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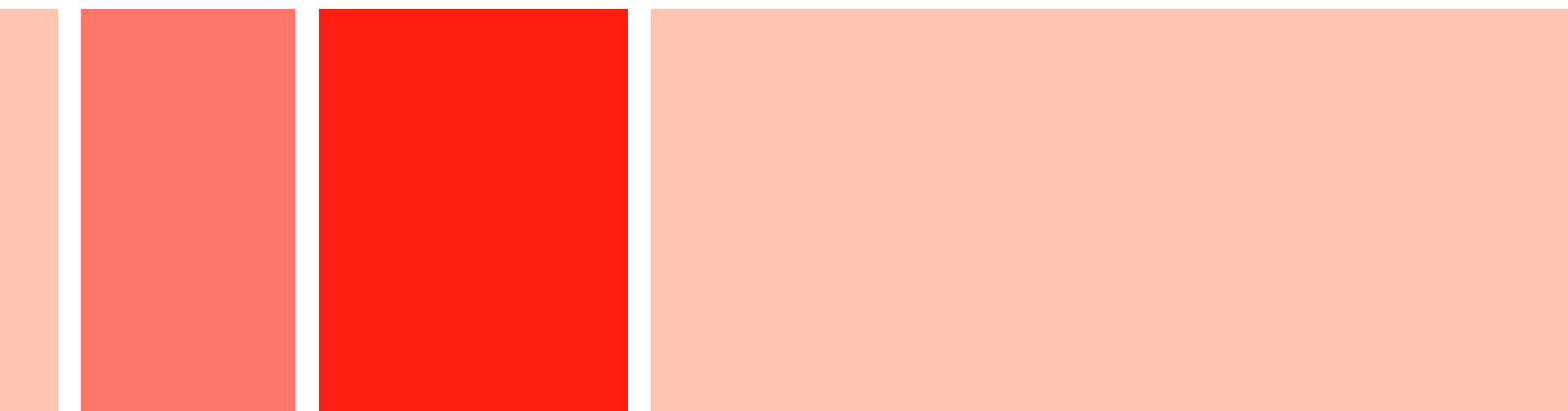
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Evaluation of Home Fire Safety Checks



Evaluation of the Home Fire Safety Check

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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Glossary of acronyms

ACRONYM/ TERM	MEANING
ACORN	A Classification Of Residential Neighbourhoods is a geo-demographic tool that categorises all UK postcodes, which are described using demographic statistics and lifestyle variables
CAA	Comprehensive Area Assessment
CDRP	Crime and Disorder Reduction Partnership
CFOA	Chief Fire Officers Association
CFS	Community Fire Safety
CLG	Communities and Local Government
Correlation	A statistical test that indicates the strength and direction of a linear relationship between two random variables, where one indicates the strongest relationship, zero indicates no relationship. The direction can be negative (as one variable increases the other declines), or positive (both variables increase or decrease together)
FDR1	Fire Damage Report 1
FRS	Fire and Rescue Service
FSEC	Fire Service Emergency Cover
Function	A mathematical formula that indicates the outcome of a change in one or more variable
Geo coded	Where data, such as the number of fires, is recorded for geographical areas
Gradient	A measure of the rate of increase, or decrease, from zero to one
HFSCs	Home Fire Safety Checks – also referred to as Home Fire Risk Checks
Hotstrikes	A method used by Fire and Rescue Services to distribute leaflets offering HFSCs on streets surrounding a recent fire.
IMD	Indices of Multiple Deprivation
Independent variable	The term independent variable is used for those variables that have an influence on another variable. For example, the type of household and the presence of smoke alarms may be independent variables that influence the rate of fire (a dependent variable)
LSP	Local Strategic Partnership
N	Number of data points used in an analysis or survey
North Wales FRS	North Wales Fire and Rescue Service
Mid and West Wales FRS	Mid and West Wales Fire and Rescue Service
Multiple regression	Multiple regression analysis tests the relationship between a set of independent variables and a dependent variable.

