GIG CYMRU NHS WALES
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Shared Services Partnership
Specialist Estates Services

NHS Estate in Wales

Fire Statistics Report

Fire Incidents and Unwanted Fire Signals 2023

NHS ESTATE IN WALES

FIRE STATISTICS REPORT

2023

Report by

NWSSP - Specialist Estates Services
for the
Welsh Government
on

Fire Incidents and Unwanted Fire Signals 2023

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ORIGINATOR: **R Megahey** (Signed)
Assistant Fire Safety Advisor

AUTHORISED: **A Pitcher** (Signed)
Senior Fire Safety Advisor

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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 2022, published by NHS Wales Shared Services Partnership - Specialist Estates Services (NWSSP - SES) in February 2023. It provides a detailed account of all fire incidents and UwFS reported for the calendar year 1st January 2023 - 31st December 2023, via the online *Fire & UwFS Incident Reporting System.* During this period a total of 48 fire incidents and 1699 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 48 reported fire incidents during 2023, a 30% increase over the 37 fire incidents reported in 2022. The number of UwFS also rose from 1535 to 1699, representing a 11% increase on the previous year's data.

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 In 2023, the leading causes of fires were electrical equipment failure (20 incidents) and deliberate incidents (13 incidents), collectively representing 68% of reported fires. This underscores the need for robust testing and maintenance. Additionally, it highlights the necessity for enhanced awareness and control measures to prevent arson, focusing on the control of ignition sources within the Mental Health sector.

2.4 Overall, the majority of fires were detected early and dealt with effectively, averting much more serious outcomes. 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.

2.5 During 2023, the most significant causes of UwFS were recorded as system related incidents 416 (24%), followed by Manual Call Point activations accounting for 315 (19%) incidents. These incidents could be reduced by replacement of obsolete equipment and 'designing out' UwFS with the use of technological advances and protective covers to call points.

2.6 The report also identifies that improved management procedures and greater awareness are necessary to reduce the frequency of other causes such as cooking related activities.

2.7 UwFS cause considerable disruption to both the NHS and the FRS. Continued efforts to reduce the occurrence of these incidents by adopting proactive management arrangements and following the current published standards and guidance contained in BS 5839-1[1], HTM 05-03B[2] and WHTM 05-03H[3], should be regarded as a high priority. However, on no account should the endeavours to reduce UwFS jeopardise patient safety.

[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 Healthcare fire strategies rely on comprehensive fire alarm systems to enable early detection and instigation of response procedures. Within Wales, NHS Organisations are mandated to record all fire alarm activations utilising the online reporting system. The 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.

3.2 Whilst fire incidents are relatively infrequent, a significant number of UwFS will be inevitable considering the size of the NHS estate and extent of detection. The online reporting system currently collates data from over 500 NHS buildings including almost 100 hospital sites and shows that there are almost 120,000 actuation devices in the hospital sites alone.

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. 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. 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 Whilst all NHS organisations have maintenance contracts in place for the servicing of fire alarm systems, it should be noted that some of the systems installed in NHS premises, are considered obsolete. These antiquated systems are less reliable and can be more prone to causing UwFS. Further information regarding the age and condition of existing fire alarm systems is detailed in SESN 24-05 Fire Alarm Survey Report.

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

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 2024. The revised edition of HTM 05-3B will place greater emphasis on responsibilities for managing and maintaining reliable fire alarm systems.

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 currently 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 FRSs 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 FRSs 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, hospital switchboard 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 2021 to 31st December 2023 a total of 117 fire incidents were reported, 48 of which occurred in 2023, representing a 30% increase of incidents compared with 2022.

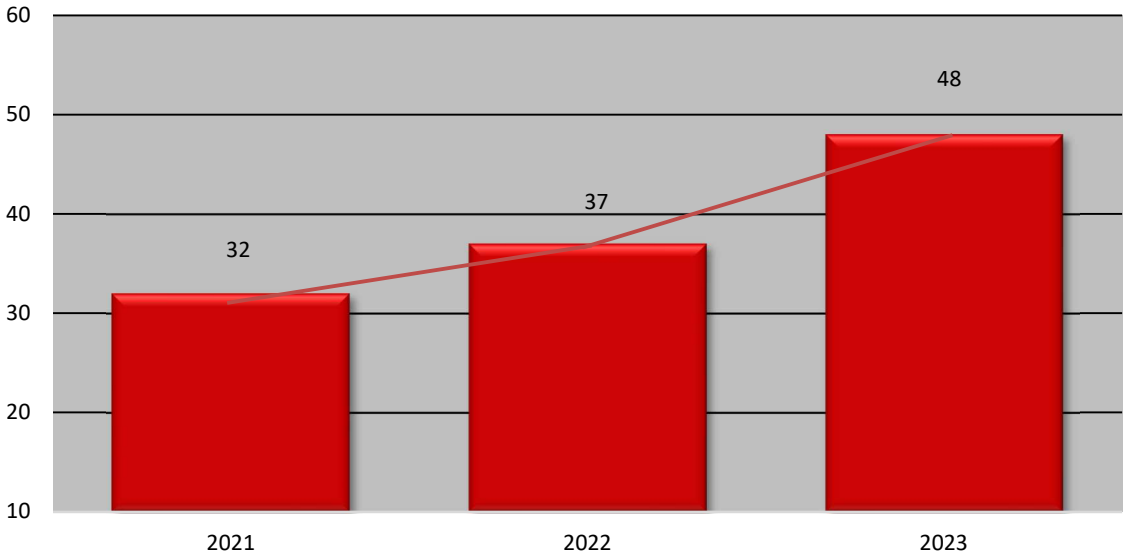


Figure 1 Fire incidents by year illustrating a continued increase.

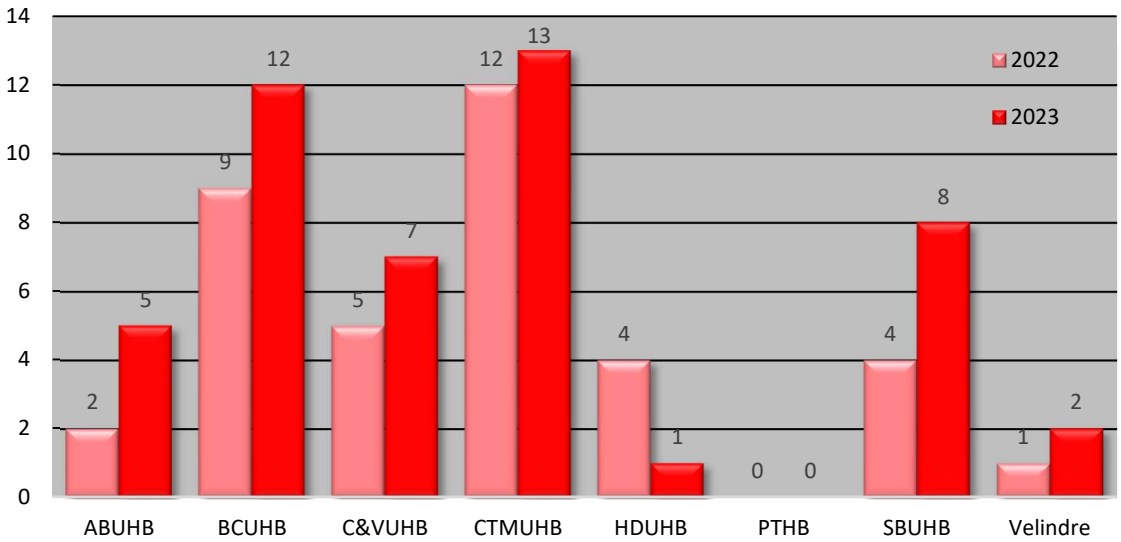


Figure 2 Fire incidents by Health Board 2022 - 2023

The majority of these fire incidents were dealt with promptly and efficiently by staff prior to the arrival of the FRS. However, two incidents resulted in patients 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.

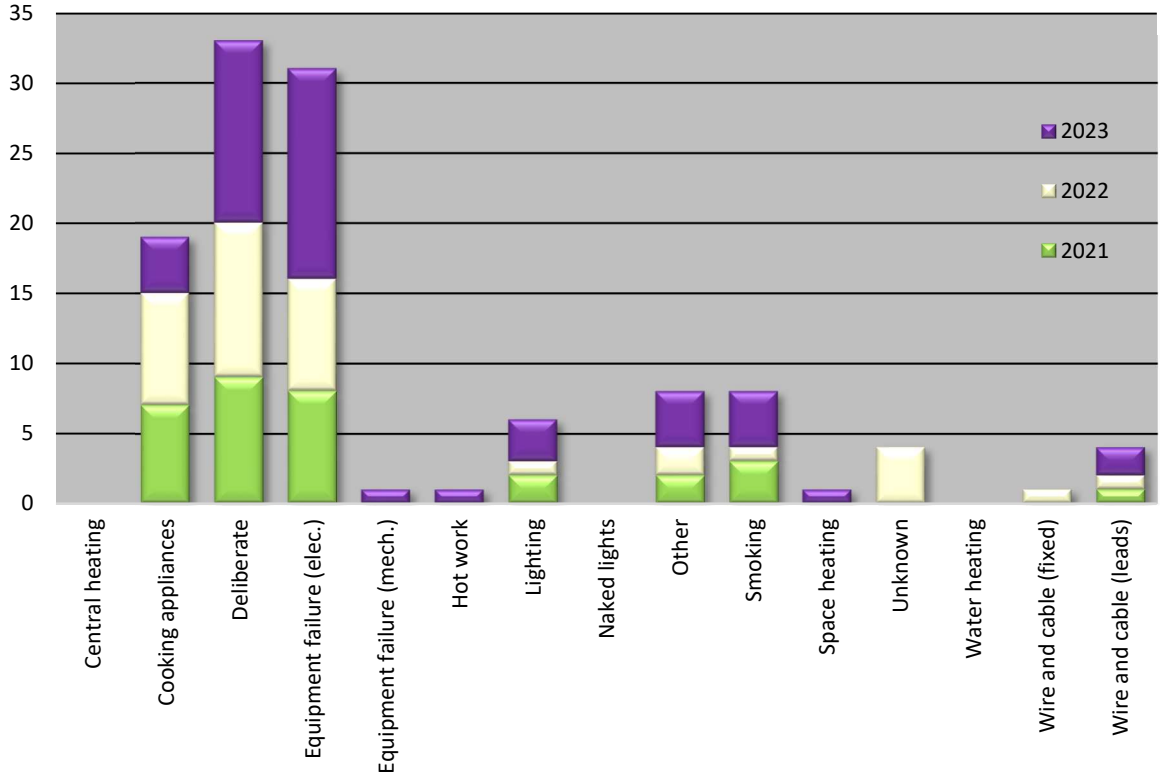


Figure 3 Fires by cause 2021 - 2023

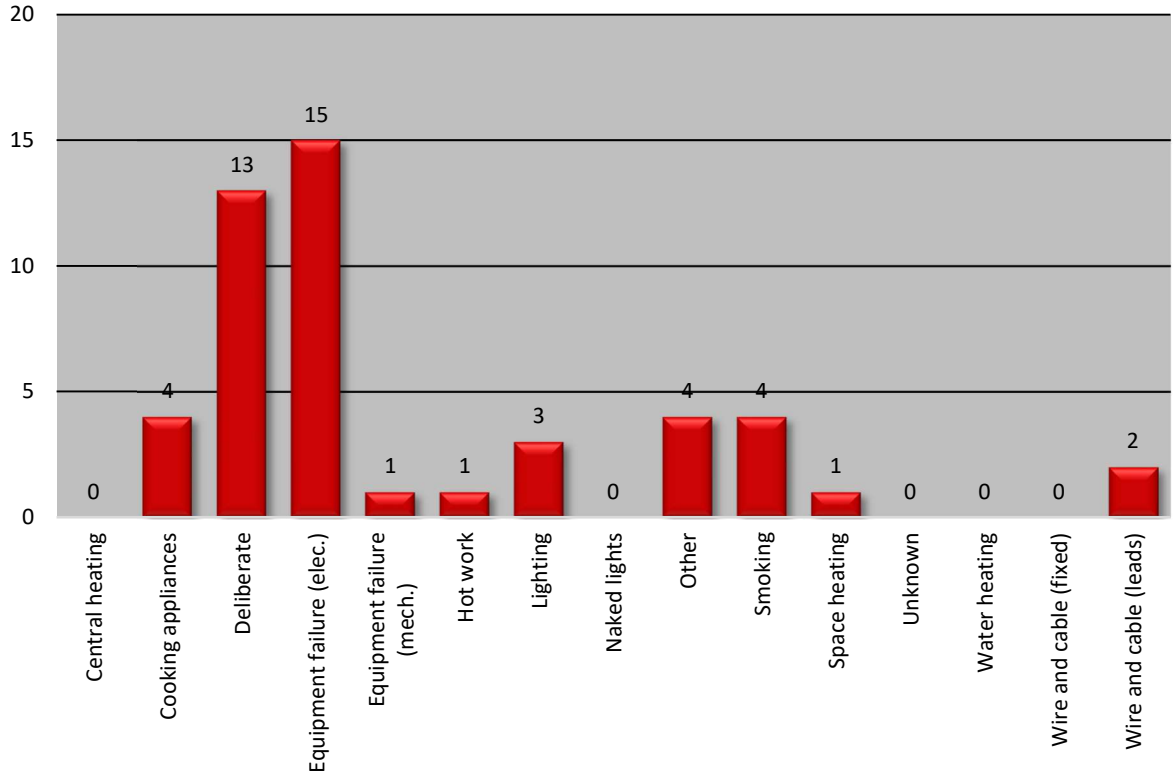


Figure 4 Fires by cause 2023

Figure 4 above shows the cause of fire incidents reported during 2023. 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) (20 incidents: 42%)

During 2023, 20 fires involving electrical equipment were reported, almost doubling the number of electrical-related incidents reported during 2022. *Electrical equipment failure* as a cause of fire, accounts for 42% of all reported fire incidents and remains the most frequent cause of fires across 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.

Whilst the fire spread of these 20 electrical-related fire incidents remained confined to the individual item of equipment, these incidents caused significant disruption to the affected area and in one incident resulted in evacuation of the entire building.

Figure 5 Example of an electrical-related fire involving a small portable heater, demonstrating the need to ensure equipment is appropriately tested, maintained, and used.

Figure 6 Example of an electrical-related fire attributed to the installation of an inappropriate AC isolator on a Photovoltaic (PV) system.

The risks associated with personal rechargeable equipment such as mobile phones, tablets and e-cigarettes continue to be evident. 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[4] 'Fire risk from personal rechargeable electronic devices'. Of equal importance, WG EFA 2017/003[5] also addresses the replacement and safe disposal of batteries that could present a fire risk if not followed.

Summary of main points

- Fires involving electrical equipment remain 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.

[4] Welsh Government Estates & Facilities Alert 2018/007 *Fire risk from personal rechargeable electronic devices* was issued on 5th December 2018.
[5] 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.

5.1.3 **Deliberate** (13 incidents: 27%)

In 2023, deliberate fire-raising accounted for 13 incidents (27% of all fires), an increase of 2 fires on the previous year.

A total of 10 of these fires (77%) were started by patients within the Mental Health sector; the ignition of furnishings, waste 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 externally within the hospital grounds/healthcare settings.

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.

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.

