious incident occurring. Fire incidents will always have the attendant disruption to health service delivery and possible legal action from the FRS, if it is seen that there were any weaknesses in policy or procedures.

6.3 In 2022, the highest cause of fires was attributed to electrical failure, with deliberate fire-raising being the cause of an equal number of incidents. This emphasises the need for robust electrical testing and maintenance, and a greater awareness and control of arson prevention.

6.4 Overall, the majority of fires were detected early and dealt with effectively, averting much more serious outcomes. However, there were fire incidents where without the intervention of either hospital staff, FRS personnel or both, the outcomes could have been more serious. This underlines the importance of maintaining staff awareness and robust training regimes addressing such issues as good housekeeping, effective response procedures and management of ignition sources and electrical equipment.

6.5 During 2022, UwFS increased by 10% up to 1535 incidents. The data indicates that human behaviour remains an influencing factor on a large proportion of UwFS, highlighting the need for increased management awareness. In addition, ‘system fault’ related incidents could be reduced by replacement of obsolete equipment and ‘designing out’ UwFS with the use of technological advances.

6.6 As noted previously these incidents cause considerable disruption to both the NHS and the FRS. Continued efforts to reduce the occurrence of UwFS should be regarded as a high priority and will contribute significantly to the saving of time and resources needed in dealing with these incidents, both for the healthcare sector and FRS. However, on no account should the endeavours to reduce UwFS jeopardise patient safety.

6.7 Accuracy of reporting and identification of ‘specific cause’ information will enhance trend analysis and performance management. It should be noted that all fire alarm activations should be recorded whether or not the FRS are informed and irrespective of their attendance.

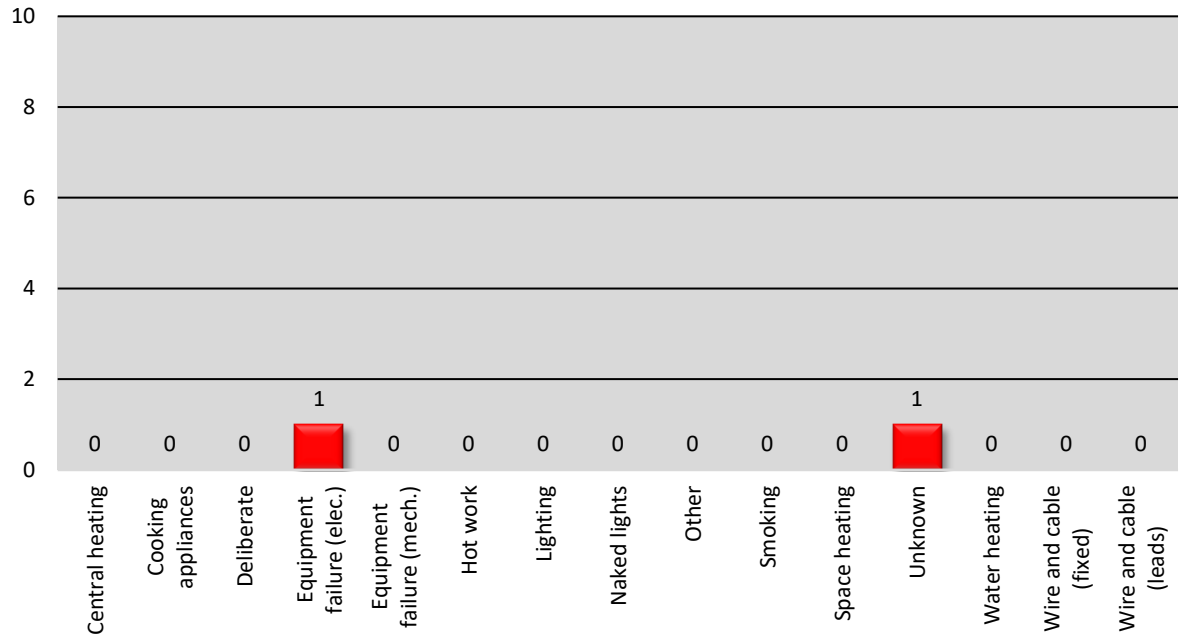
6.8 NHS organisations should regularly update the online system with respect to the number of actuation devices fitted in their facilities. Notwithstanding this requirement, there remain several sites where numbers of devices have not been specified. This process enables the calculation of accurate performance scores which are reflected in Appendix C and D. Furthermore, NHS organisations should endeavour to achieve the defined targets for reduction of UwFS calculated through the online system.

6.9 FRS response procedures vary from region to region and indeed site to site. Therefore, NHS organisations should liaise with their respective FRS to clarify the mobilisation arrangements and ensure that their own procedures reflect the anticipated FRS response.

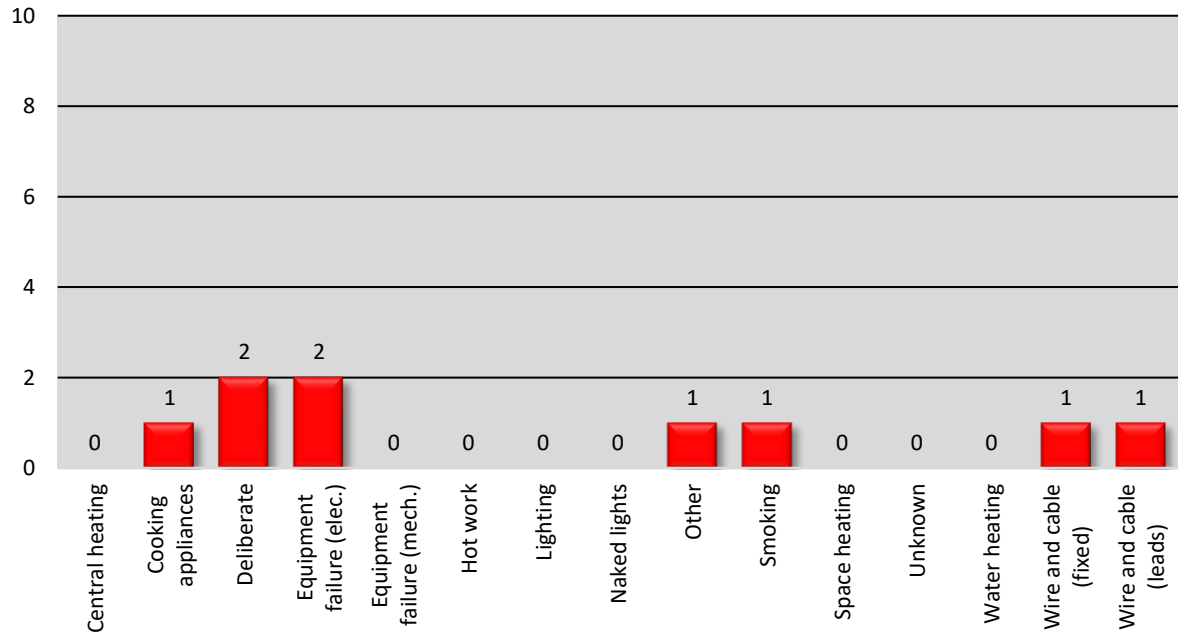
Appendix A

Summary of Fire Incidents 2022 by Cause & Organisation

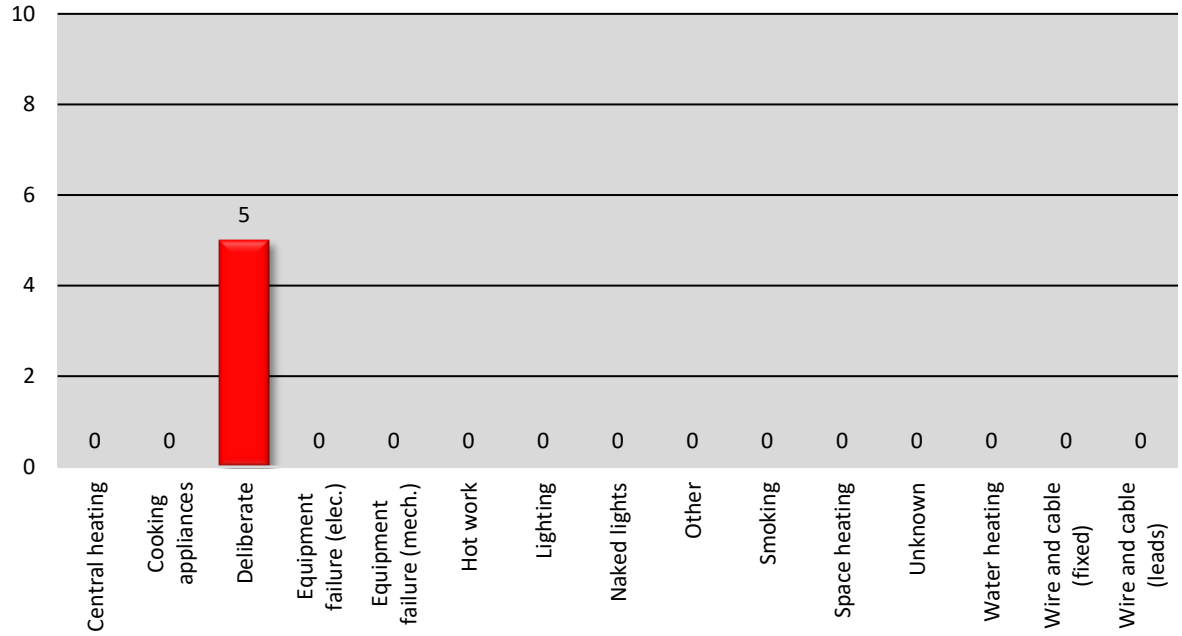
Aneurin Bevan University Health Board - 2 Incidents