ACRONYM/ TERM	MEANING
P values	The p value indicates whether the probability that the difference between two or more variables, or the correlation between variables is due to chance. A relationship that is unlikely to be due to chance is usually indicated by a probability of less than 5% (written as 0.05), although 10% or 1% can also be used as a criterion.
Partial correlation	Partial correlations test the correlation between two variables (the dependent and independent variable) whilst controlling for the correlation between the independent variable and another variable. Therefore, you enter three variables in total, one dependent variable and two independent variables, controlling for one of the independent variables
PMP	Per million population
R ²	R ² is the measure of the amount of variance explained by the model and is termed the correlation co-efficient.
R values	The correlation coefficient, denoted by their value, is a measure of the strength of the straight-line or linear relationship between two variables. The correlation coefficient takes on values ranging between +1 and -1.
Sensory teams	Teams that offer support for people with hearing impairments
SLA	Service Level agreement
Significance	The probability that a difference is not due to chance. It does not mean that the amount of difference is large
South Wales FRS	South Wales Fire and Rescue Service
T test	The t test tests the difference between two sets of data. It assumes under the null hypothesis that the mean of these differences should be zero. A large t means that the mean difference found was a long way from the value of zero expected if the null hypothesis is true
Time line analysis	To evaluate performance over time with any changes, initiatives or interventions introduced.
WG	Welsh Government

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1 INTRODUCTION

1.1 Aims of this evaluation

The Welsh Government (WG) commissioned Greenstreet Berman to evaluate the Home Fire Safety Check (HFSC) work in Wales. The aims of this evaluation were to provide the WG with:

- evidence regarding the impact of HFSCs, so as to inform decisions on their future funding;
- evidence to further develop the targeting and conduct of HFSCs in Wales – so as to improve their impact; and
- input to decisions on how to allocate funding for HFSCs in the future.

This evaluation explored the effectiveness of HFSCs in Wales, specifically: whether the high risk households have been targeted in Wales; and whether the outcomes were consistent with the level of HFSC activity. This would provide evidence of their impact to inform decisions on future funding, but equally as important, provide guidance on how to further improve the effectiveness of HFSCs in Wales.

1.2 This document

This document presents the main findings from the evaluation together with an overview of the methodology, discussion and recommendations for WG.

1.3 Background

The Welsh Government (WG) guidance on risk reduction

The Welsh Government issued guidance on risk reduction in 2006¹. Key aspects that are relevant to this evaluation include:

- plans should aim to reduce the number of fires and loss of life, whilst providing value for money;
- education and prevention must be directed to the most vulnerable, with Fire and Rescue Services (FRSs) adopting a targeted approach;
- plans should relate to local risks and be forward-looking and evidence-based development should be in place; and
- Fire Service Emergency Cover (FSEC) is the preferred tool for gathering and reporting evidence.

Home Fire Safety Checks obviously form a key part of risk reduction activities, with £4 million spent by the WG since 2004/05, and over 238,000 HFSCs completed. It is also important to note here that the interim and final evaluation² of the English HFSC capital fund (as completed by Greenstreet

¹ <http://wales.gov.uk/dsjlg/publications/fire/fireriskreduction/plansummarye?lang=en>.

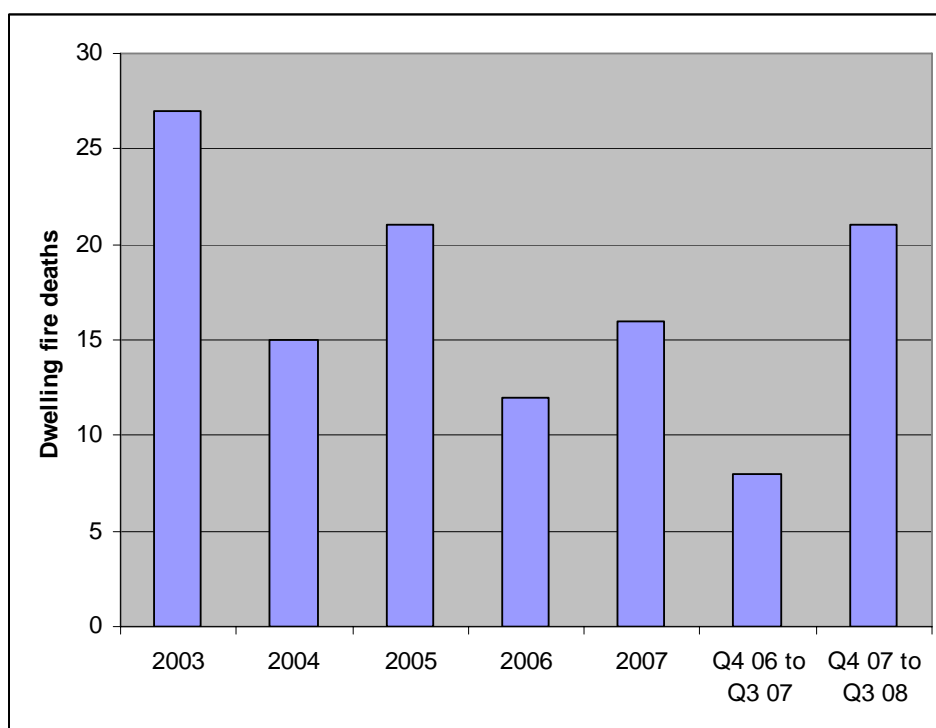
² <http://www.communities.gov.uk/publications/fire/homefireriskcheckgrant>.