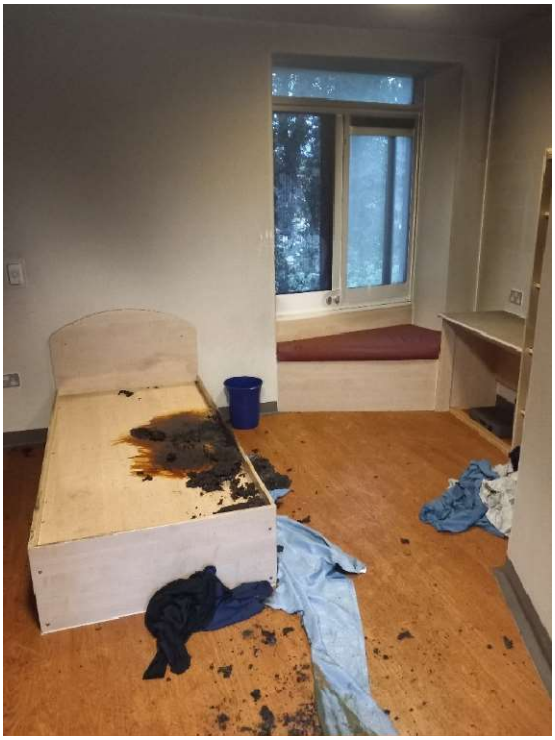


Figure 7 and 8 - Example of deliberate ignition to a bedroom within a Mental Health Ward

Although there were no reported instances of deliberate fire-raising within derelict/disused buildings on NHS premises during 2023; this still remains a concern due to the number of these potentially vulnerable buildings in existence across the healthcare estate. SESN 19/06[6] 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.
- The majority of the incidents involved the Mental Health sector, where typically furnishings, waste and clothing were the first materials ignited.
- 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 **Smoking** (4 incidents: 8%)

In 2023, fires due to smoking totalled 4 incidents, an increase from the single incident reported in 2022. The majority of these incidents occurred in external waste bins from discarded cigarette ends.

All NHS organisations operate smoke free policies on sites across their estate, in line with the Welsh Government's smoking legislation. Albeit there is little evidence to suggest these policies are being effectively managed, as illicit smoking remains a common sight at entrances or secluded areas.

In addition, the increase in vaping practices across the NHS estate raises concerns regarding fire risks associated with smoking and safe waste management of disposable Vapes (lithium batteries). These increased risks necessitate that proactive mitigation strategies are implemented, noting that improper battery disposal resulted in one of the 48 fire incidents during 2023.

Summary of main points

- There is clear continuing evidence on many hospital sites of uncontrolled and illicit smoking activities close to main entrances and within secluded areas.
- The majority of smoking related incidents are caused by carelessly discarded smoking materials.

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

- The increase of vaping requires proactive risk mitigation measures to ensure the management of smoking risks and safe waste management of disposable devices.

5.1.5 **Cooking** (4 incidents: 8%)

Cooking related activities accounted for 4 incidents (8% of all fires) during 2023; This number has halved from the cooking related fires in 2022. These incidents typically result from food being left unattended in local kitchens within departmental areas on hospital premises or staff residences.

Summary of main points

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

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 waste, fittings, other furnishings or textiles.

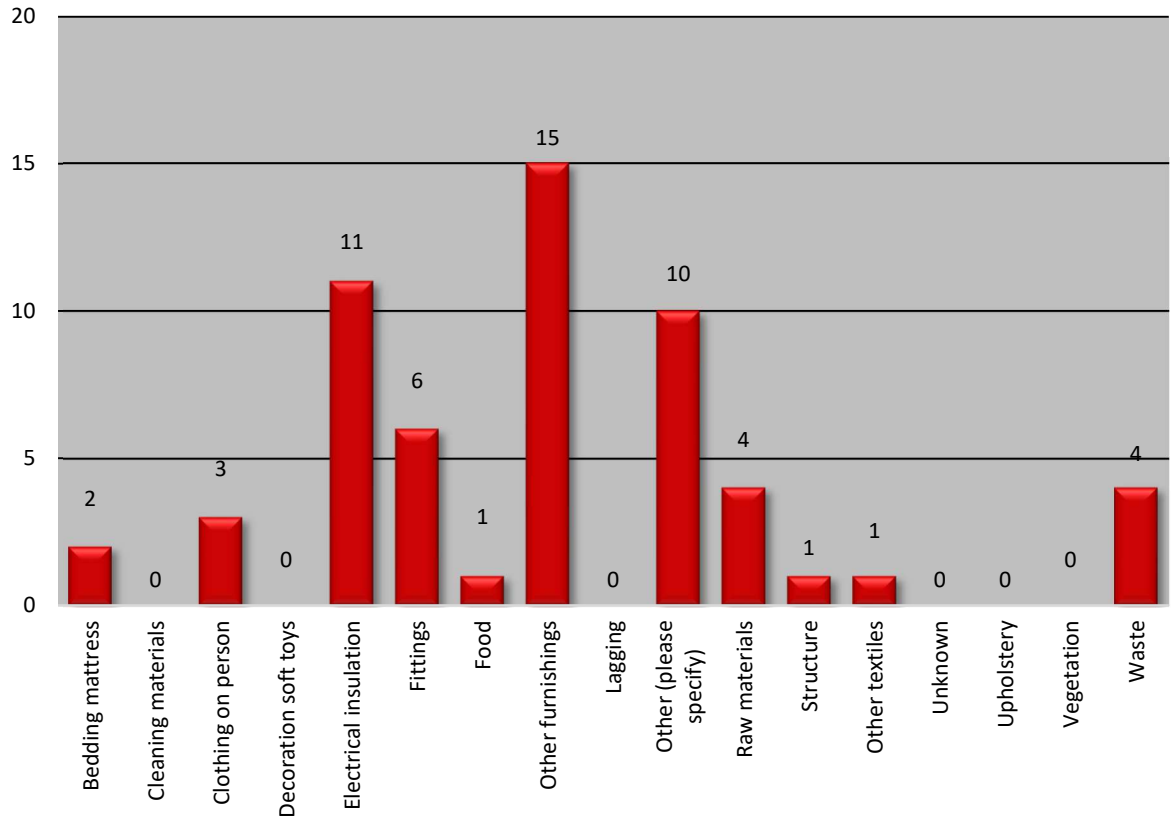


Figure 9 Material first ignited

5.1.7 Discovery of fires

Of the 48 reported incidents in 2023, 40 (83%) were discovered by people, with 8 (17%) incidents raised by automatic means.

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.

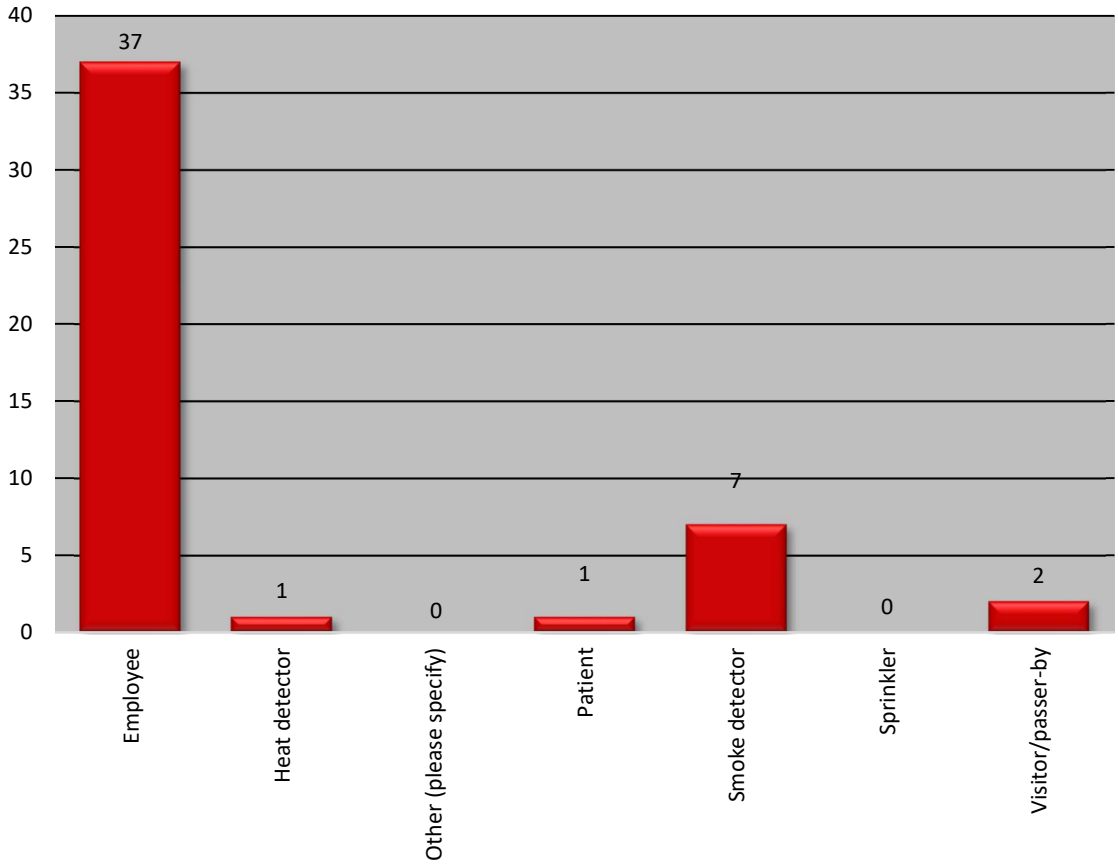


Figure 10 Discovery of fires

5.1.8 Methods of extinguishment

Figure 11 below gives an indication of the methods of extinguishment of all fires that occurred during 2023, some of which involved a combination of different methods. For instance, 25 fires (52%) were extinguished as a result of intervention from staff utilising portable extinguishers and/or dousing with water. Only 4 fires (8%) were extinguished by the FRS.

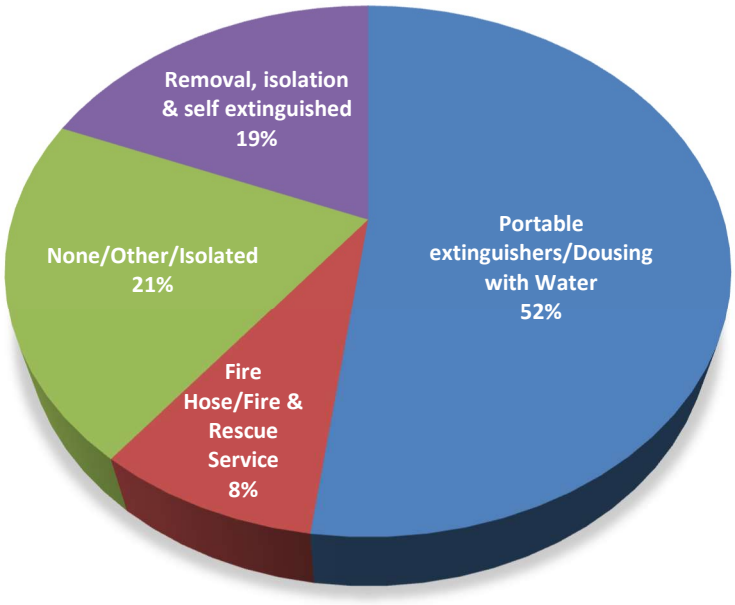


Figure 11 Methods of extinguishment

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 1st January 2023 and 31st December 2023, 1699 UwFS were reported, utilising the online Fire & UwFS Incident Reporting System. As illustrated in Figure 12 below, this demonstrates a significant increase of 164 (11%) UwFS incidents when compared with the previous year and continues an upward trend.

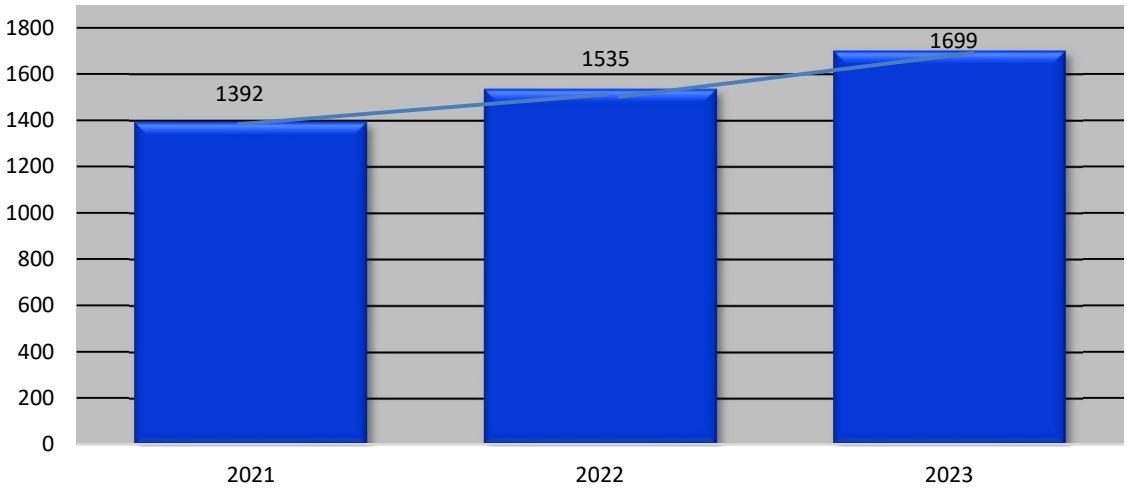


Figure 12 UwFS by year

It remains evident that an element of under-reporting by the Health Boards still exists. This distorts the actual situation in respect of the number of UwFS experienced across the NHS in Wales. Therefore, 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 details the number of UwFS by health boards, illustrating that the increase of incidents is generally consistent across all Organisations, with the exception of C&VUHB and Velindre both of which demonstrate a welcome decrease in incident numbers.

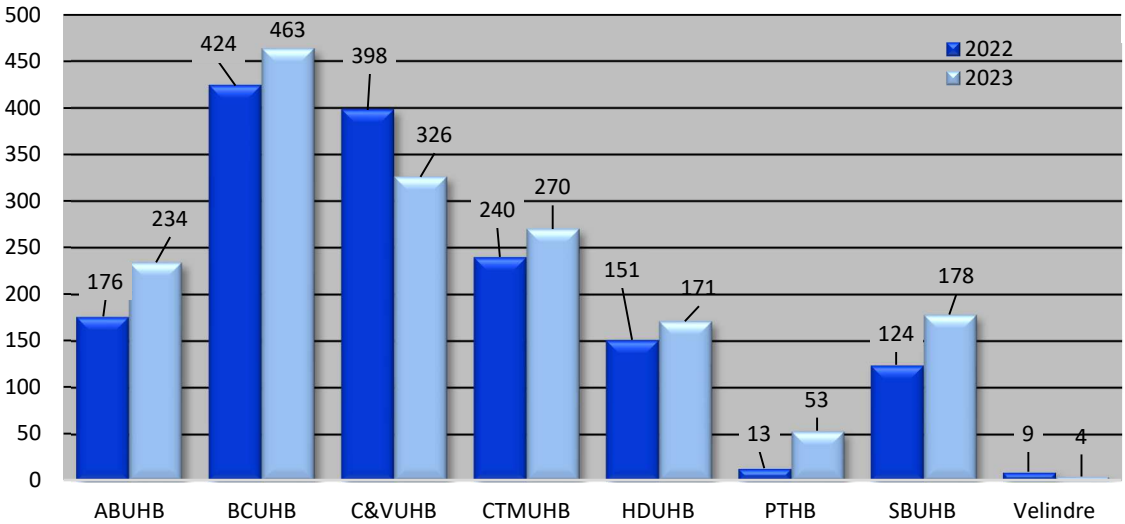


Figure 13 UwFS by Health Board 2022 - 2023

5.2.1 Specific Causes of UwFS

The Categories of False Alarms defined in WHTM 05-03H (see Appendix E of this report) 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).