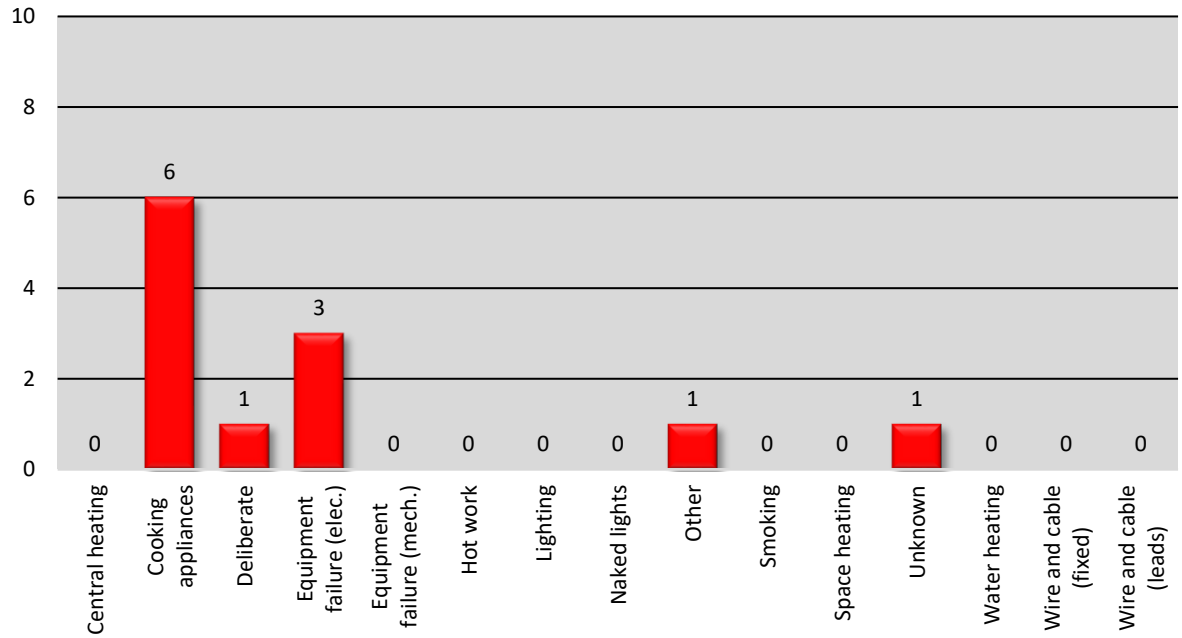
Betsi Cadwaladr University Health Board - 9 Incidents



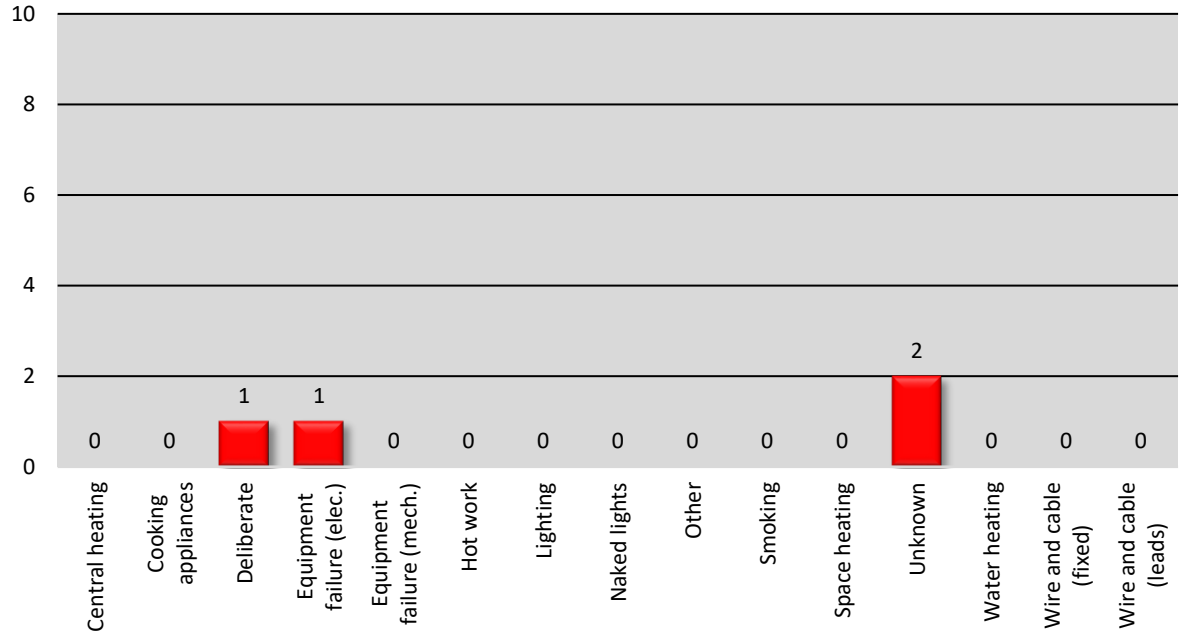
Cardiff & Vale University Health Board - 5 Incidents



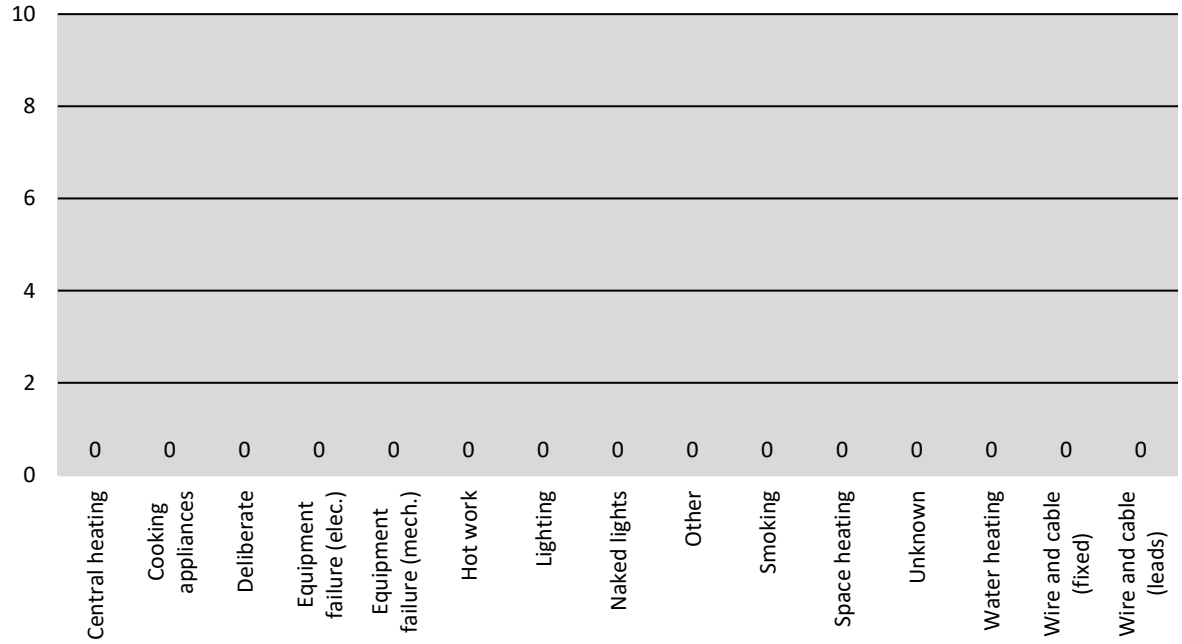
Cwm Taf Morgannwg University Health Board - 12 Incidents