Berman Ltd) both reported a major impact of HFSCs, on English dwelling fires, deaths and casualties.

The 2009 Fire Safety Bulletin³ indicates that dwelling fires have fallen by 18% since 2003 to Q4 2007-Q3 2008 (21% in South Wales, 16% in North Wales and 16% in Mid and West Wales), i.e. from 2,752 to 2,263. The decline in dwelling fires has been fairly constant across this period. Accidental non-fatal dwelling fire casualties have also fallen by 24%, from 572 in 2003 to 437 in 2007-08. This decline has also been fairly constant across this period, particularly in South Wales and Mid and West Wales but less so in North Wales.

Accidental dwelling fire deaths show a far less clear picture, as shown in Figure 1. The number of deaths is statistically volatile, going up and down from one year to the next. Moreover, the most recent period reports a large rise in dwelling fire deaths, due to deaths in South Wales and Mid and West Wales. (A 95% confidence interval for Welsh fire deaths is 4.4.)

Figure 1: Welsh dwelling fire deaths



These trends can be interpreted in a number of ways. The reduction in dwelling fires and non-fatal casualties could be interpreted as a clear fall. However, dwelling fire deaths, which from a statistical perspective are few in number, may be presented as a less reliable indicator (although the increase in dwelling fire deaths in the most recent reporting period is large (as displayed in Figure 1)).

³ <http://wales.gov.uk/docs/statistics/2009/090717sb422009en.pdf?lang=en&ts=3>.

Previous HFSC evaluations

Previous evaluations⁴ of the HFSC initiative introduced by the Department of Communities and Local Government (CLG) for FRSs across England, have been conducted. It was concluded from the evaluations that the initiative had been beneficial and relationships between the installation of smoke alarms and reductions in dwelling fires and non-fatal casualties had been found. The benefits of the initiative were found to far outweigh the revenue and capital costs of the initiative. The more recent evaluation of the English HFSC initiative found many beneficial effects of HFSCs. These include:

- The HFSC grant contributed greatly to a fall in accidental fire deaths, accounting for 57% of all deaths between 2000-02 and 2005-07.
- The HFSC grant was associated with 13,670 fewer fires and 888 fewer non-fatal casualties per year.
- The HFSC grant enabled 1,967,924 HFSCs to be carried out, which in turn enabled 2,407,651 smoke alarms to be installed (one per 10 households).
- It was estimated that the English HFSC grant saved 53 lives per year. The total lives saved and the value of this depends on how long you assume the alarms will operate for. If you assume a 5 year operating life, the grant would save £375 million of lives over a 5 year period, or £695 million if you assume a 10 year operating life of the alarms. This was far greater than the capital cost of the initiative (£25 million) and the estimated revenue cost of the initiative (about £62.5 million).

These evaluations also highlighted that many factors were essential to the success of HFSCs. These factors are summarised below.

Targeting

The evaluations highlighted that targeting was essential for successful HFSCs. To reduce the number of dwelling fires, they needed to target HFSCs at those most at risk, such as vulnerable and isolated populations. FRSs reported that targeting provided many advantages such as:

- Increased likelihood of achieving targets and reducing fire deaths and incidents.
- Better value for money.
- Saving money.
- Better partnerships.
- Greater number of HFSCs achieved.
- Greater efficiency in use of resources.

⁴ For example, Williams et al (2009) Evaluation of Home Fire Risk Check and Fire Prevention Grant Programmes. Wetherby: Communities and Local Government Publications.

- Useful tool to guide crews and help FRSs measure the impact of their work more effectively.

Many FRSs used some form of geographic targeting by drawing on:

- the Fire Service Emergency Cover (FSEC) toolkit and the Mosaic database, which is a social-type categorisation of postcodes and households;
- analysis of historic fire data;
- a Classification Of Residential Neighbourhoods (ACORN) tool;
- indices of Multiple Deprivation;
- professional judgement;
- agencies and partnership knowledge e.g. sensory adaptation teams, adult services; and
- joined-up partnerships e.g. GP waiting rooms, occupational therapists and release teams from hospital.