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

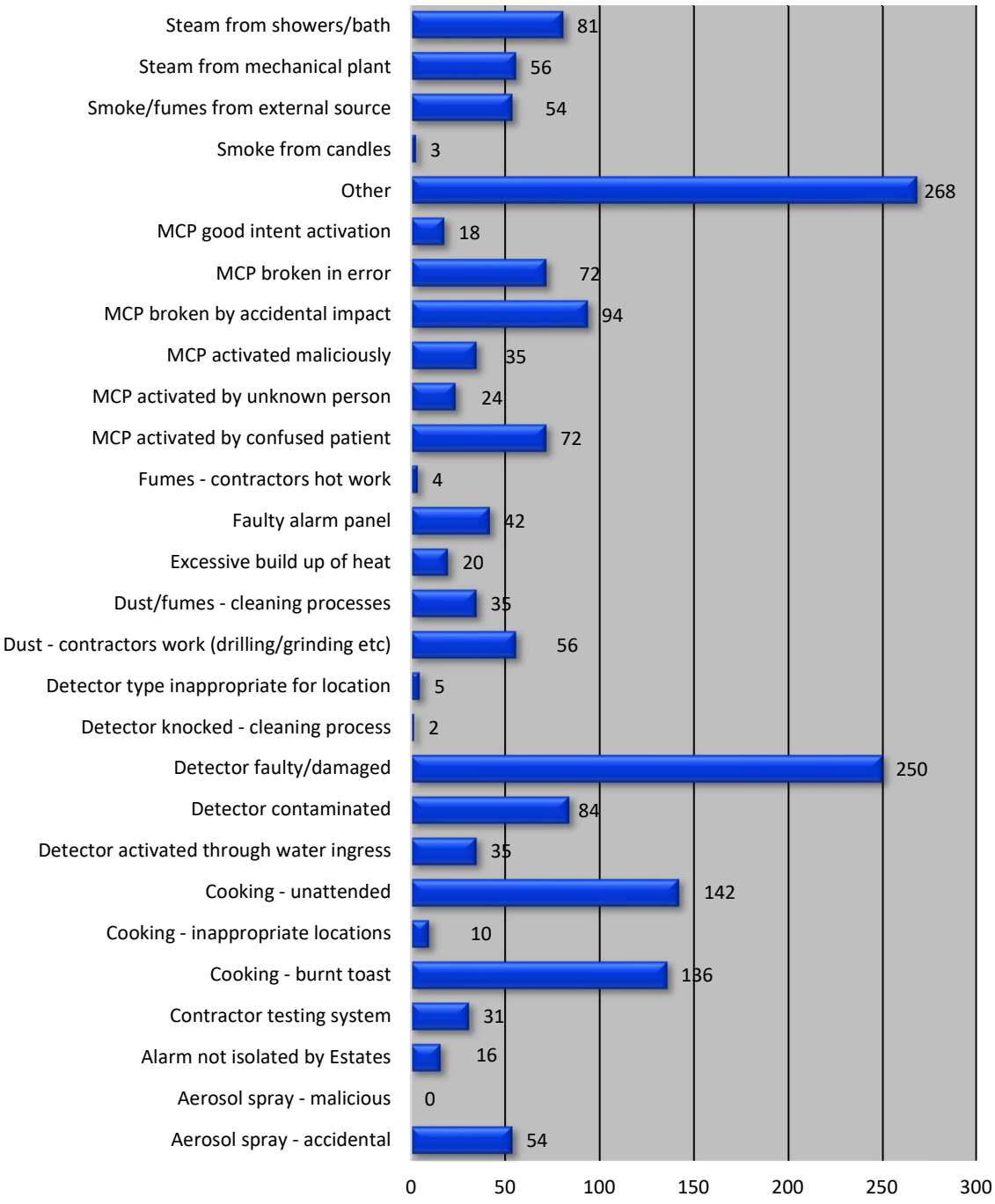


Figure 14 UwFS by Specific cause 2023 (1699 incidents)

5.2.2 **System Related Issues** (416 incidents: 24%)

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

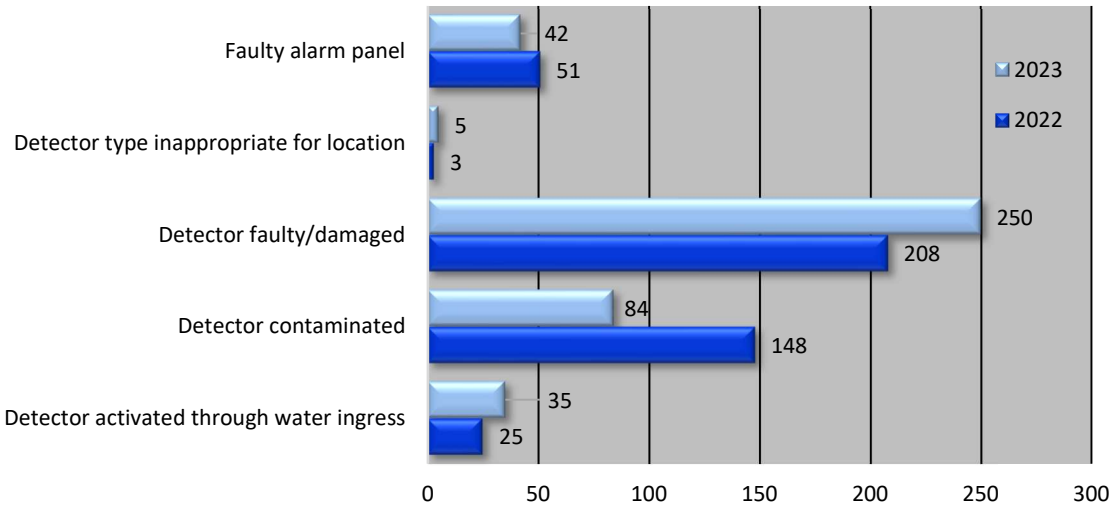


Figure 15 UwFS as a result of system related issues

During 2023, there were 416 reported UwFS attributed to system related issues, a 4% decrease on the 435 reported during 2022.

Of the 416 recorded UwFS, 250 were due to *detector faulty/damaged* (17% increase) and 84 were due to *detector contaminated* (76% decrease), accounting for 334 (80%) 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. As noted previously, further information regarding the age and condition of existing fire alarm systems across NHS Wales is detailed in SESN 24-05 Fire Alarm Survey Report.

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** (315 incidents: 19%)

This section examines incidents attributed to alarm activations via the use of MCPs, which have increased from 295 to 315 during 2023.

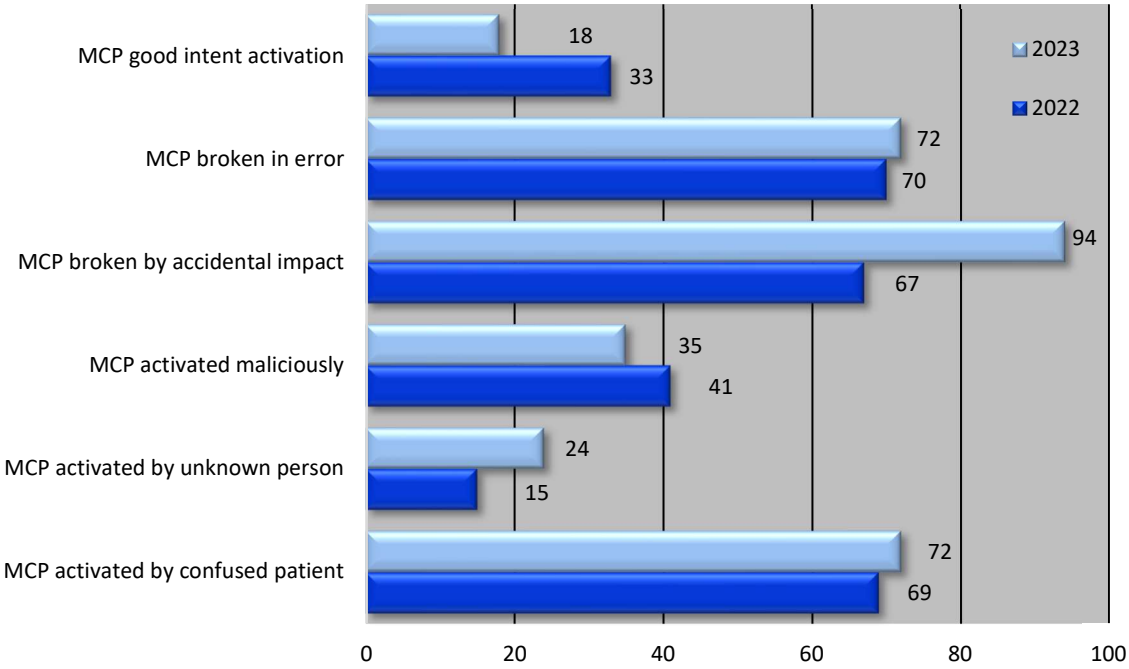


Figure 16 Specific cause attributed to activation of MCP's

MCP related incidents account for almost 20% of all UwFS. NHS organisations should ensure all future installations and upgrades include protective covers to MCPs (some with screechers) in accordance with BS 5839-1. Furthermore, consideration should be given to expediting the retrofitting of covers to MCPs 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 MCPs may be considered, evidence of which can be seen at a number of Mental Health facilities.

There has been a rise in the accidental impact of MCPs from 67 incidents up to 94. Relocating existing MCPs or the sympathetic siting of MCPs at installation stage, would avoid risk from accidental impact, assisting in reducing these types of incidents further.

There were 72 incidents recorded in both categories of *MCP broken in error* and *MCP activated by confused patient*; an overall increase of 3% on the incidents reported in the previous year.

Incidents in the *MCP activated maliciously* category, have reduced from 41 incidents in 2022 to 35 during 2023, suggesting more robust monitoring systems, management, and security of MCPs.

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 ensure all future fire alarm installations and upgrades incorporate protective covers to MCPs, including the fitting of screechers where necessary.
- Consideration should be given to the installation of key operated MCPs where actuation of these devices are prone to accidental activation or malicious activity within the Mental Health Sector.
- More sympathetic siting of MCPs should be considered in order to avoid activation via accidental impact. This principle is also of importance regarding MCPs broken in error and activated by confused patients.

5.2.4 **Cooking Related Activity** (288 incidents: 17%)

Cooking related activity includes incidents where notable specific causes were:

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

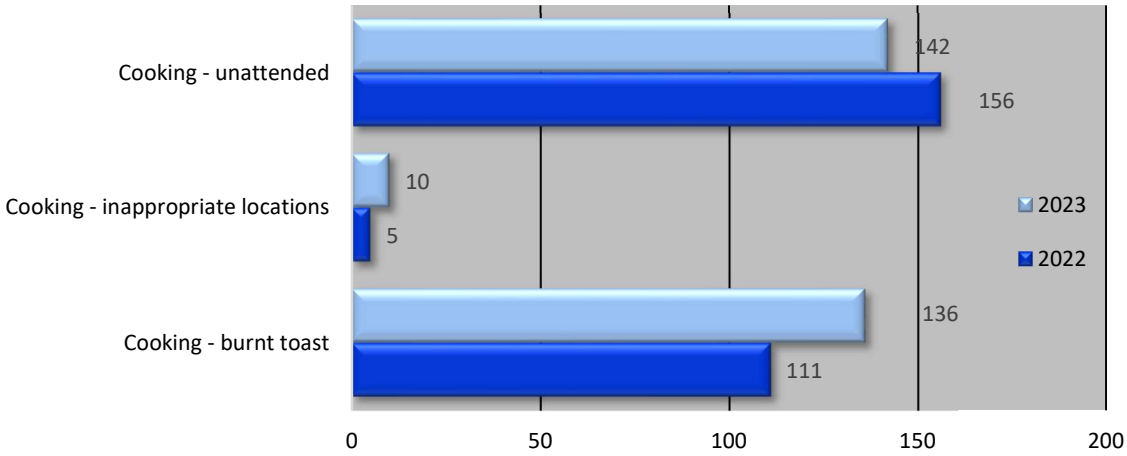


Figure 17 UwFS as a result of cooking related activity

Cooking related activities accounted for 288 UwFS, a similar figure to the previous year; overall, this accounts for 17% of all UwFS. Of significant concern, is the number of reported incidents where cooking activity has been left unattended, this being 142, 92 of which occurred in one Health Board (BCUHB).

As in 2022, a large proportion of these incidents (140 - 48%) occurred in staff residences, the majority of which (82 incidents) are recorded in either local kitchens or corridor/circulation areas, the latter resulting from kitchen doors being left open.

Summary of main points

- Cooking related activities account for 17% of all UwFS.
- The highest number of incidents can again be credited to staff residences, highlighting 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.

5.2.5 **Environmental Effects** (274 incidents: 16%)

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

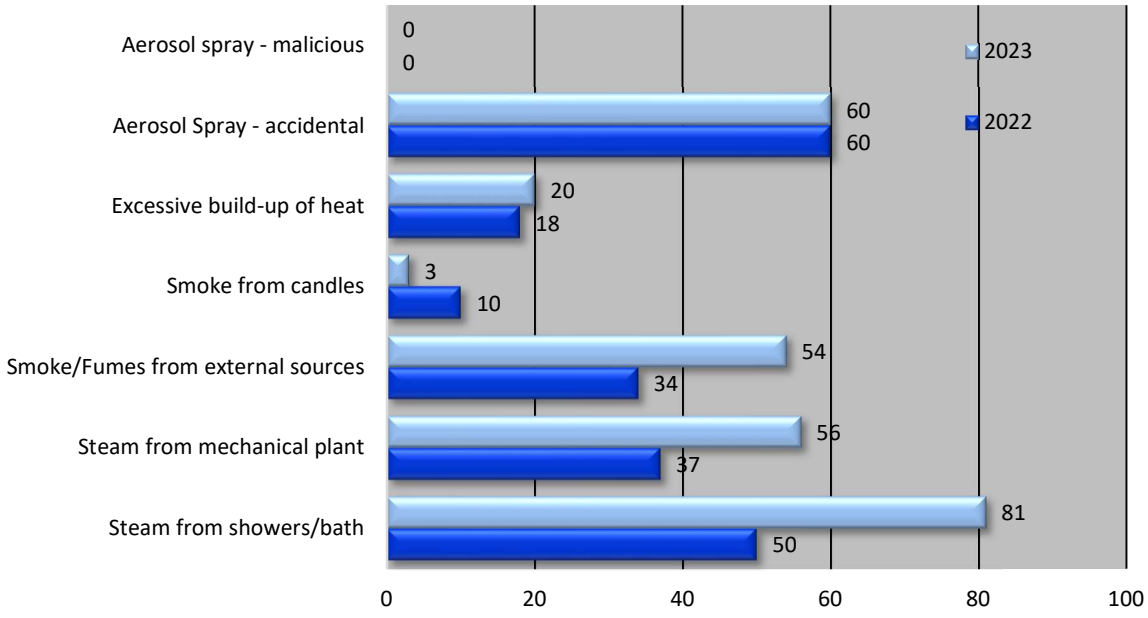


Figure 18 UwFS as a result of Environmental Effects

Cumulatively, there were 274 recorded incidents attributed to environmental effects which is considerably higher than the 209 incidents recorded last year (27% increase).

Steam from showers/bath was the highest recorded specific cause, with 81 incidents, an increase of 62% on the previous year, noting that *Steam from mechanical plant* also increased by a similar percentage accounting for 56 incidents.

The second highest cause was attributed to *Aerosol spray – accidental* which was an identical figure to that recorded last year.

On further analysis of the 54 incidents reported under the *smoke/fumes from external sources* category, it is evident that over half of these are attributed to vaping. This is discussed further in Section 5.2.6 below.

The reduction in *smoke from candles* related incidents is a welcome trend, noting that the use of naked flames/candles should be prohibited across the NHS Estate.

Summary of main points

- Environmental Effect related incidents have increased considerably compared with the previous year.
- The highest specific cause in this category was *Steam from showers/bath* highlighting a significant increase above last year.
- Over half of the *smoke/fumes from external sources* category incidents, are attributed to vaping.

5.2.6 **Other** (268 incidents: 16%)

Figure 14 illustrates that incidents recorded within the *other* specific cause category accounted for 268 incidents, an increase of 39% in comparison to the incidents reported in 2022. Further analysis of these incidents reveals that many of these should have been attributed to a more relevant specific cause.

Figure 19 illustrates these incidents, realigning the causes to the topic areas covered in paragraphs 5.2.2 to 5.2.5 above. Of these 268 incidents, 77 records had insufficient information to assign a specific cause and are therefore categorised as unknown in Figure 19.