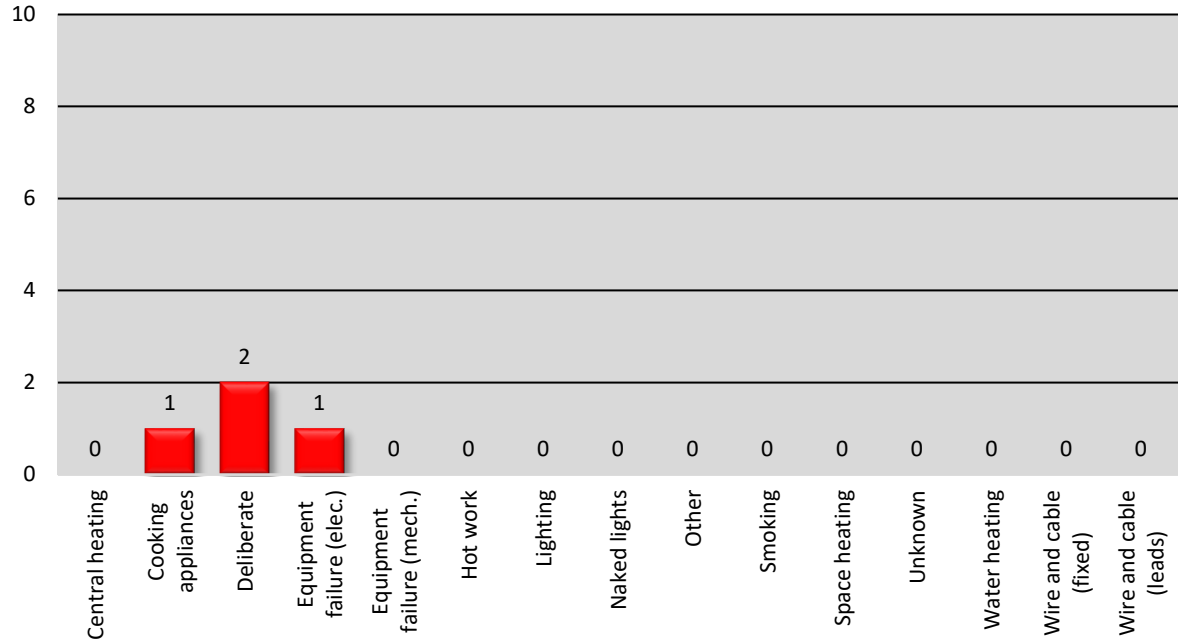
Hywel Dda University Health Board - 4 Incidents



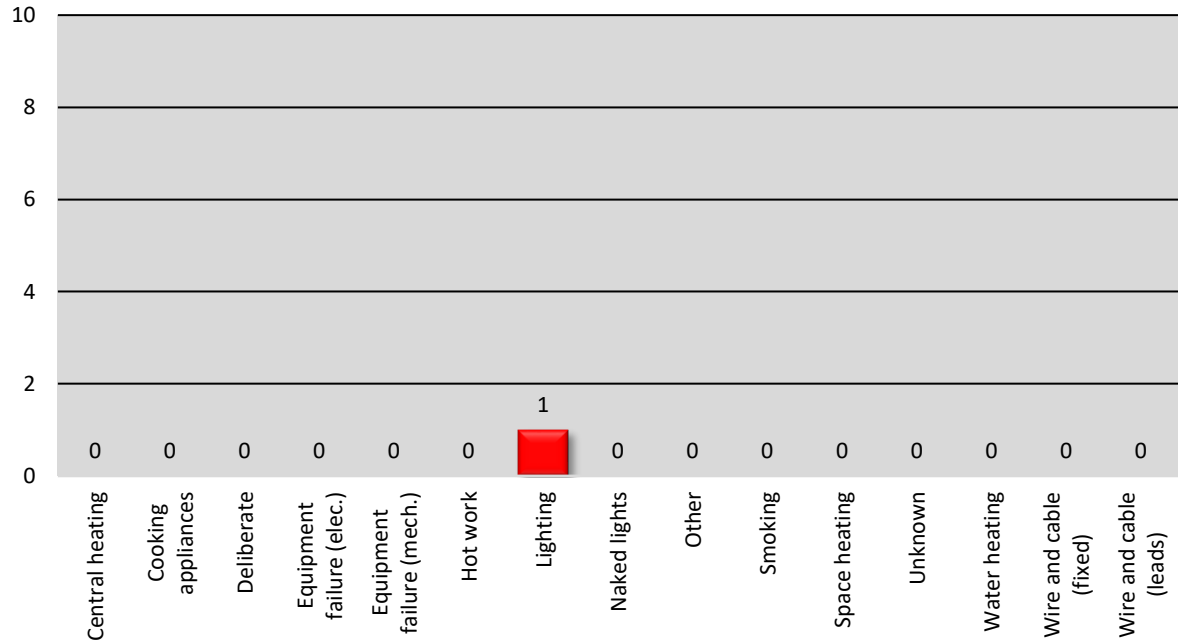
Powys Teaching Health Board - 0 Incidents



Swansea Bay University Health Board - 4 Incidents



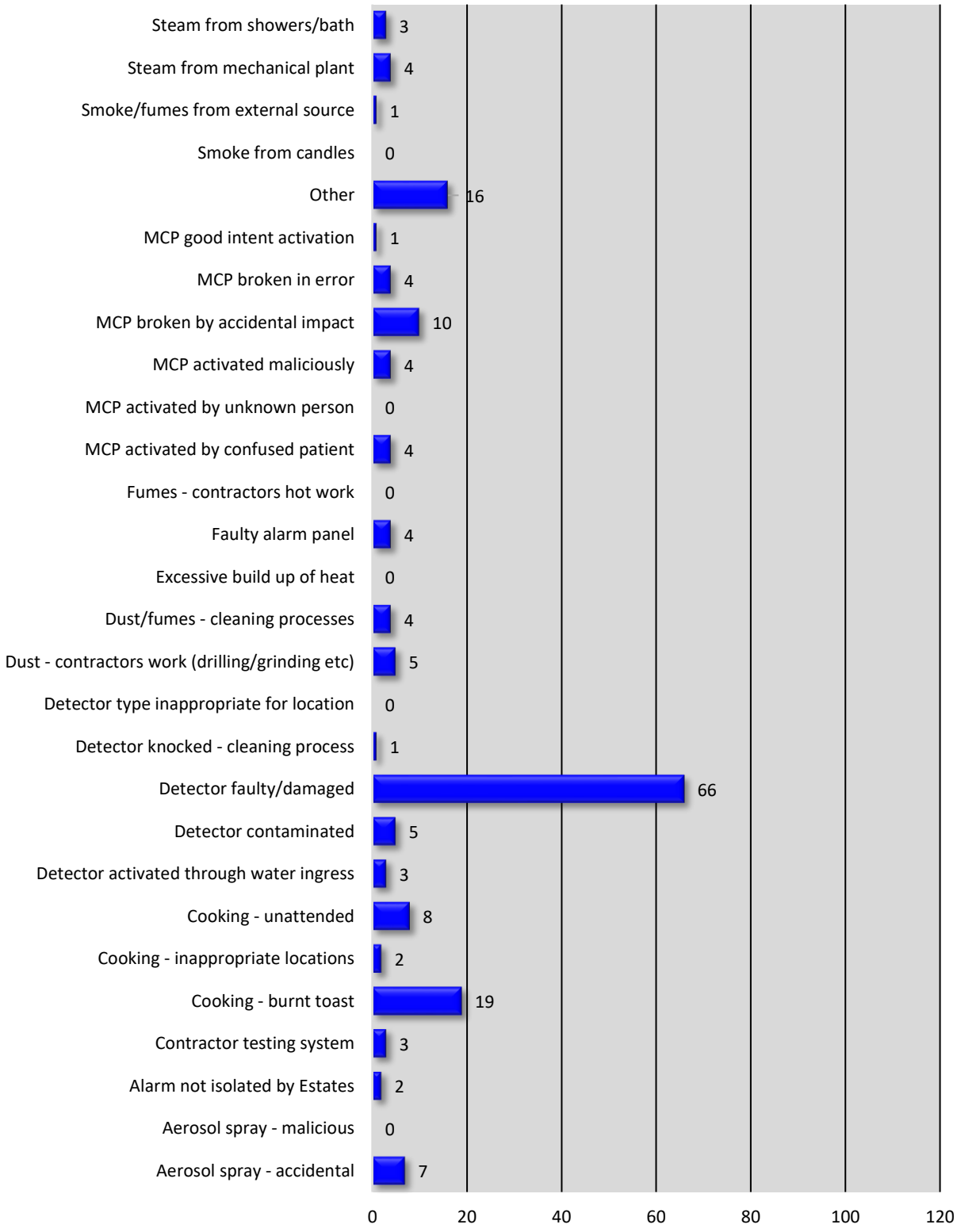
Velindre NHS Trust - 1 Incident



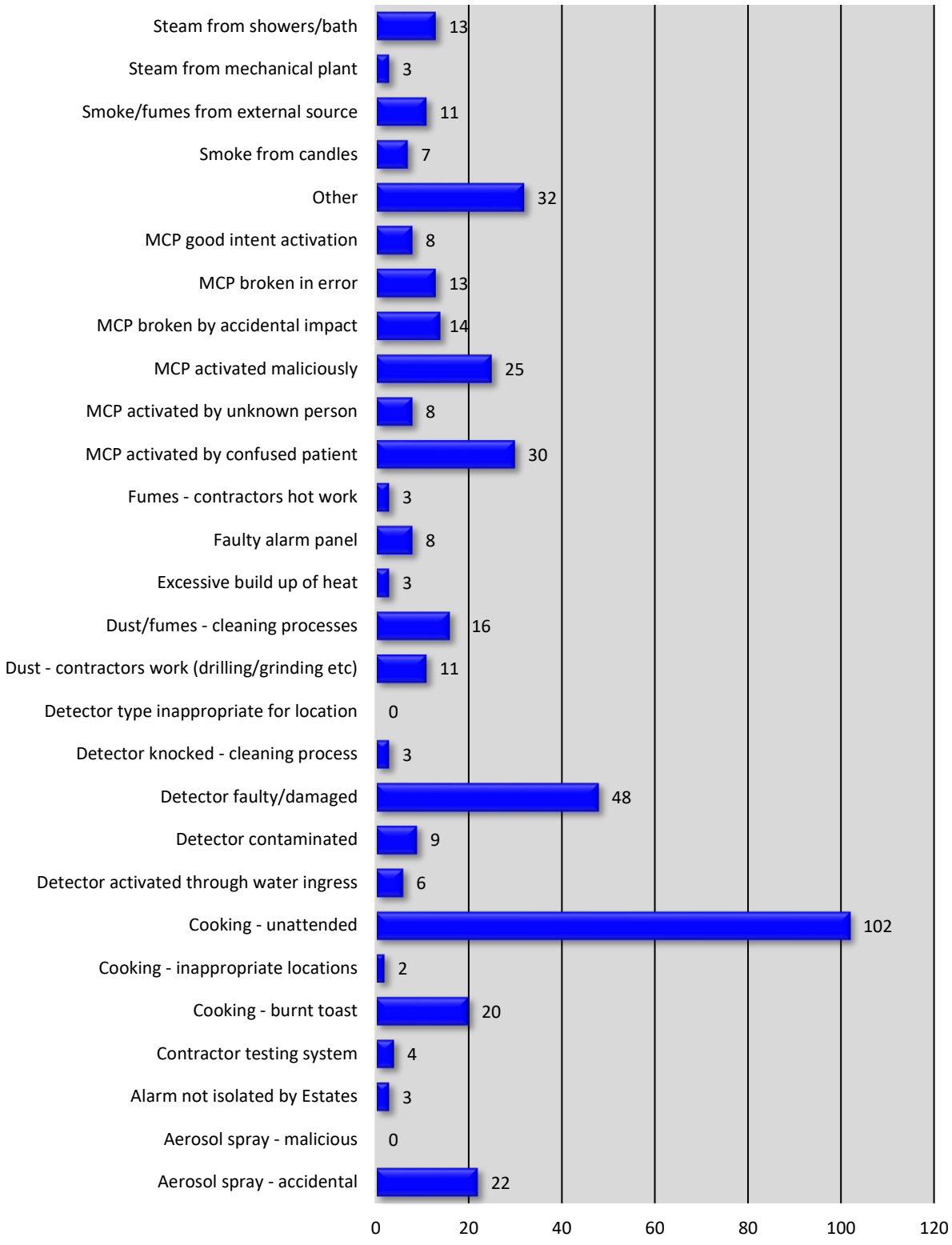
Appendix B

Summary of UwFS 2022 by Specific Cause & Organisation

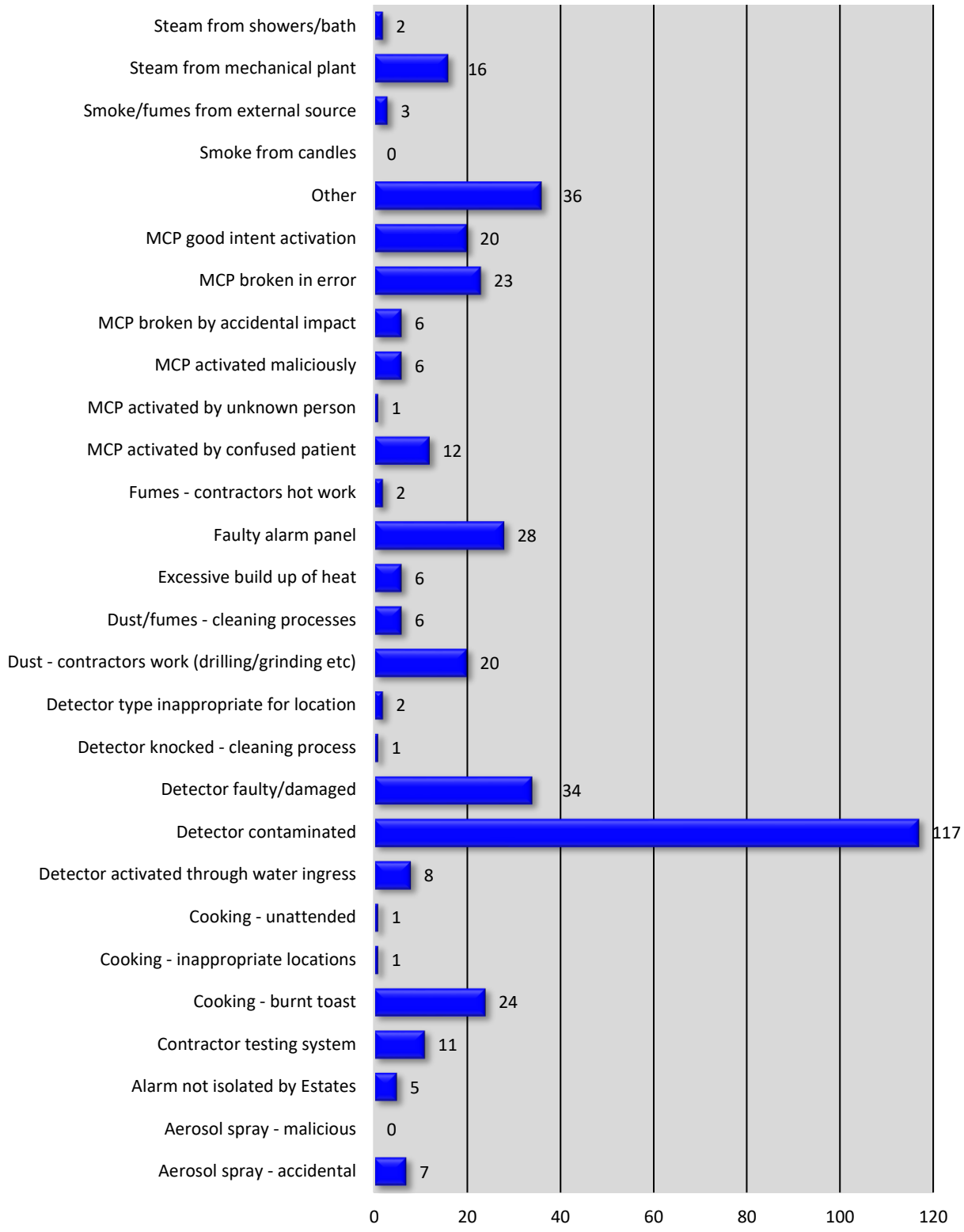
Aneurin Bevan University Health Board - 176 Incidents