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

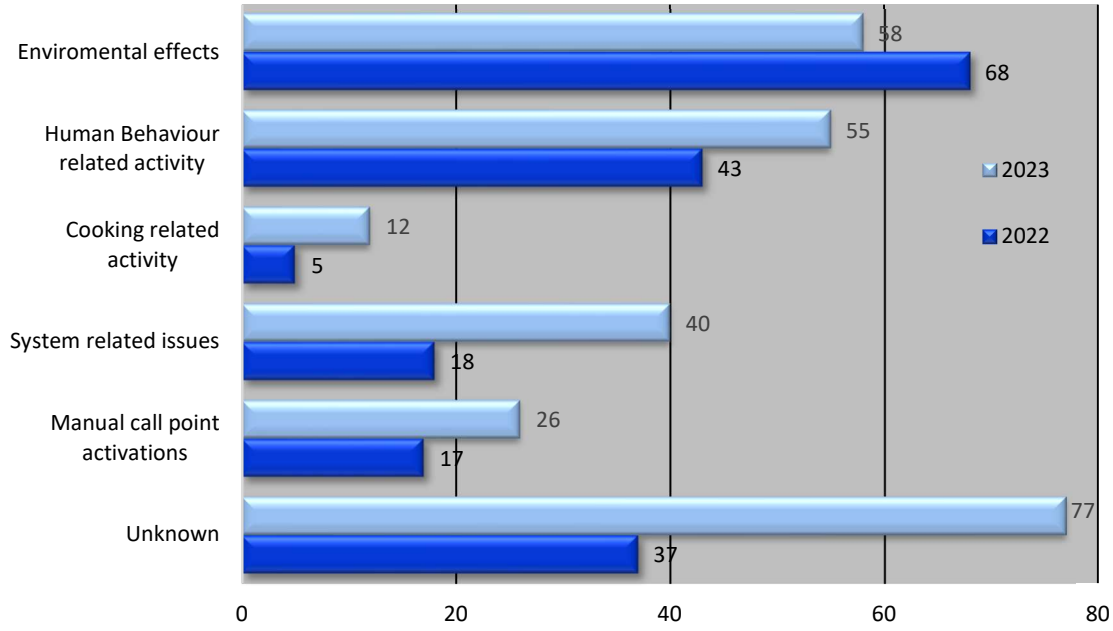


Figure 19 Break down of 'Other' category UwFS aligned with paragraphs above

In recent years, it is evident that vaping has seen a significant rise across the NHS Wales estate. This trend has resulted in a substantial increase in UwFS, primarily due to their use in inappropriate areas.

The online reporting system does not identify vaping as a specific cause. This has resulted in an inability to accurately quantify vaping related incidents, as these are currently being recorded across multiple categories, such as *environmental effects* or *other.* To address this weakness, the specific categories list will be extended to include vaping.

Summary of main points:

- There is a continuing and increasing trend in the recording of UwFS incidents within the *other* specific cause category, with an increase in numbers between the 2022 and 2023 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.
- Vaping related incidents are increasing, demonstrating a need for NHS Organisations to review their associated management arrangements. To inform more accurate trend analysis, the online system will be amended to include vaping as a specific cause.

5.2.7 **Contractor Related Activity** (144 incidents: 8%)

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

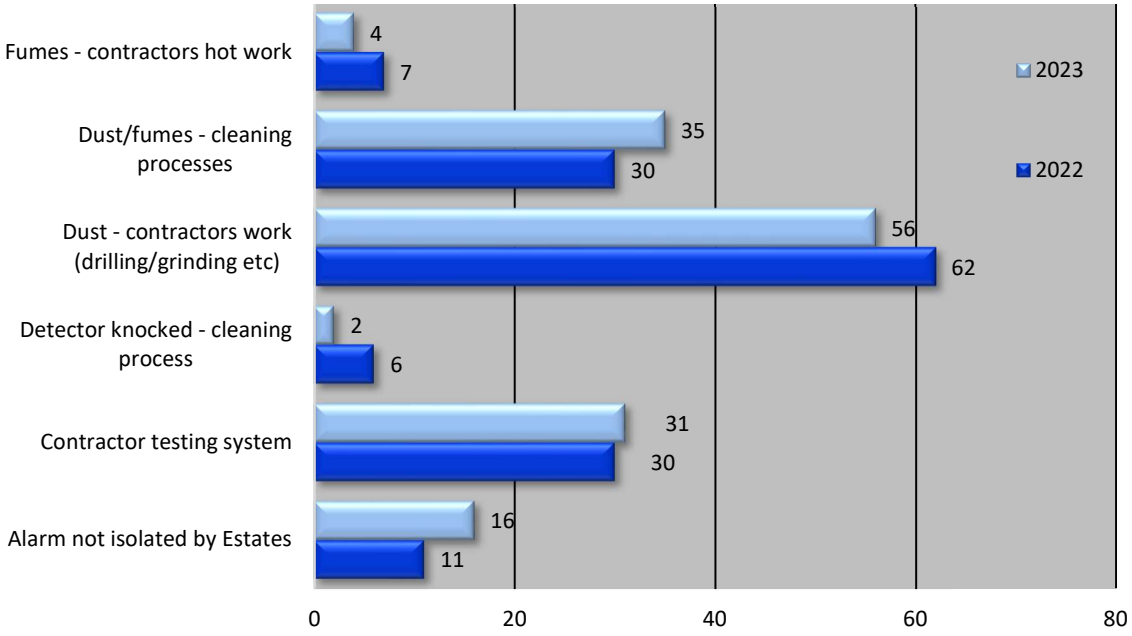


Figure 20 UwFS as a result of contractor related activity

There were 144 incidents involving *contractor related activity* reported in 2023, a similar figure to the 146 incidents reported in 2022.

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

- 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 2023

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 a fluctuating decline until 23:00 hours.

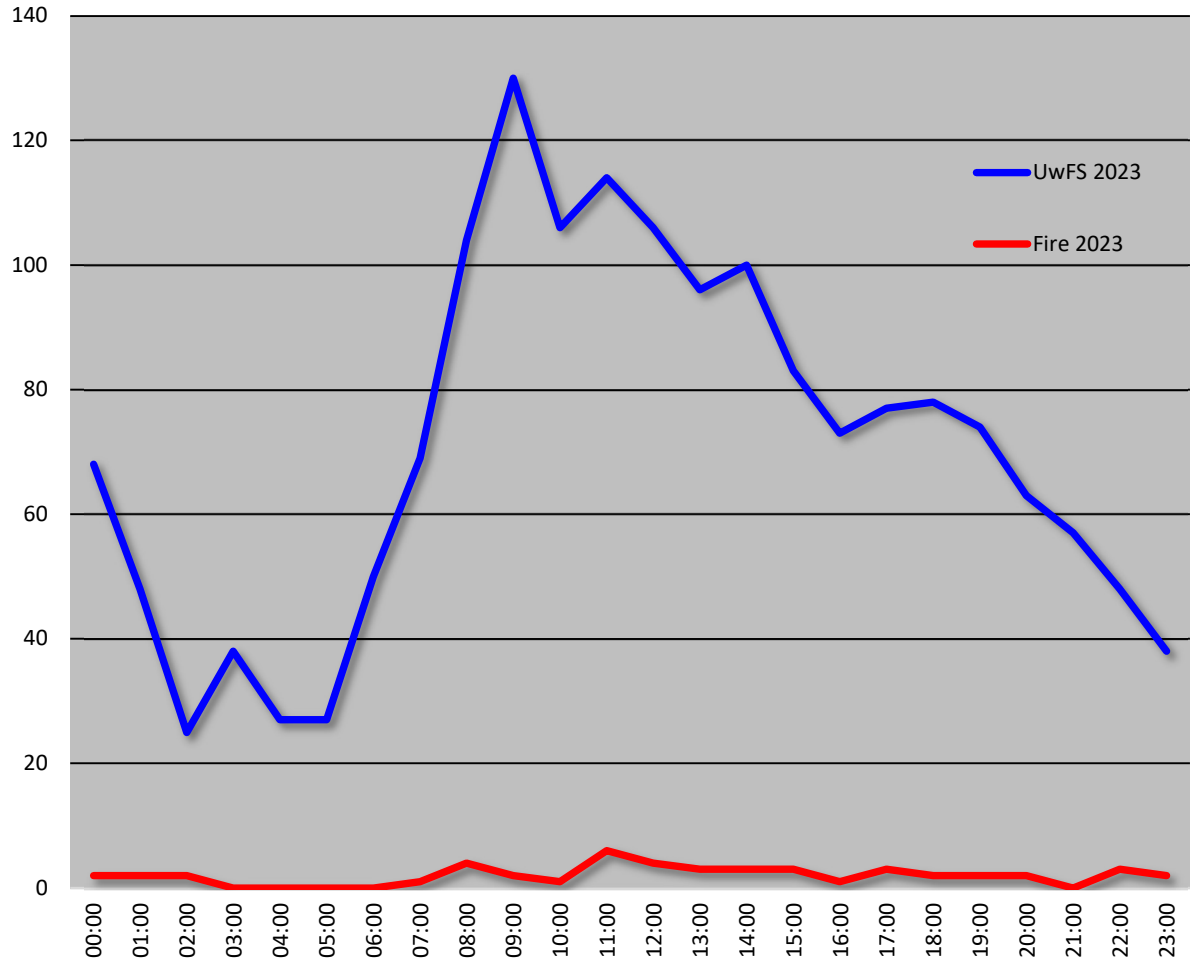


Figure 21 Fires and UwFS by Time

5.3.2 Fire and UwFS by Area

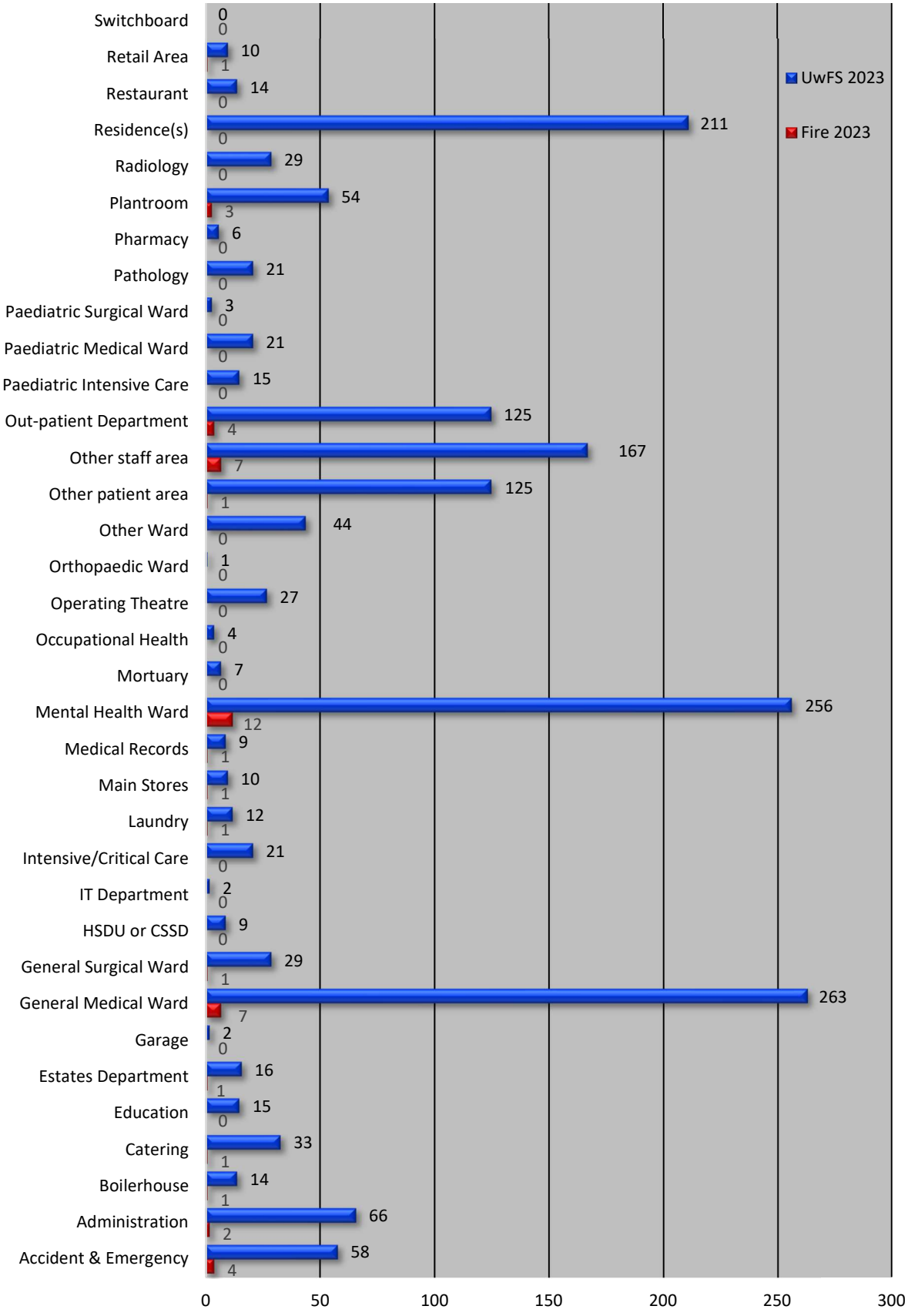


Figure 22 Fire and UwFS by Area

As indicated in Figure 22 above, the highest incidence of fires (coloured red) originated in the *Mental Health Ward* category, accounting for 12 fire incidents (25%). This was followed by *General Medical Ward* and *Other Staff Areas* both with 7 fire incidents (15%).

With regard to UwFS (coloured blue), the highest category is attributed to General Medical Wards accounting for 263 incidents (15%), a slight increase on the 250 incidents reported during 2022.

Mental Health Wards, *Residences*, and *Other Staff Areas* account for 256, 211 and 167 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 48 fire incidents reported,16 were recorded in the *Other* category, some of which could have been assigned to a more appropriate category such as bathroom.

A total of 5 fires were within office areas, an increase from the 2022 recording of 3. Most of these fires were recorded as being from either fixed electrical or portable appliances.

A further 4 fires occurred in single bedrooms, a slight decline on the 5 fires reported in the same category during 2022, but all 4 fires were caused by deliberate means involving the Mental Health sector.

Of particular note, is the significant decrease in reported fires in local kitchens, from 9 in 2022 to 3 in 2023, representing a 67% decrease.

Of the 1699 UwFS, 605 occurred in corridors or circulation routes, an increase on the 585 reported in 2022. MCP actuation accounted for 244 of these, a marginal increase on the previous year, but also demonstrating a continuing rise over the 3 year period from 2021 - 2023. As noted previously, careful siting of MCPs or the provision of additional protection, together with an increased awareness of the need for care when manoeuvring equipment in the vicinity of MCPs, can have a positive effect in reducing the number of incidents.

There were 199 UwFS reported in the *Other* room category, a similar figure to the 195 reported in 2022. As previously reported, a large number of these UwFS should have been recorded in more specific categories, as listed in the online system.

There were 138 UwFS associated with Single bedrooms, a substantial increase from the 89 recorded in 2022. Within the 138 UwFS, 52 were categorised as *Other*. Within this subset, 36 were identified as *steam from showers/baths*, and

31 were identified as vaping. Indicating that a more accurate categorisation such as smoking for example, is suitable for these instances.

The *local kitchens* category returned a figure of 137 incidents, a slight increase on the previous year's figure, the majority (76%) attributed to poorly managed cooking related activities, e.g. burnt toast and unattended cooking.