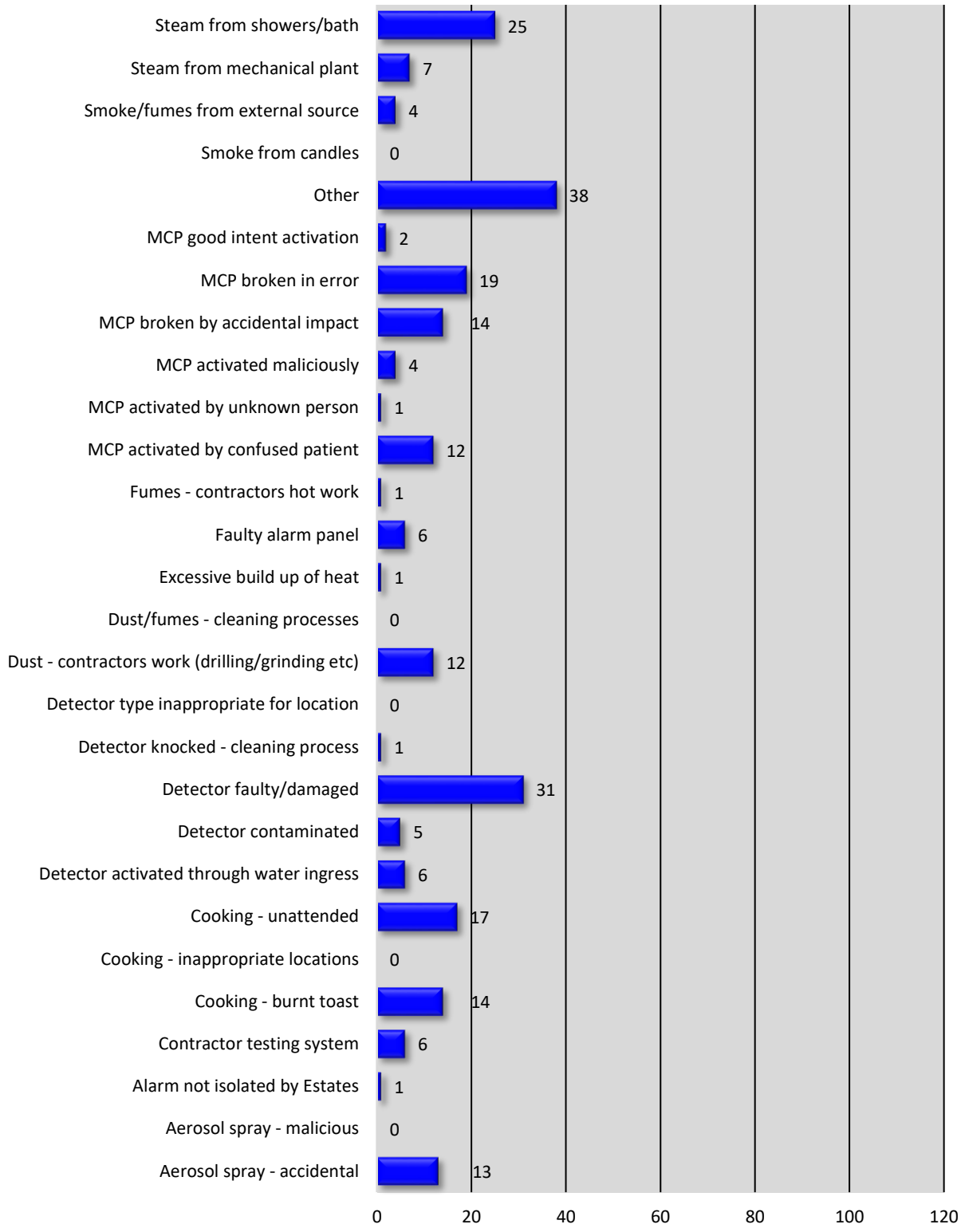
Betsi Cadwaladr University Health Board - 424 Incidents



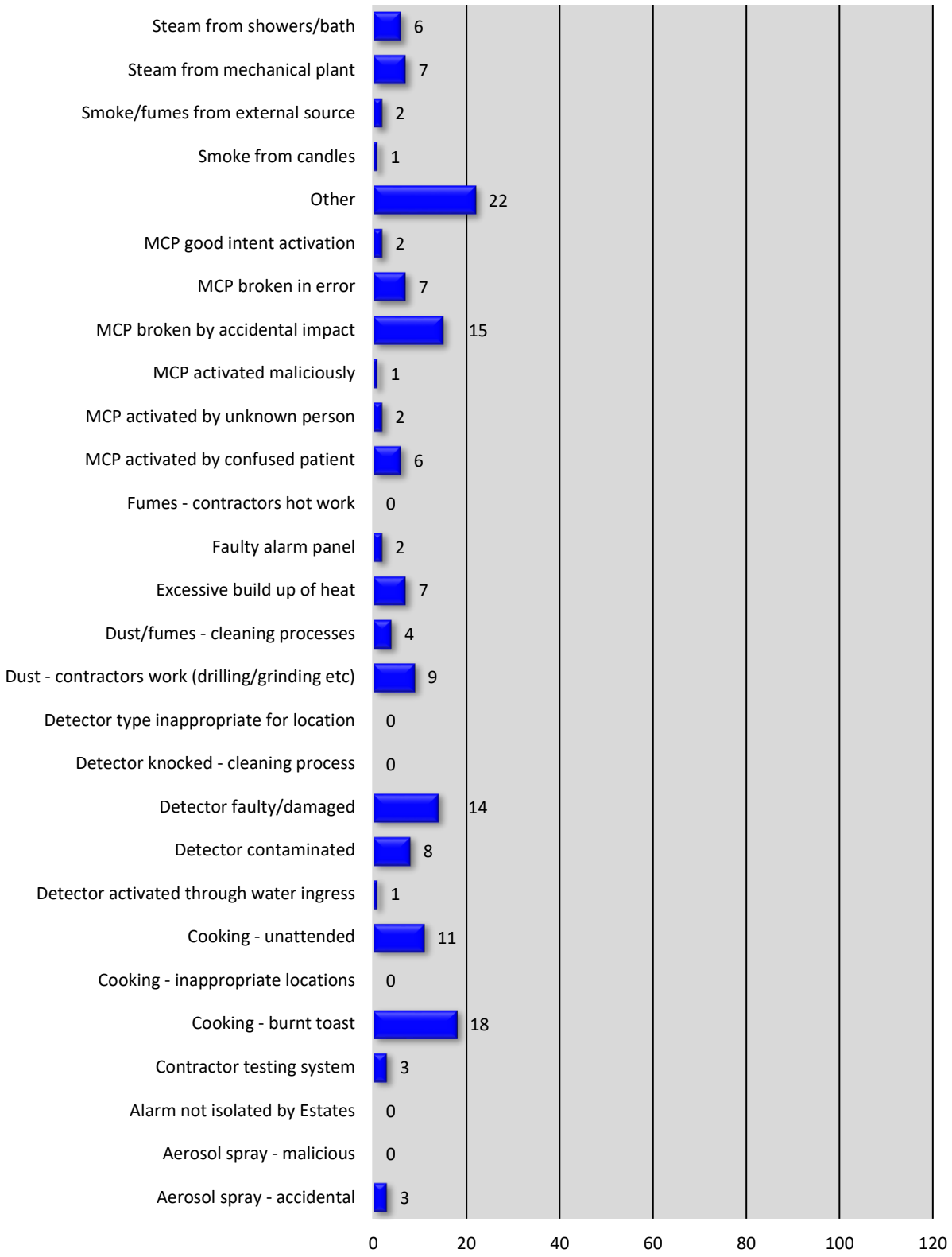
Cardiff & Vale University Health Board - 398 Incidents



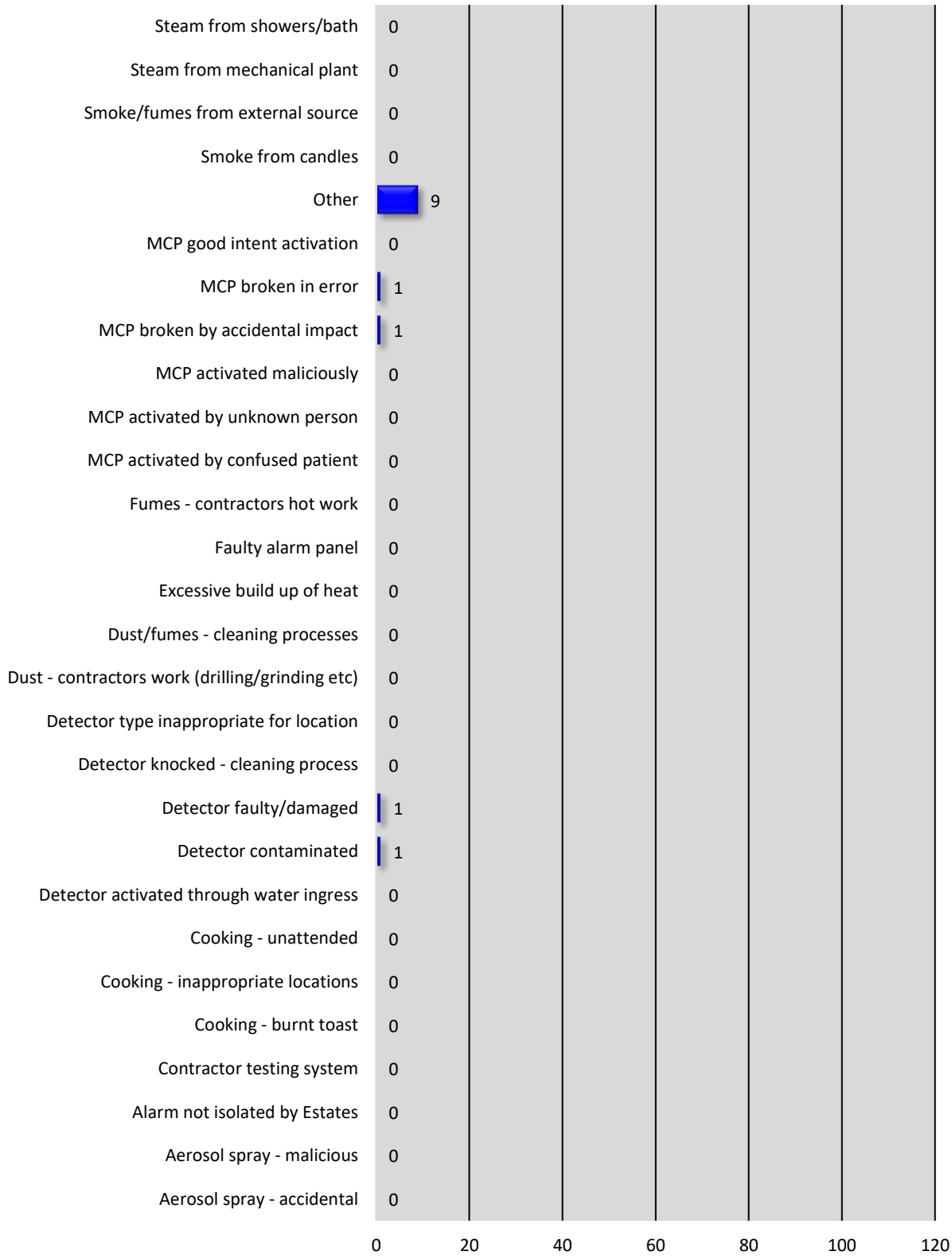
Cwm Taf Morgannwg University Health Board - 240 Incidents



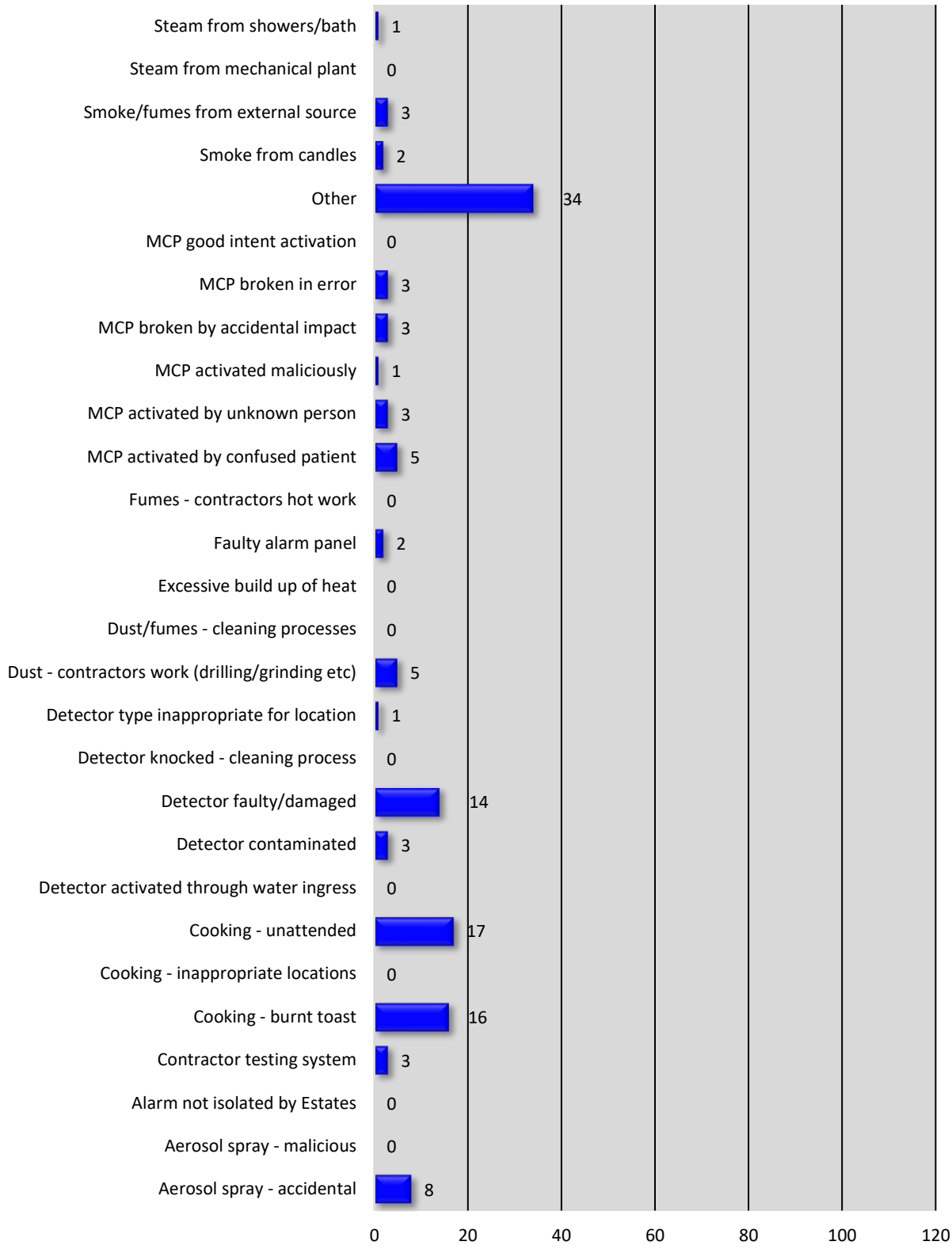
Hywel Dda University Health Board - 151 Incidents



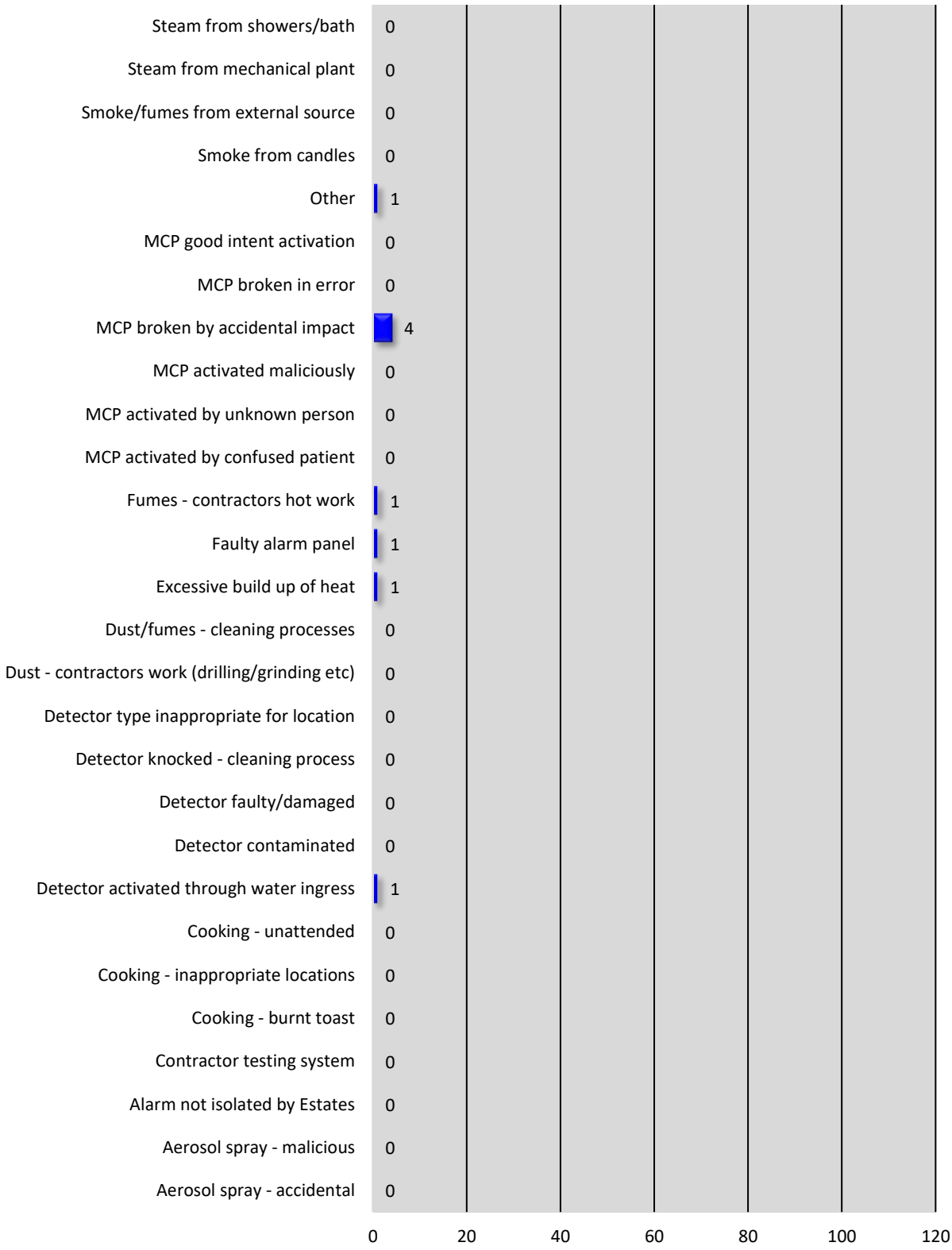
Powys Teaching Health Board - 13 Incidents