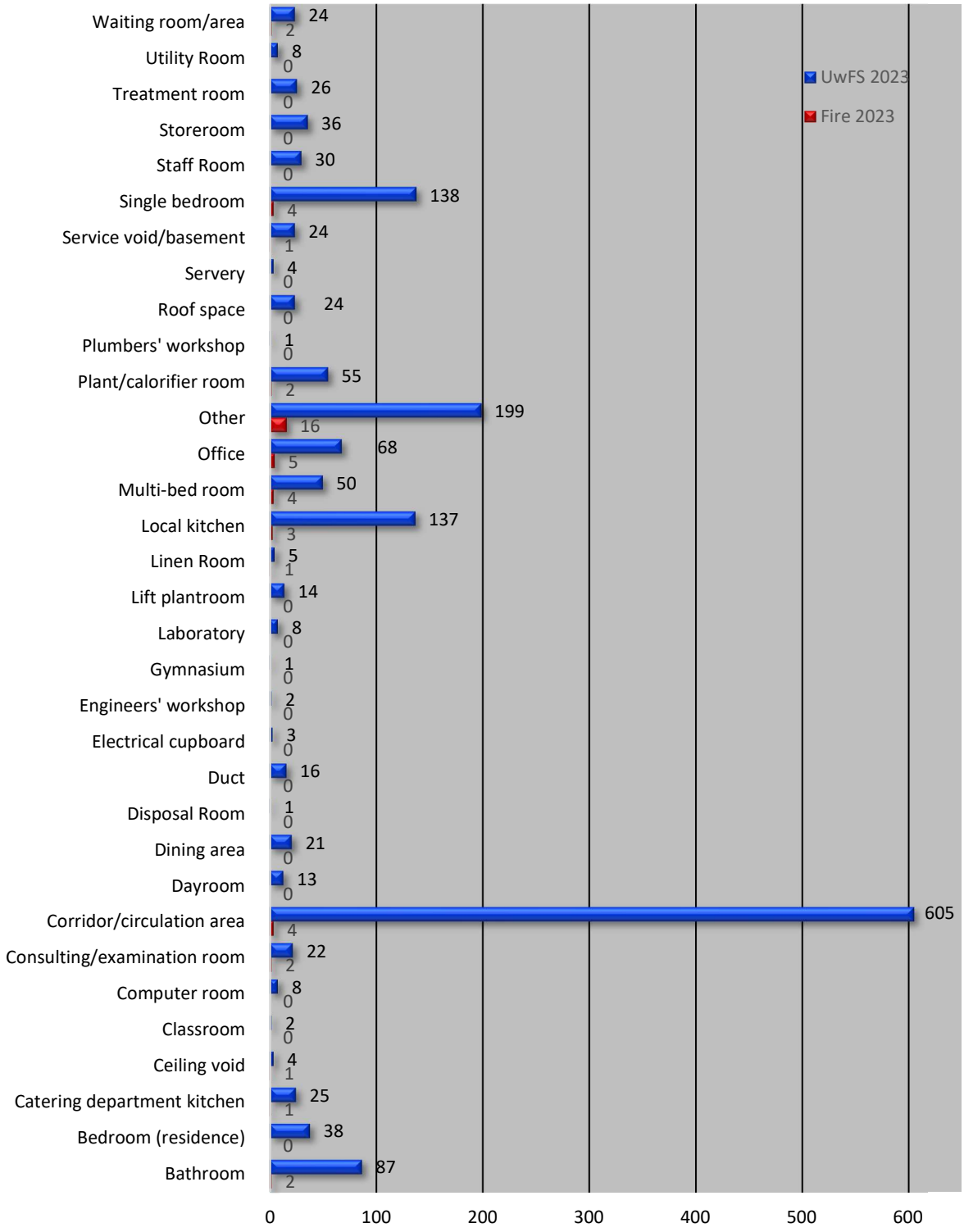


Figure 23 Fire and UwFS by Room

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 slight fluctuations 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 *General Medical Wards*, *Mental Health Wards*, *Residences* and *Other Staff Areas* remain the primary areas where UwFS occur, with *Mental Health Wards* exhibiting a high number of fire incidents for 2023. This 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 2022, 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 2023, 48 fire incidents were reported, continuing the upward trend seen during the previous year and representing a 30% increase in reported fires.

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 2023, the highest cause of fires was attributed to electrical failure, followed by deliberate fire-raising. 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 2023, UwFS again increased by 11% up to 1699 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.

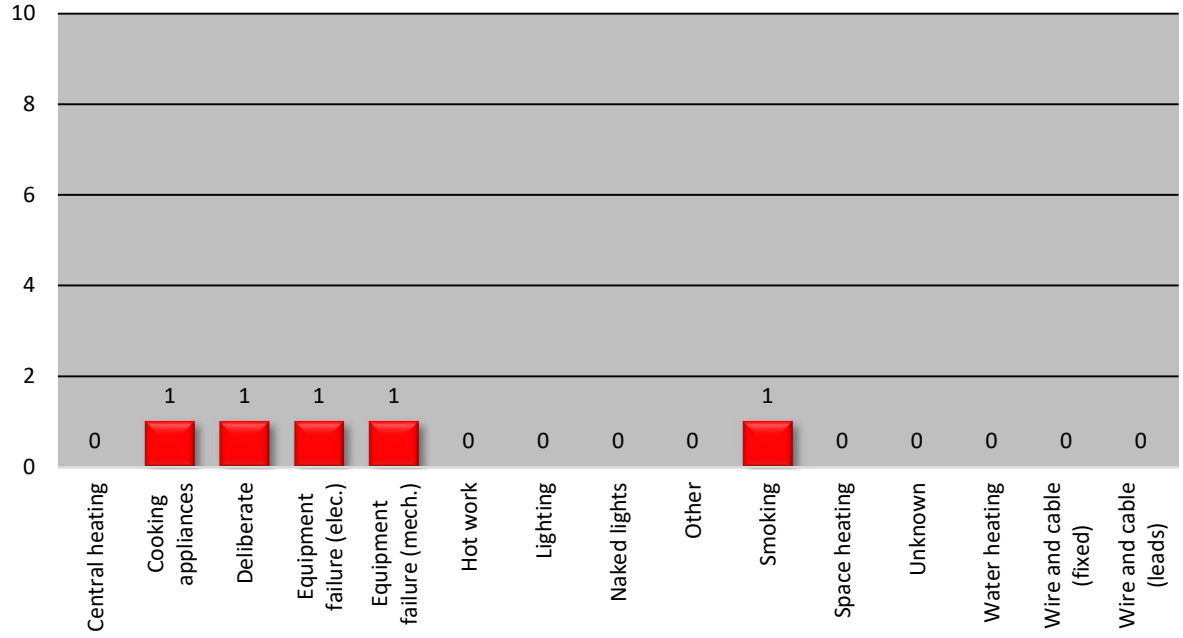
6.7 Accuracy of reporting and identification of specific cause information will enhance trend analysis and performance management. It should be noted that all fire alarm activations should be recorded whether or not the FRS are informed and irrespective of their attendance.

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.

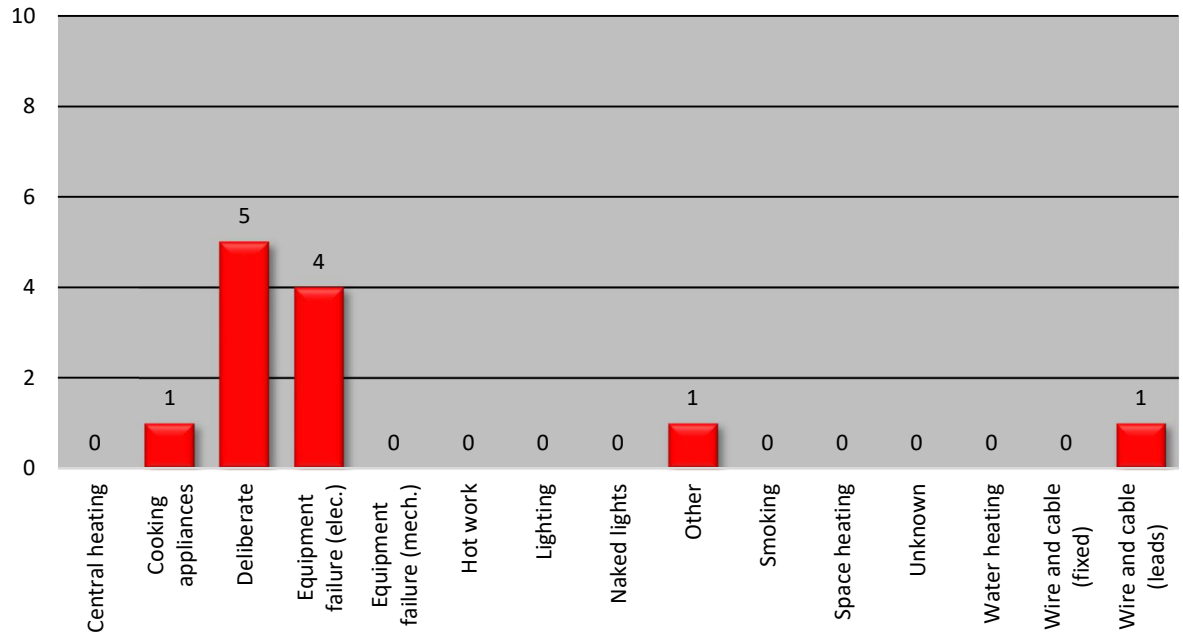
6.9 FRS response procedures vary from region to region and indeed site to site. Therefore, NHS organisations should liaise with their respective FRS to clarify the mobilisation arrangements and ensure that their own procedures reflect the anticipated FRS response.

Appendix A - Summary of Fire Incidents 2023 by Cause & Organisation

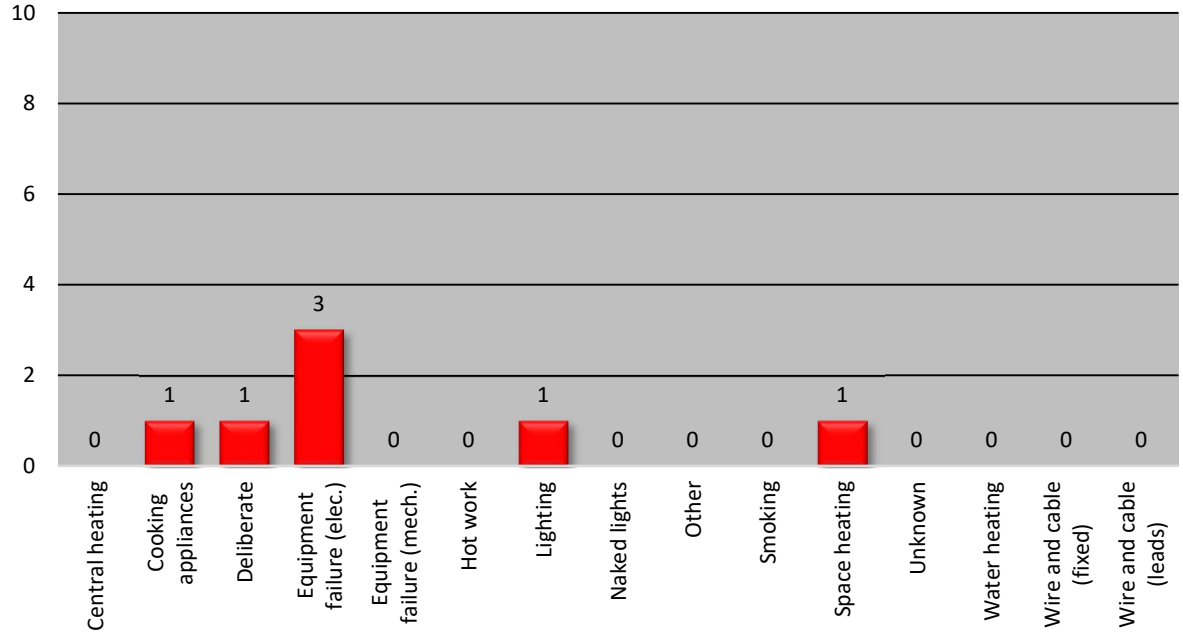
Aneurin Bevan University Health Board - 5 Incidents



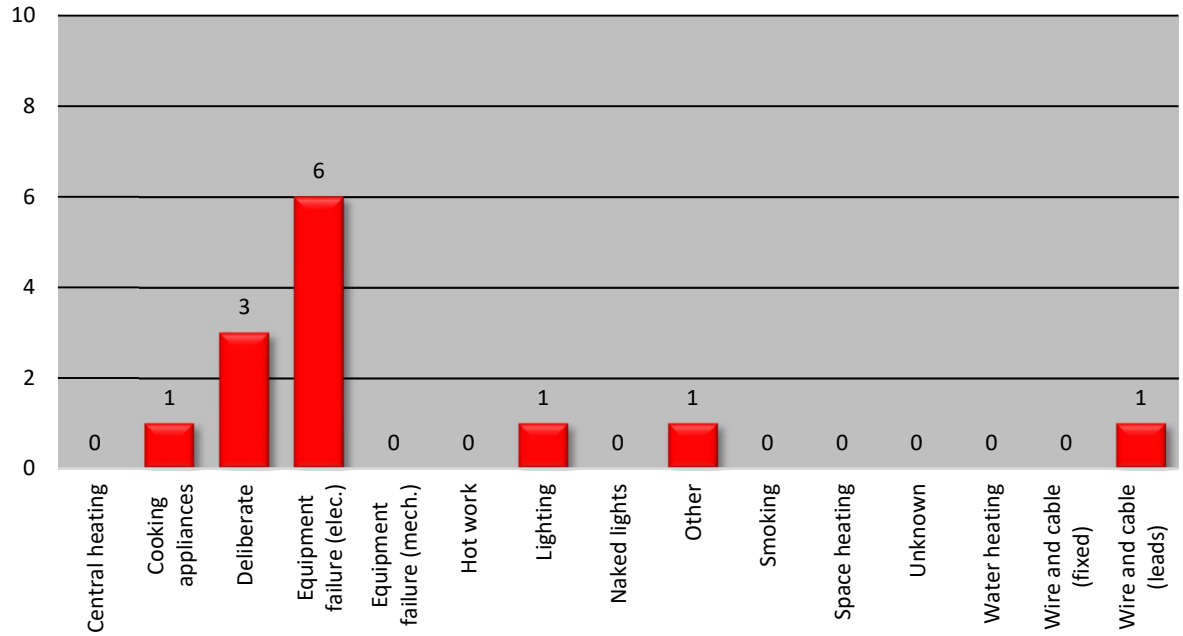
Betsi Cadwaladr University Health Board - 12 Incidents



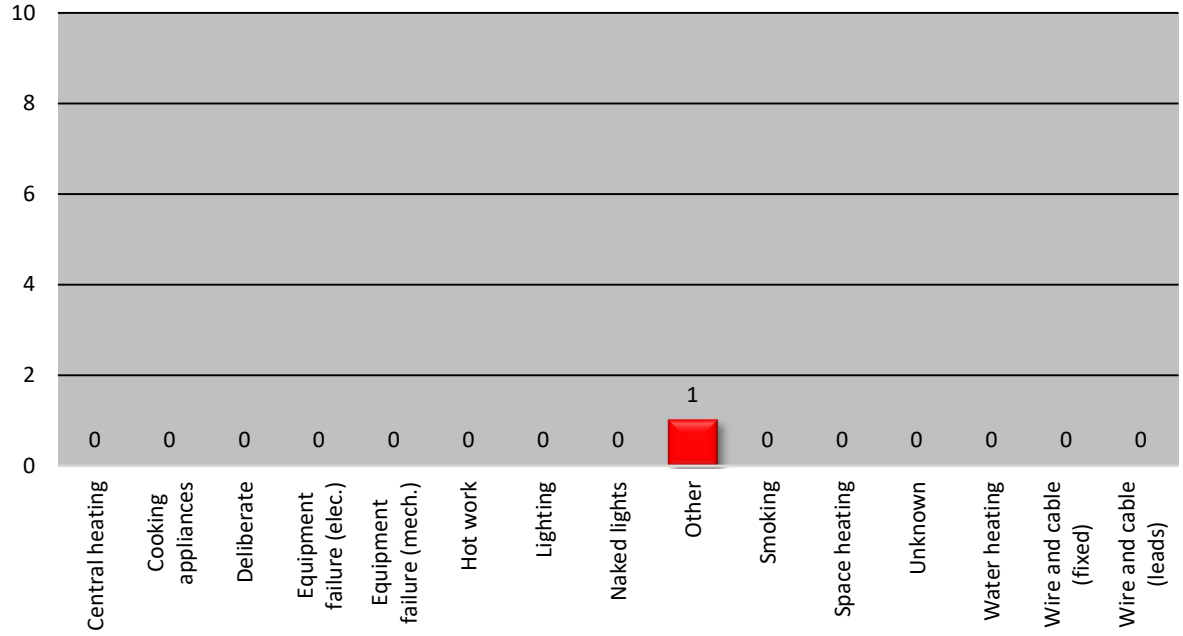
Cardiff & Vale University Health Board - 7 Incidents