Swansea Bay University Health Board - 124 Incidents



Velindre NHS Trust - 9 Incidents

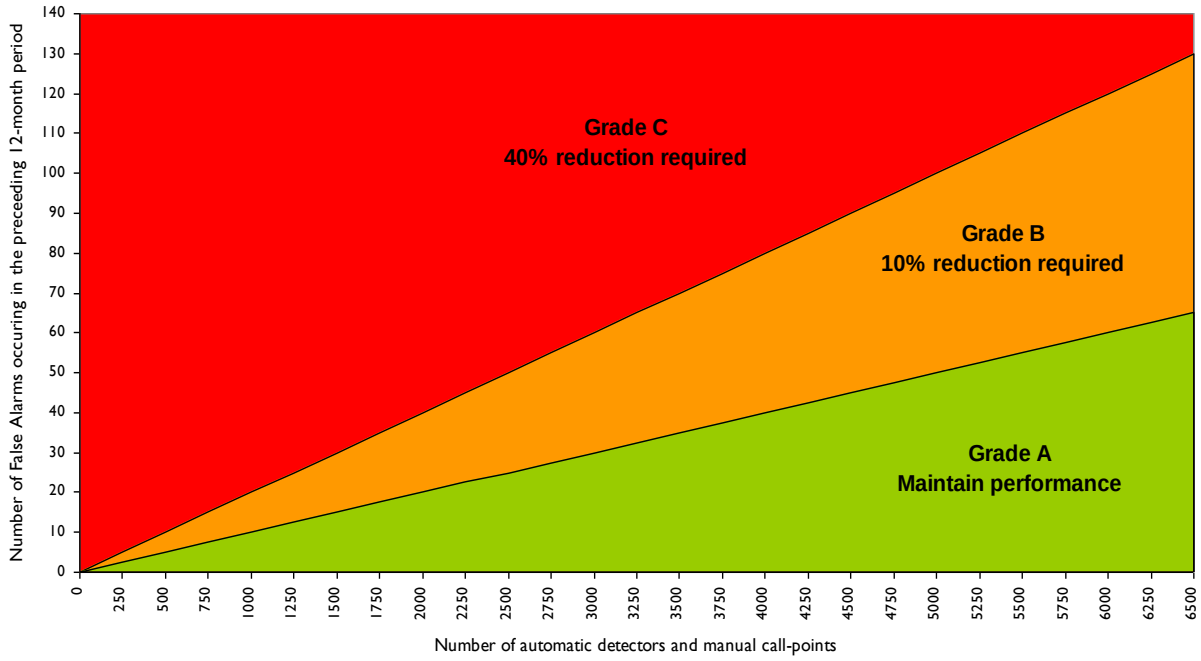


Appendix C

False Alarm and UwFS Performance Chart

The following chart illustrates the performance indicator template for false alarms and UwFS as shown in WHTM 05-03 Part H. This grading system determines the target for false alarm reduction, based on the ratio of incidents and actuation devices.

The performance rating is automatically updated whenever incidents are reported via the online reporting system.



Appendix D contains tabulated data on each organisation's performance by site.

Appendix D

False Alarms/UwFS Performance Grading by Primary Sites

Hospital	False Alarms incl UwFS	Actuation Devices	Performance Grade
Aneurin Bevan University Health Board			
Chepstow Community Hospital	**2**	**504**	**A - performance should be maintained**
County Hospital	**23**	**1018**	**C - 40% reduction in UwFS**
Grange University Hospital	**12**	**2978**	**A - performance should be maintained**
Llanfrechfa Grange	**0**	**400**	**No incidents reported**
Maindiff Court Hospital	**1**	**388**	**A - performance should be maintained**
Monnow Vale Health & Social Care Facility	**0**	**169**	**No incidents reported**
Nevill Hall Hospital	**43**	**2850**	**B - 10% reduction in UwFS**
Royal Gwent Hospital	**42**	**4560**	**A - performance should be maintained**
St Cadoc's Hospital	**19**	**1225**	**B - 10% reduction in UwFS**
St Woolos Hospital	**15**	**953**	**B - 10% reduction in UwFS**
Ysbyty Aneurin Bevan	**3**	**1150**	**A - performance should be maintained**
Ysbyty Tri Chwm	**1**	**130**	**A - performance should be maintained**
Ysbyty Ystrad Fawr	**12**	**2267**	**A - performance should be maintained**
Subtotals	**173**	**18592**	
Betsi Cadwaladr University Health Board			
Abergele Hospital	**5**	**300**	**B - 10% reduction in UwFS**
Ablett Unit	**17**	**401**	**C - 40% reduction in UwFS**
Bodnant Psychiatric Unit	**0**	**70**	**No incidents reported**
Bron-y-Nant Residences 1 - 30	**3**	**not specified**	**Not available**
Bron-y-Nant Residences 31 +	**6**	**not specified**	**Not available**
Bryn Beryl Hospital	**1**	**113**	**A - performance should be maintained**
Bryn-y-Neuadd Hospital	**18**	**790**	**C - 40% reduction in UwFS**
Cefni Hospital	**0**	**213**	**No incidents reported**
Chirk Community Hospital	**0**	**108**	**No incidents reported**
Coed Celyn Support Unit	**2**	**30**	**C - 40% reduction in UwFS**
Colwyn Bay Community Hospital	**0**	**472**	**No incidents reported**
Deeside Community Hospital	**1**	**353**	**A - performance should be maintained**
Denbigh Community Hospital	**0**	**281**	**No incidents reported**
Dolgellau & Barmouth District Hospital	**0**	**79**	**No incidents reported**
Eryri Hospital	**2**	**155**	**B - 10% reduction in UwFS**
Hergest Unit	**11**	**176**	**C - 40% reduction in UwFS**
Holywell Community Hospital	**1**	**308**	**A - performance should be maintained**
Llandudno General Hospital	**12**	**871**	**B - 10% reduction in UwFS**
Mold Community Hospital	**2**	**161**	**B - 10% reduction in UwFS**
North Wales Child & Adolescent Service	**3**	**0**	**C - 40% reduction in UwFS**
Penley Hospital	**2**	**60**	**C - 40% reduction in UwFS**

Royal Alexandra Hospital	**0**	**357**	**No incidents reported**
Ruthin Community Hospital	**0**	**188**	**No incidents reported**
Staff Residences - Ysbyty Gwynedd	**86**	**not specified**	**Not available**
Staff Residences YGC	**44**	**not specified**	**Not available**
Ty Llewelyn	**0**	**205**	**No incidents reported**
Tywyn & District War Memorial Hospital	**0**	**106**	**No incidents reported**
Ysbyty Alltwen Community Hospital	**0**	**346**	**No incidents reported**
Ysbyty Glan Clwyd	**68**	**3200**	**C - 40% reduction in UwFS**
Ysbyty Gwynedd	**36**	**3625**	**A - performance should be maintained**
Ysbyty Maelor	**101**	**4514**	**C - 40% reduction in UwFS**
Ysbyty Penrhos Stanley	**1**	**230**	**A - performance should be maintained**
Subtotals	**422**	**17712**	

Cardiff & Vale University Health Board			
Barry Hospital	**1**	**562**	**A - performance should be maintained**
Cardiff Royal Infirmary	**9**	**2000**	**A - performance should be maintained**
Hafan Y Coed	**27**	**1274**	**C - 40% reduction in UwFS**
Llandough Hospital	**74**	**6500**	**B - 10% reduction in UwFS**
Rookwood Hospital	**9**	**425**	**C - 40% reduction in UwFS**
St David's Hospital (Cardiff)	**0**	**600**	**No incidents reported**
University Hospital of Wales	**274**	**20000**	**B - 10% reduction in UwFS**
Whitchurch Hospital	**1**	**2059**	**A - performance should be maintained**
Subtotals	**395**	**33420**	

Cwm Taf Morgannwg University Health Board			
Caswell Clinic	**14**	**510**	**C - 40% reduction in UwFS**
Dewi Sant Hospital	**2**	**553**	**A - performance should be maintained**
Glanrhyd Hospital	**9**	**800**	**B - 10% reduction in UwFS**
Maesteg Community Hospital	**0**	**210**	**No incidents reported**
PCH - Staff Residences	**1**	**426**	**A - performance should be maintained**
Pontypridd & District Hospital	**1**	**293**	**A - performance should be maintained**
POW - Staff Residences	**12**	**234**	**C - 40% reduction in UwFS**
Prince Charles Hospital	**54**	**3480**	**B - 10% reduction in UwFS**
Princess of Wales Hospital	**49**	**4937**	**A - performance should be maintained**
Royal Glamorgan Hospital	**56**	**3743**	**B - 10% reduction in UwFS**
Taith Newydd	**0**	**224**	**No incidents reported**
Ysbyty Cwm Cynon	**13**	**1468**	**A - performance should be maintained**
Ysbyty Cwm Rhondda	**6**	**1020**	**A - performance should be maintained**
Ysbyty George Thomas	**3**	**385**	**A - performance should be maintained**
Subtotals	**220**	**18283**	

Hywel Dda University HB			
Amman Valley Hospital	**0**	**182**	**No incidents reported**
Bronglais General Hospital	**12**	**2850**	**A - perform ance should be maintained**

Canolfan Bro Cerwyn	**5**	**420**	**B - 10% reduction in UwFS**
Cardigan & District Memorial Hospital	**0**	**150**	**No incidents reported**
Glangwili General Hospital	**56**	**3097**	**B - 10% reduction in UwFS**
Hafan Derwen	**10**	**922**	**B - 10% reduction in UwFS**
Llandovery Hospital	**0**	**104**	**No incidents reported**
Prince Philip Hospital	**20**	**2482**	**A - performance should be maintained**
Prince Philip Hospital - Staff Residences	**5**	**315**	**B - 10% reduction in UwFS**
South Pembrokeshire Hospital	**0**	**310**	**No incidents reported**
Tregaron Hospital	**0**	**105**	**No incidents reported**
Withybush General Hospital	**40**	**3050**	**B - 10% reduction in UwFS**
Subtotals	**148**	**13987**	

Powys Teaching HB			
Brecon War Memorial Hospital	**3**	**727**	**A - performance should be maintained**
Broddyfi Community Hospital	**0**	**265**	**No incidents reported**
Bronllys Hospital	**5**	**862**	**A - performance should be maintained**
Knighton Hospital	**0**	**189**	**No incidents reported**
Llandrindod Wells Hospital	**1**	**338**	**A - performance should be maintained**
Llanidloes & District Hospital	**3**	**183**	**B - 10% reduction in UwFS**
Montgomery County Infirmary	**0**	**310**	**No incidents reported**
Victoria Memorial Hospital	**0**	**231**	**No incidents reported**
Ystradgynlais Community Hospital	**1**	**343**	**A - performance should be maintained**
Subtotals	**13**	**3448**	

Swansea Bay University HB			
Cefn Coed Hospital	**0**	**1200**	**No incidents reported**
Cimla Hospital	**0**	**160**	**No incidents reported**
Gorseinon Hospital & Bungalows	**0**	**114**	**No incidents reported**
Morriston Hospital	**44**	**6000**	**A - performance should be maintained**
Neath Port Talbot Hospital	**16**	**1900**	**A - performance should be maintained**
Singleton Hospital	**59**	**3491**	**B - 10% reduction in UwFS**
Tonna Hospital	**0**	**400**	**No incidents reported**
Ty Garngoch	**0**	**0**	**No incidents reported**
Subtotals	**119**	**13265**	

Velindre NHS Trust			
Velindre Hospital	**9**	**1200**	**A - performance should be maintained**
Subtotals	**9**	**1200**	

Appendix E

WHTM 05-03H Categories of False Alarms

	Class	Task force definition	Examples
1	Malicious	Incident in which the fire alarm system has been activated as the result of the actions of a person who is aware that there is no fire.	Operation of a manual call point or tampering with an automatic detector with the intention of raising a fire alarm signal, knowing that there is no fire.
2	Good intent	Incident in which the fire alarm system has been activated by a person in the belief that there is a fire, when no fire actually exists.	Operation of a manual call point or tampering with an automatic detector with the intention of raising a fire alarm signal, knowing that there is no fire.
3	Accidental damage	Incident in which the fire alarm system has been activated as a result of accidental mechanical damage.	Accidental mechanical damage to an automatic detector, manual call point, extinguishing system component, wiring or control equipment; ingress of water to equipment.
4	Alarm activated by patient or public	Incident in which the fire alarm system has been activated as a result of the actions of a person who is not a member of staff when there is no fire.	Fire alarm break glass point or detector activated where the person has not intended to act maliciously.
5	Environmental effect Cooking fumes	Incident in which the system has responded to a fire-like phenomenon or environmental influence. (Other than those in 6 to 8)	Unwanted alarm as a result of detection of cooking.
6	Environmental effect Smoking	Incident in which the system has responded to a fire-like phenomenon or environmental influence (Other than those in 5, 7 and 8).	Unwanted alarm as a result of detection of smoke from smoking material.
7	Environmental effect Insects	Incident in which the system has responded to a fire-like phenomenon or environmental influence (Other than those in 5, 6 and 8).	Unwanted alarm as a result of detection of insects.
8	Environmental effect Other	Incident in which the system has responded to a fire-like phenomenon or environmental influence (Other than those in 5 to 7).	Unwanted alarm as a result of detection of environmental influences, other than those included in 5 to 7. This would include a fire outside the building, such as controlled burning which has activated a smoke detector.
9	System fault/design	Incident in which the system has produced a fire alarm signal as a result of an identifiable, diagnosed fault.	Circuit fault. Faulty detector. Unsuitable equipment or positioning.
10	System procedures not complied with	Incident which resulted in inappropriate response to incorrect action by a person (Other than malicious action or accidental damage to the system and/or those in 7).	Test of system without prior notification of an alarm-receiving centre. Not closing off detectors when undertaking construction, etc. Not using permit-to-work, e.g. hot working under detection.

11	Management procedures not complied with/ building not used correctly	Incident which resulted in inappropriate response to incorrect action by a person (Other than those in 6).	Incorrect building management such as leaving fire doors to kitchens wedged open, actuating adjacent smoke detectors.
12	Bomb alerts	Incident which resulted in inappropriate response to the fire alarm being activated in order to evacuate persons from the premises in the case of or bomb warning or hoax.	Fire alarm activated by building manager following receipt of a bomb alert in order to evacuate the building quickly. The fire alarm should not be used for this purpose. The attendance at the building of the fire service would put fire-fighters unnecessarily at risk.
13	Sprinkler alarm – water pressure	Alarm signal arising from fluctuation of pressure within the sprinkler installation.	Increase in pressure of a town's main, pressure surge on start of sprinkler pumps, or loss of pressure in system.
14	Sprinkler alarm – other known causes	Alarm signal arising from a sprinkler installation for a known reason other than damage or water pressure variation.	Increase in pressure of a town's main, pressure surge on start of sprinkler pumps, or loss of pressure in system.
15	Unknown	Alarm signal arising from a source that cannot be reliably identified.	Unwanted alarm as a result of detection for reasons others than those included.

Appendix F

Specific Cause of False Alarms
Fire & UwFS Database

- Aerosol spray - accidental
- Aerosol spray - malicious
- Alarm not isolated by Estates
- Contractor testing system
- Cooking - burnt toast
- Cooking - inappropriate locations
- Cooking - unattended
- Detector activated through water ingress
- Detector contaminated
- Detector faulty/damaged
- Detector knocked - cleaning process
- Detector type inappropriate for location
- Dust - contractors work (drilling/grinding etc)
- Dust/fumes - cleaning processes
- Excessive build-up of heat
- Faulty alarm panel
- Fumes - contractors hot work
- MCP activated by confused patient
- MCP activated by unknown person
- MCP activated maliciously
- MCP broken by accidental impact
- MCP broken in error
- MCP good intent activation
- Smoke from candles
- Smoke/fumes from external source
- Steam from mechanical plant
- Steam from showers/bath
- Other