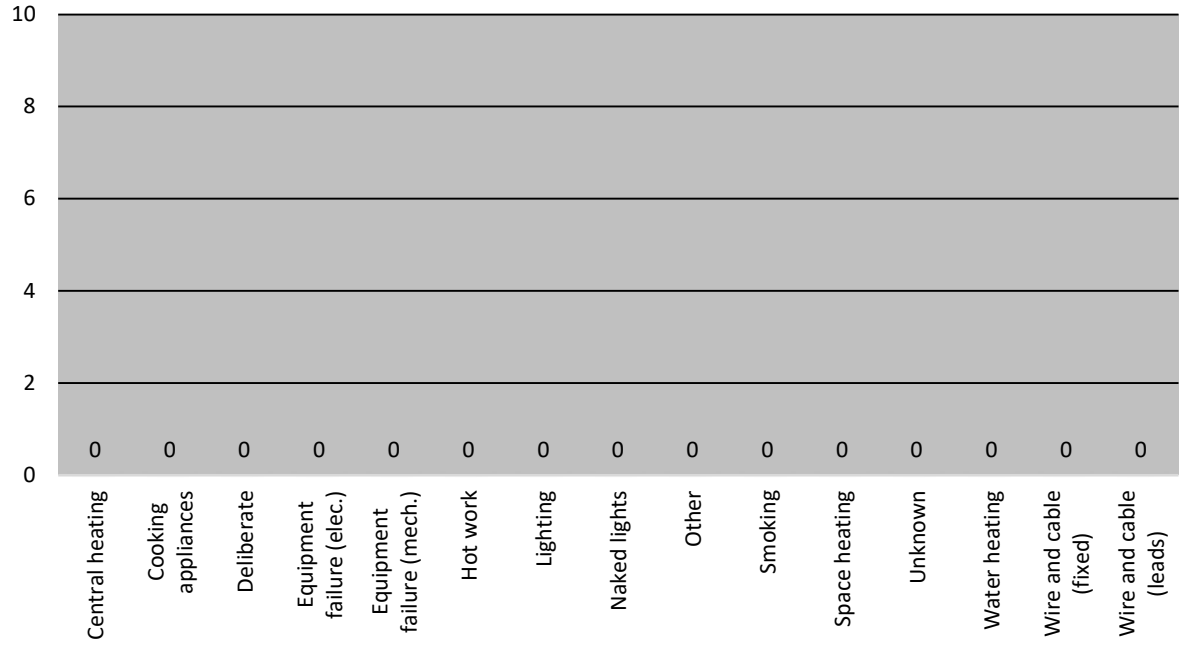
Cwm Taf Morgannwg University Health Board - 13 Incidents



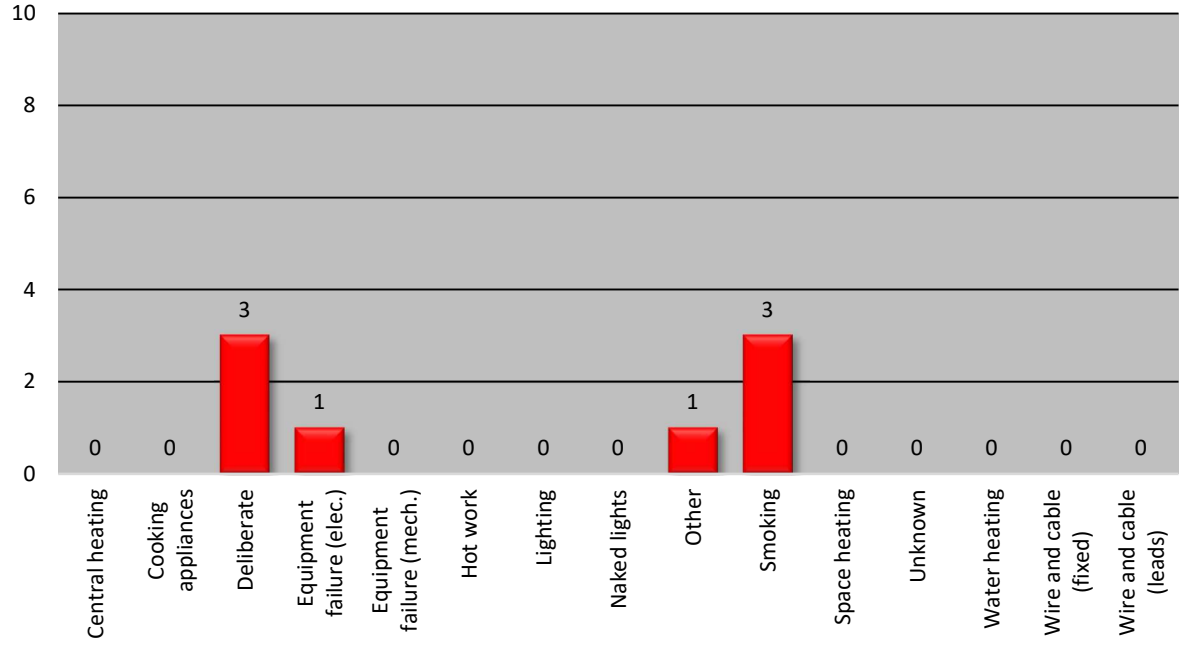
Hywel Dda University Health Board - 1 Incidents



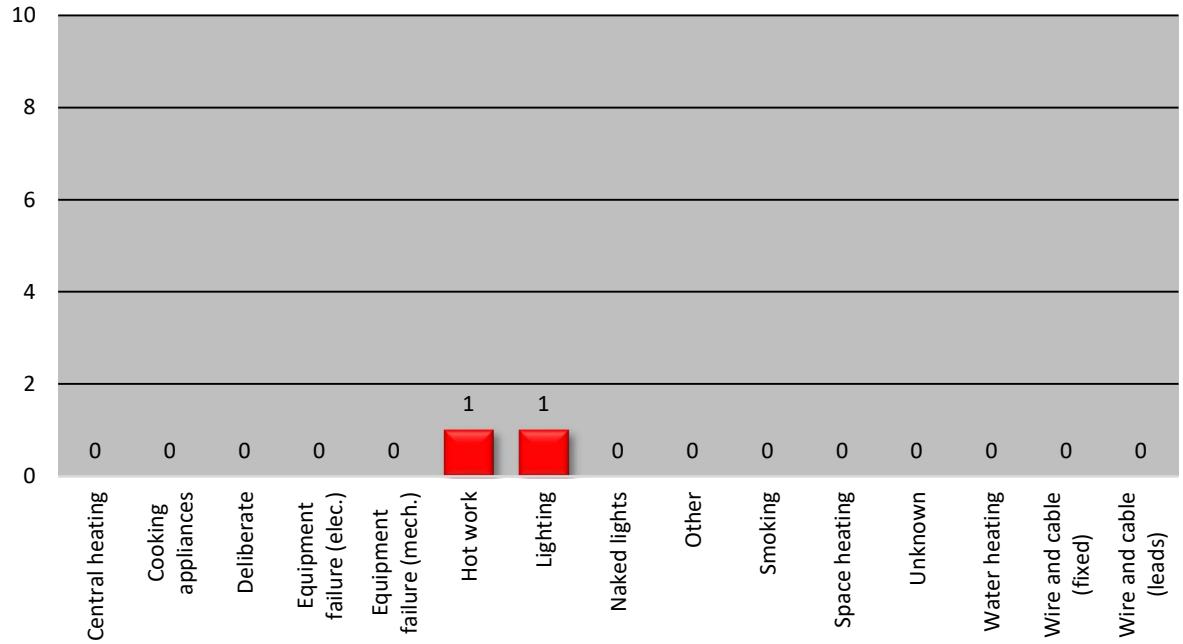
Powys Teaching Health Board - 0 Incidents



Swansea Bay University Health Board - 8 Incidents

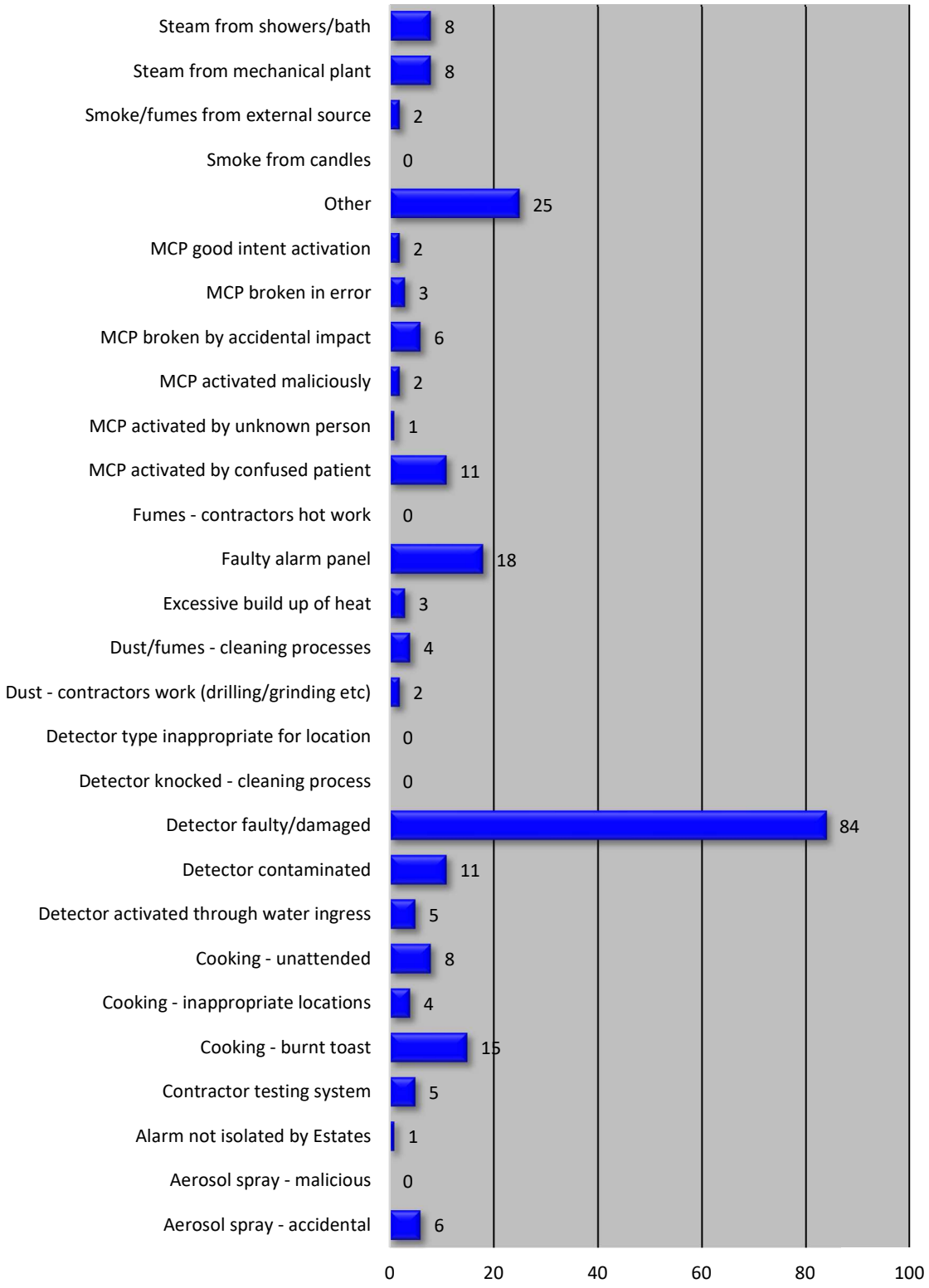


Velindre NHS Trust - 2 Incidents

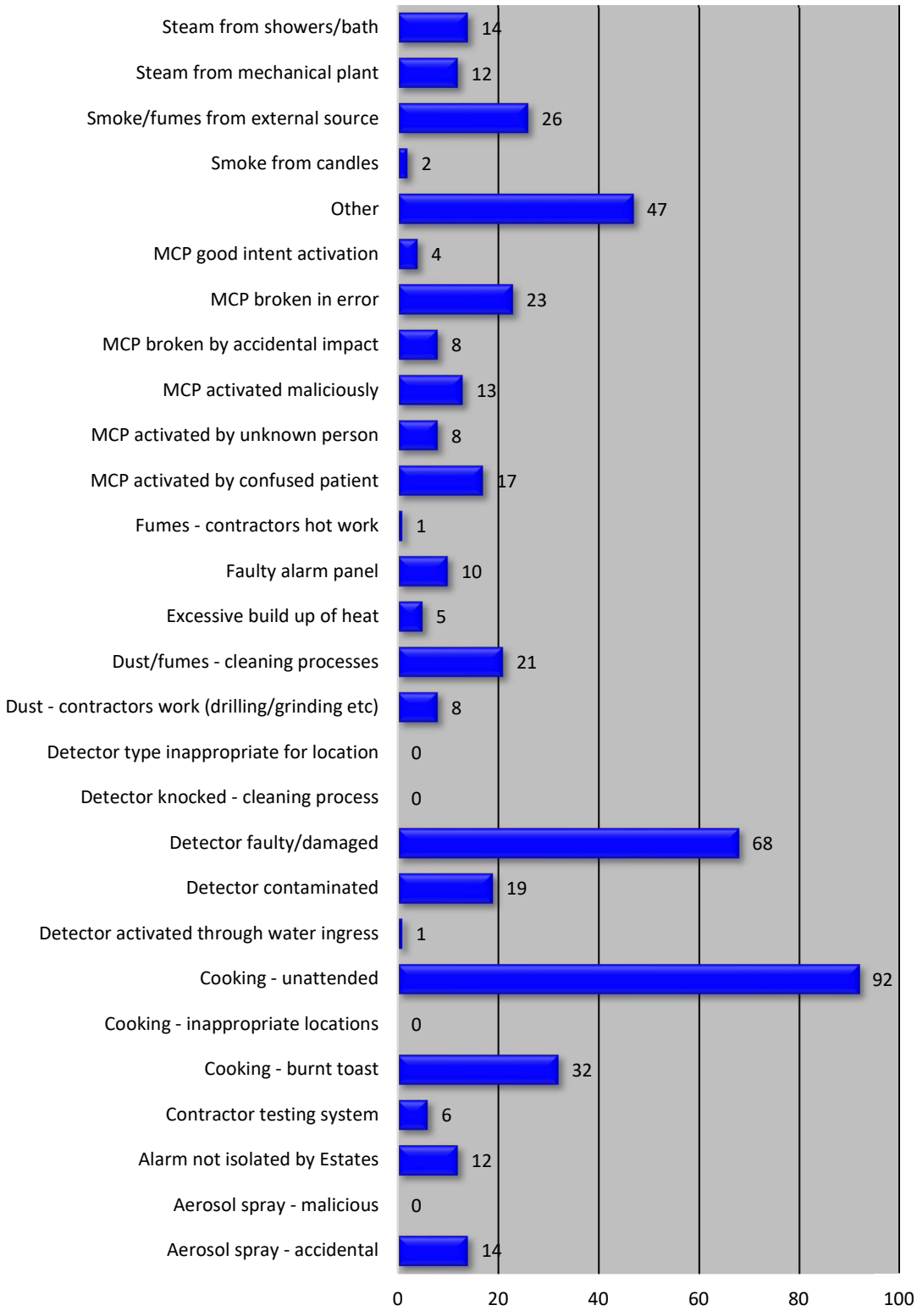


Appendix B - Summary of UwFS 2023 by Specific Cause & Organisation

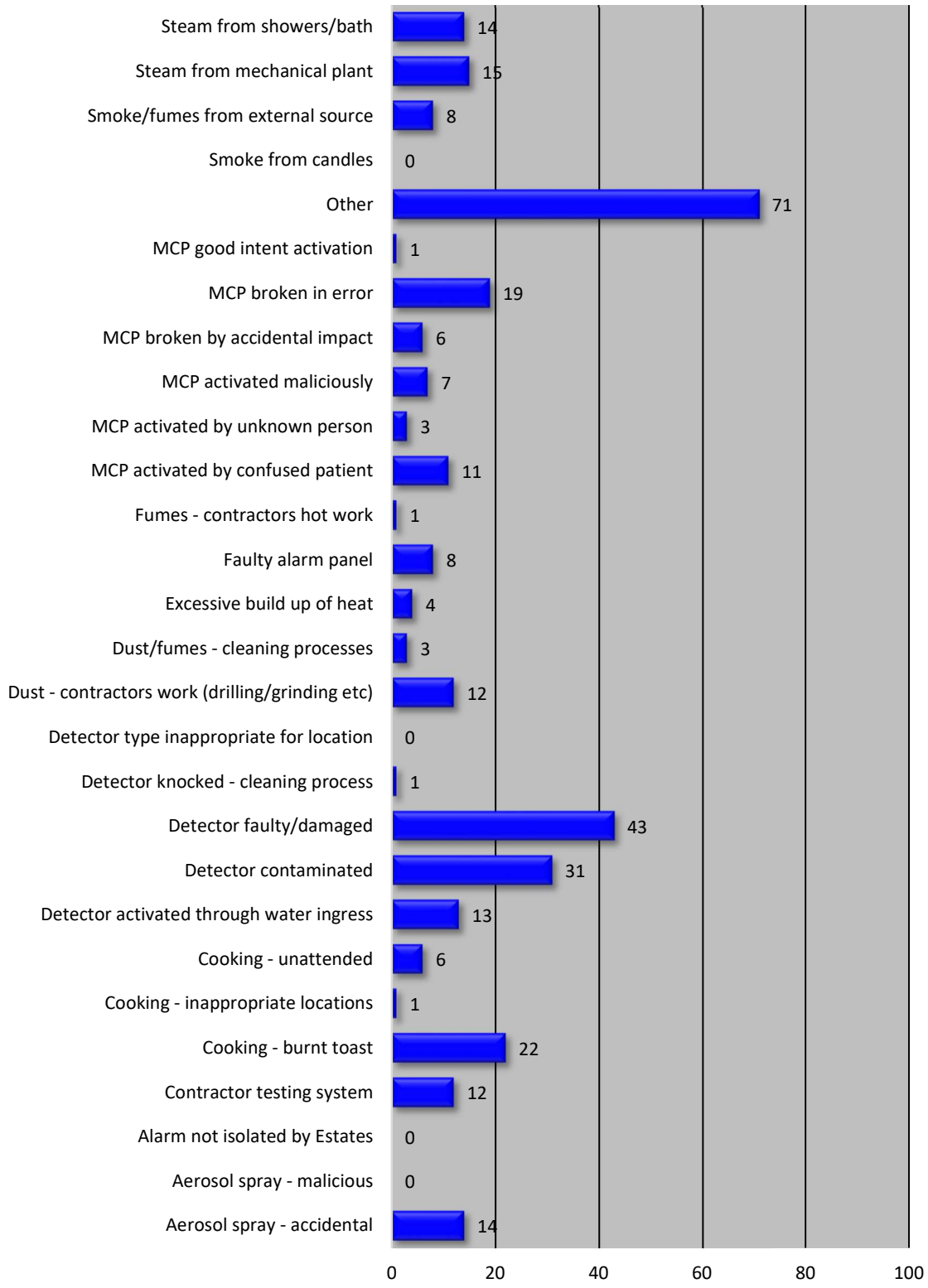
Aneurin Bevan University Health Board - 234 Incidents



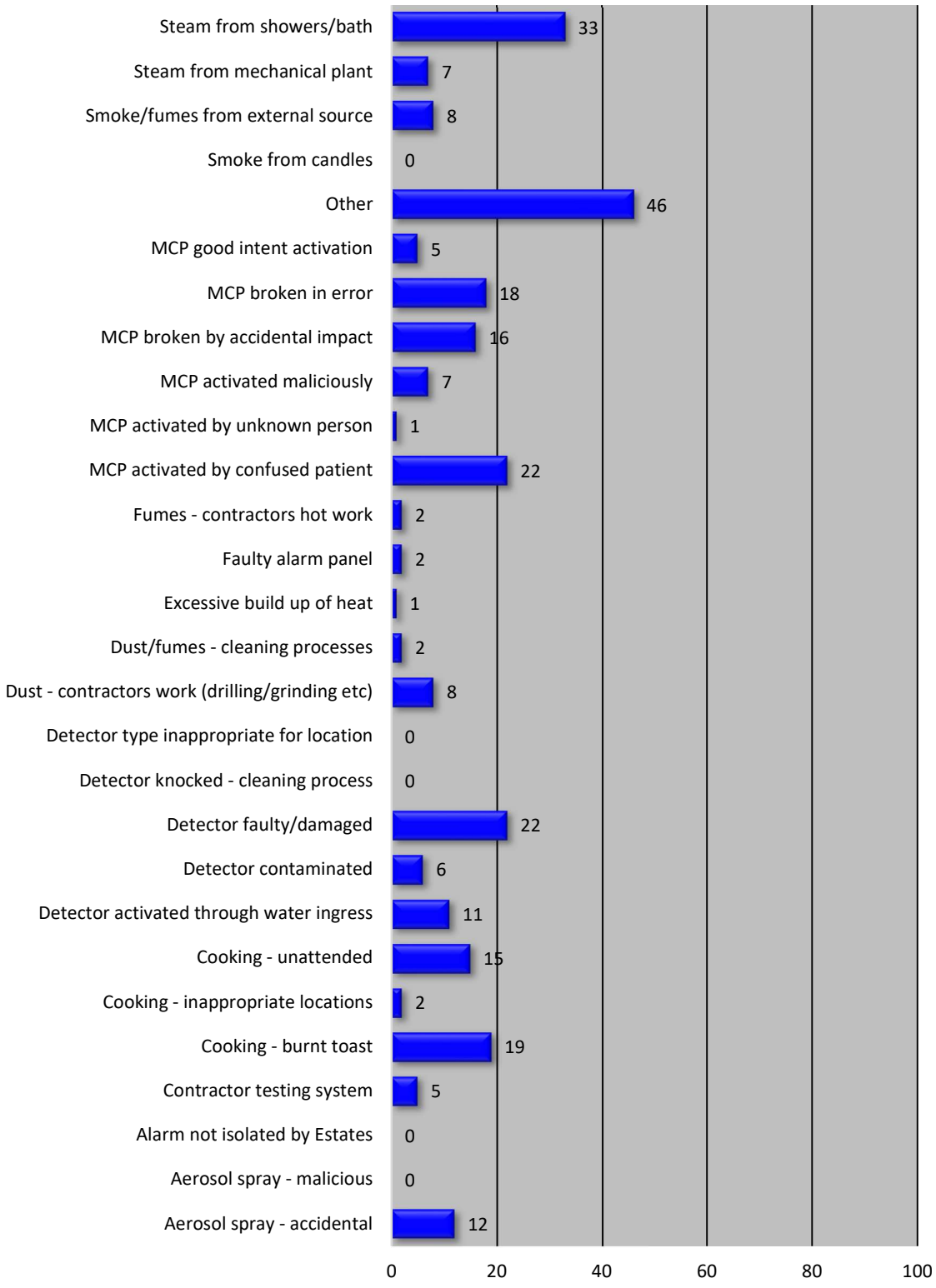
Betsi Cadwaladr University Health Board - 463 Incidents



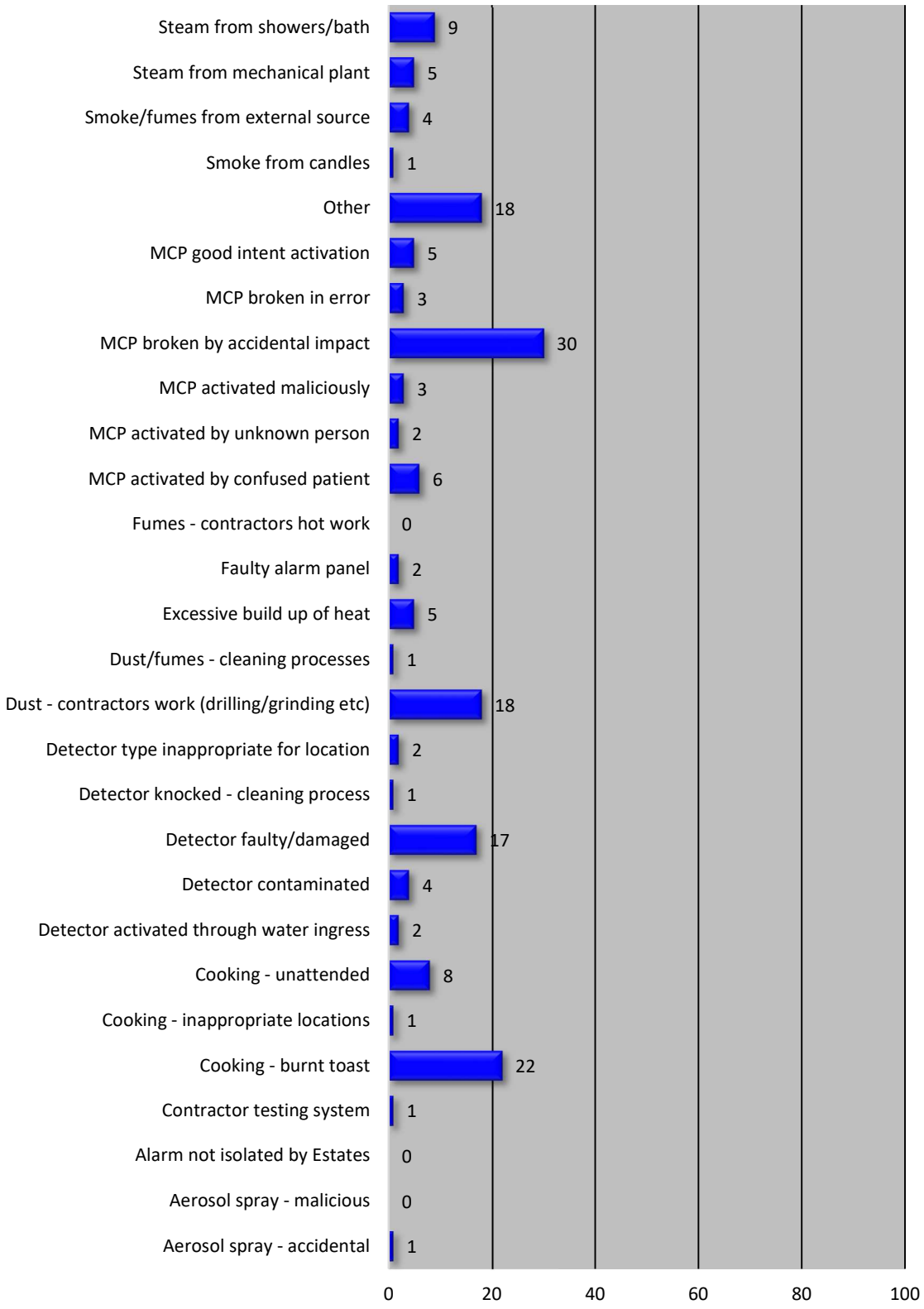
Cardiff & Vale University Health Board - 326 Incidents



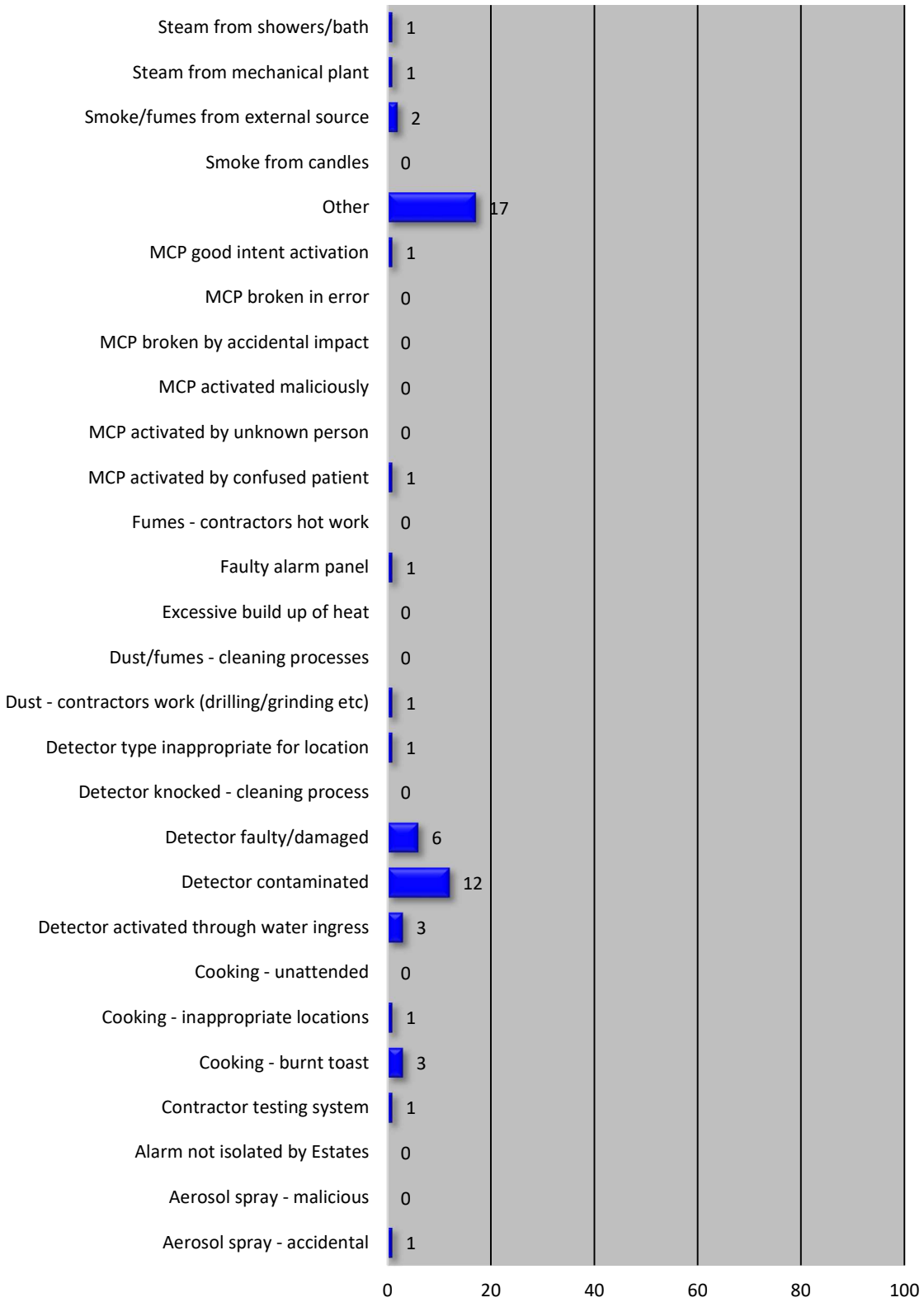
Cwm Taf Morgannwg University Health Board - 270 Incidents



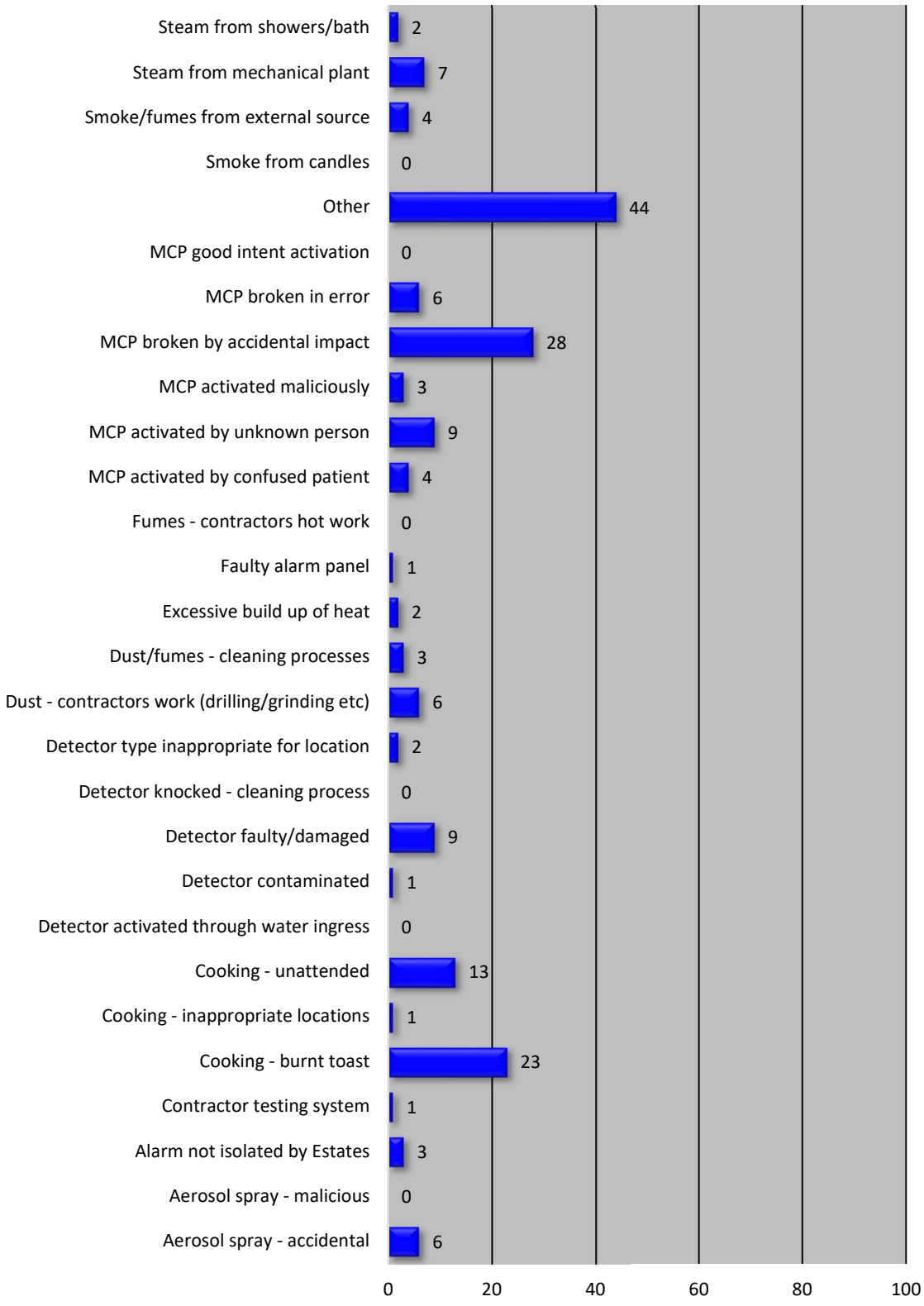
Hywel Dda University Health Board - 171 Incidents



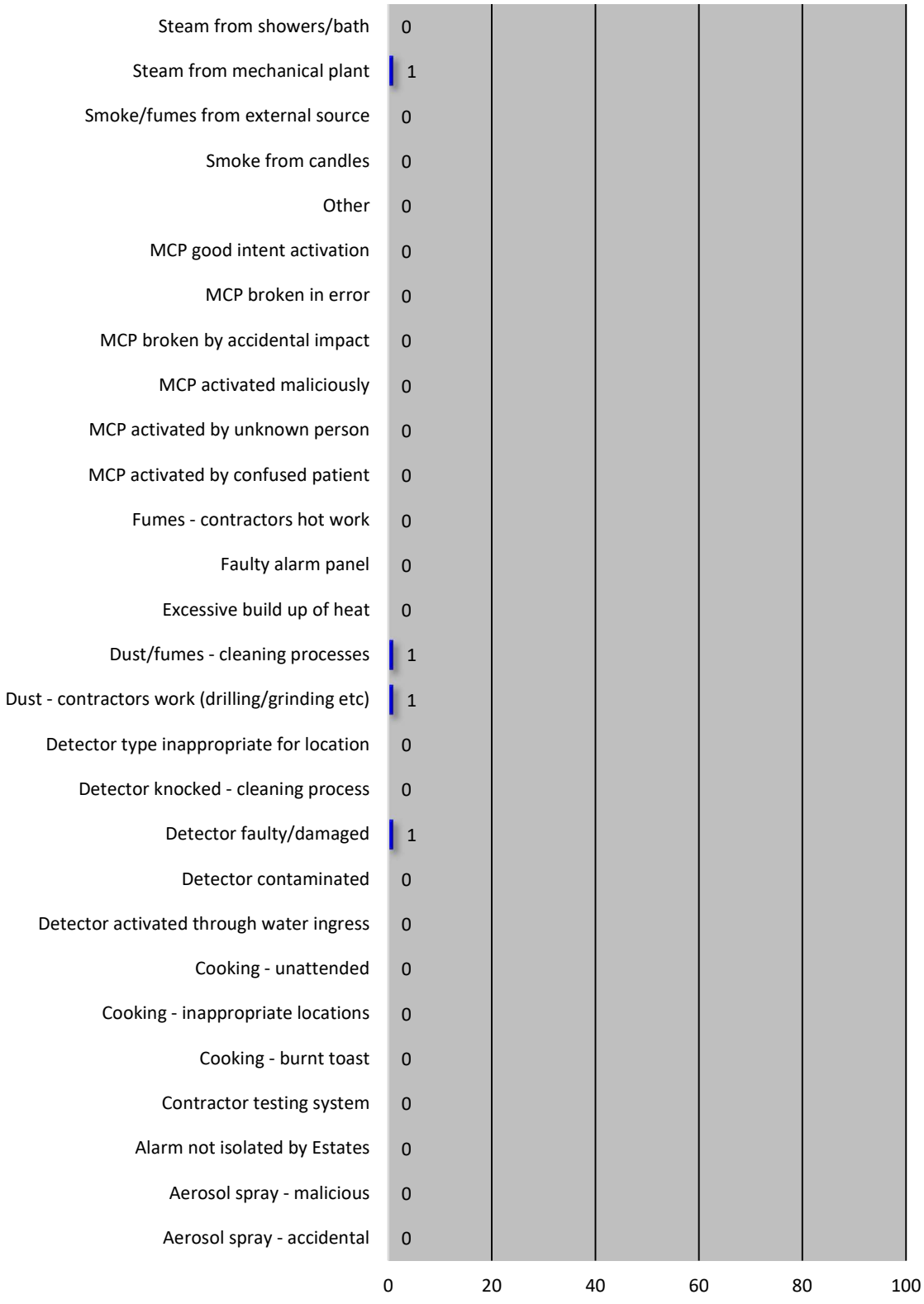
Powys Teaching Health Board - 53 Incidents



Swansea Bay University Health Board - 178 Incidents



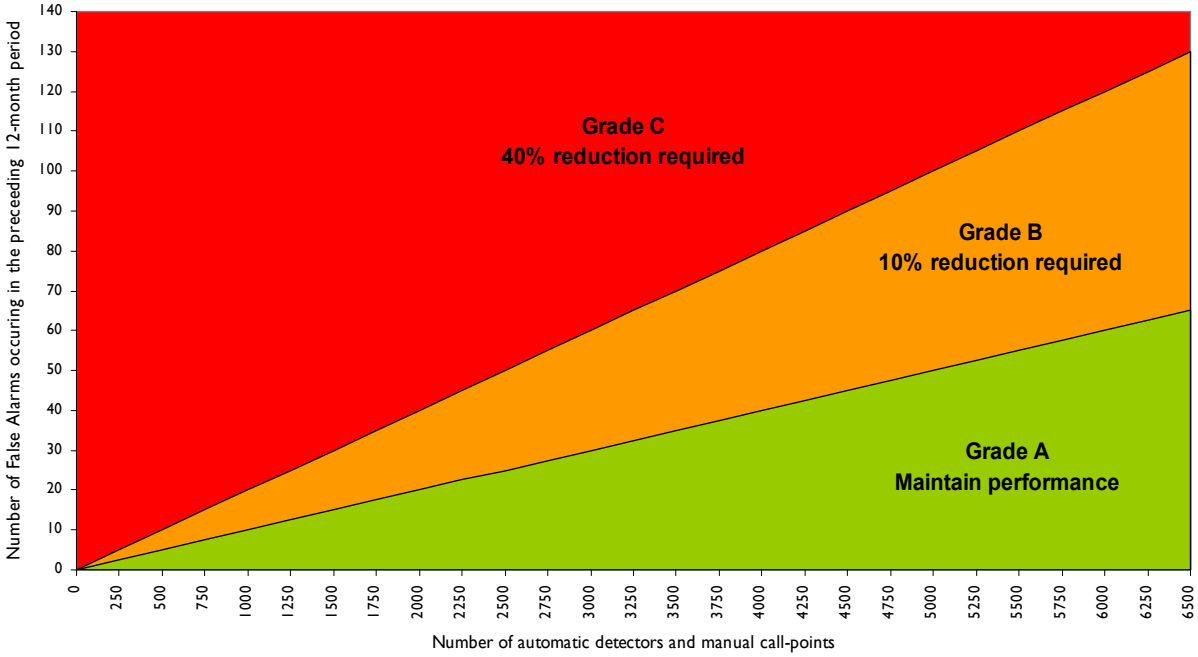
Velindre NHS Trust - 4 Incidents



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	0	504	No incidents reported
County Hospital	32	1018	C - 40% reduction in UwFS
Grange University Hospital	7	2978	A - performance should be maintained
Llanfrechfa Grange	5	400	B - 10% reduction in UwFS
Maindiff Court Hospital	3	388	A - performance should be maintained
Monnow Vale Health & Social Care Facility	0	169	No incidents reported
Nevill Hall Hospital	42	2850	B - 10% reduction in UwFS
Royal Gwent Hospital	81	4560	B - 10% reduction in UwFS
St Cadoc's Hospital	15	1225	B - 10% reduction in UwFS
St Woolos Hospital	18	953	B - 10% reduction in UwFS
Ysbyty Aneurin Bevan	2	1150	A - performance should be maintained
Ysbyty Tri Chwm	0	130	No incidents reported
Ysbyty Ystrad Fawr	22	2267	A - performance should be maintained
Subtotals	227	18592	
Betsi Cadwaladr University Health Board			
Abergele Hospital	16	300	C - 40% reduction in UwFS
Ablett MHU	10	401	C - 40% reduction in UwFS
Bodnant Psychiatric Unit	0	70	No incidents reported
Bron-y-Nant Residences	4	Not specified	No incidents reported
Bron-y-Nant Residences 31 +	2	Not specified	No incidents reported
Bryn Beryl Hospital	1	113	A - performance should be maintained
Bryn-y-Neuadd Hospital	21	790	C - 40% reduction in UwFS
Cefni Hospital	0	213	No incidents reported
Chirk Community Hospital	1	108	A - performance should be maintained
Coed Celyn Support Unit	4	30	C - 40% reduction in UwFS
Colwyn Bay Community Hospital	0	472	No incidents reported
Deeside Community Hospital	2	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	11	155	C - 40% reduction in UwFS
Hergest MHU	16	176	C - 40% reduction in UwFS
Holywell Community Hospital	1	308	A - performance should be maintained
Llandudno General Hospital	13	871	B - 10% reduction in UwFS
Mold Community Hospital	4	161	C - 40% reduction in UwFS
North Wales Child & Adolescent Service	3	0	C - 40% reduction in UwFS
Penley Hospital	0	60	No incidents reported
Royal Alexandra Hospital	0	357	No incidents reported
Ruthin Community Hospital	3	188	B - 10% reduction in UwFS

Staff Residences - Ysbyty Gwynedd	**83**	**Not specified**	**Not available**
Staff Residences YGC	**36**	**Not specified**	**Not available**
Ty Llewelyn	**0**	**205**	**No incidents reported**
Tywyn & District War Memorial Hospital	**1**	**106**	**A - performance should be maintained**
Ysbyty Alltwen	**1**	**346**	**A - performance should be maintained**
Ysbyty Glan Clwyd	**54**	**3200**	**B - 10% reduction in UwFS**
Ysbyty Gwynedd	**45**	**3625**	**B - 10% reduction in UwFS**
Ysbyty Maelor	**130**	**4514**	**C - 40% reduction in UwFS**
Ysbyty Penrhos Stanley	**1**	**230**	**A - performance should be maintained**
Subtotals	**463**	**17712**	

Cardiff & Vale University Health Board			
Barry Hospital	**2**	**562**	**A - performance should be maintained**
Cardiff Royal Infirmary	**11**	**2000**	**A - performance should be maintained**
Hafan Y Coed	**20**	**1274**	**B - 10% reduction in UwFS**
Llandough Hospital	**48**	**6500**	**A - performance should be maintained**
St David's Hospital (Cardiff)	**1**	**600**	**A - performance should be maintained**
University Hospital of Wales	**233**	**20000**	**B - 10% reduction in UwFS**
Whitchurch Hospital	**0**	**2059**	**No incidents reported**
Subtotals	**317**	**32995**	

Cwm Taf Morgannwg University Health Board			
Caswell Clinic	**39**	**510**	**C - 40% reduction in UwFS**
Dewi Sant Hospital	**2**	**553**	**A - performance should be maintained**
Glanrhyd Hospital	**15**	**800**	**B - 10% reduction in UwFS**
Maesteg Community Hospital	**1**	**210**	**A - performance should be maintained**
PCH - Staff Residences	**5**	**426**	**B - 10% reduction in UwFS**
Pontypridd & District Hospital	**3**	**293**	**B - 10% reduction in UwFS**
POW - Staff Residences	**8**	**234**	**C - 40% reduction in UwFS**
Prince Charles Hospital	**39**	**3480**	**B - 10% reduction in UwFS**
Princess of Wales Hospital	**71**	**4937**	**B - 10% reduction in UwFS**
Royal Glamorgan Hospital	**56**	**3743**	**B - 10% reduction in UwFS**
Taith Newydd	**0**	**224**	**No incidents reported**
Ysbyty Cwm Cynon	**9**	**1468**	**A - performance should be maintained**
Ysbyty Cwm Rhondda	**5**	**1020**	**A - performance should be maintained**
Ysbyty George Thomas	**0**	**385**	**No incidents reported**
Subtotals	**253**	**18283**	

Hywel Dda University HB			
Amman Valley Hospital	0	182	No incidents reported
Bronglais General Hospital	21	2850	A - performance should be maintained
Canolfan Bro Cerwyn	11	420	C - 40% reduction in UwFS
Glangwili General Hospital	62	3097	C - 40% reduction in UwFS
Hafan Derwen	8	922	A - performance should be maintained
Llandovery Hospital	0	104	No incidents reported
Prince Philip Hospital	18	2482	A - performance should be maintained
Prince Philip Hospital - Staff Residences	4	315	B - 10% reduction in UwFS
South Pembrokeshire Hospital	1	310	A - performance should be maintained
Tregaron Hospital	0	105	No incidents reported
Withybush General Hospital	44	3050	B - 10% reduction in UwFS
Subtotals	169	13837	

Powys Teaching HB			
Brecon War Memorial Hospital	3	727	A - performance should be maintained
Broddyfi Community Hospital	2	265	A - performance should be maintained
Bronllys Hospital	23	862	C - 40% reduction in UwFS
Knighton Hospital	3	189	B - 10% reduction in UwFS
Llandrindod Wells Hospital	8	338	C - 40% reduction in UwFS
Llanidloes & District Hospital	5	183	C - 40% reduction in UwFS
Montgomery County Infirmary	1	310	A - performance should be maintained
Victoria Memorial Hospital	6	231	C - 40% reduction in UwFS
Ystradgynlais Community Hospital	0	343	No incidents reported
Subtotals	51	3448	

Swansea Bay University HB			
Cefn Coed Hospital	13	1200	B - 10% reduction in UwFS
Cimla Hospital	2	160	B - 10% reduction in UwFS
Gorseinon Hospital & Bungalows	0	114	No incidents reported
Morriston Hospital	102	6000	B - 10% reduction in UwFS
Neath Port Talbot Hospital	26	1900	B - 10% reduction in UwFS
Singleton Hospital	35	3491	B - 10% reduction in UwFS
Tonna Hospital	0	400	No incidents reported
Subtotals	178	13265	

Velindre NHS Trust			
Velindre Hospital	4	1301	A - performance should be maintained
Subtotals	4	1301	

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/	Incident which resulted in inappropriate response to incorrect action by a person	Incorrect building management such as leaving fire doors to kitchens wedged

	building not used correctly	(Other than those in 6).	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

- 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