These processes were used to identify the most 'at risk' groups and target HFSCs effectively. Using tools such as the FSEC toolkit, Mosaic and primary fire data, FRSs were able to identify output areas, street and types of households that were at most risk of a dwelling fire. Historic fire incident data was also used to build up a profile of the types of people who were having fires in each station area. Some of the high risk groups that FRSs reported targeting their HFSCs included: single adults, single parent families, older people, those with physical and mental disabilities, ethnic minorities, those living in high rise accommodation, and children and young people. FRSs then worked with local partners, such as 'Help the Aged', to identify the most vulnerable people within that area.

Partnership working

Partnerships with other agencies were reported to allow effective targeting of HFSCs through referrals. Key partners who access the homes of the most vulnerable and hard to reach people (including private and social landlords, social services, health services and charities working with the elderly) would inform the FRS of the need to carry out a HFSC. Many FRSs requested that partners do an initial hazard spotting in their daily visits in order to gauge the severity of the situation. The FRS would then make a visit to complete a full HFSC and take any specialist equipment that may be needed based on the partners' reporting. The most useful partners were found to be those who worked in the community and visited people's houses such as those who were vulnerable, isolated or otherwise at risk. A written formal agreement, stating the roles of the partner and the FRS, was also reported to be needed, to ensure the success of partnerships.

Management and conduct of HFSCs

The majority of FRSs reported having a specific manager responsible for the delivery of HFSCs, including a variety of people in the HFSC process has also been found beneficial. For example, community fire advocates are often involved to use their links within the community to access the most at risk groups. Combining the expertise of the community fire advocates together with the expertise of the fire crew, improved the likelihood that the correct personnel were sent to carry out the HFSC. Having a centrally managed process for calls and referrals for HFSCs ensured that the relevant information was taken from the residents to ensure that the correct type of personnel were sent to complete the HFSC. Checklists were also used to act as a guide to the fire fighters when carrying out the HFSC and to also leave with residents to act as a reminder of the main findings of the HFSC. Some FRSs developed glossy colour checklists that contained important information and guidance as well as 'spot the hazards' pictures and word searches designed to keep the resident's interest. Picture information was useful for communicating with non-English speaking residents. CD-ROMs were also used to provide spoken instructions for those with poor sight and signed instructions for those with hearing difficulties.

Training

It was reported that novice fire fighters required training in identification of hazards, effective escape routes, and installation and maintenance of smoke alarms. FRSs also indicated that outside agencies that may carry out HFSCs need to be competent and may require training. It was also considered by some FRSs that training staff in communication skills would be beneficial in order to identify 'sensitive risk factors' such as drug and alcohol problems and other social issues.

Performance monitoring

Performance monitoring was noted as an important part of HFSCs. It was noted that it was important to track the number of HFSCs carried out by area and by different household type. It was also noted that it was important to evaluate the FRSs' success at targeting the different household types and high risk areas. Re-visits are one aspect of HFSCs that FRSs can conduct to explore if HFSCs have been successful in high risk households. Another aspect of performance monitoring that was noted as being important, was quality assurance of HFSCs. This involves carrying out a survey with residents that have received a HFSC to explore their level of satisfaction with the HFSC they received. One further important aspect of performance monitoring was evaluation of the behaviour change of residents. This involved carrying out a telephone survey of residents that were about to receive a HFSC to explore their fire safety behaviour around the home. Another follow-up survey would then be carried out (six months or one year later) with the

same group of residents to explore if the HFSCs had an impact on their fire safety behaviour around the home.

1.4 Evaluation criteria

1.4.1 Introduction

From reviewing previous research and evaluations of HFSCs, the following criteria has been developed for the evaluation of the HFSC work conducted in Wales.

1.4.2 Delivery of HFSCs and provision of equipment

To what extent:

- Did the FRSs satisfy their planned level of HFSC activity?
- Did the FRSs deliver the estimated number of HFSCs and safety equipment as funded by the WG?
- Was the allocation of funds and estimated number of HFSCs proportionate to the risk of dwelling fire in each FRS?

1.4.3 Consistent with good practice

To what extent is the conduct and management of HFSCs consistent with good practice, as elaborated below?

Management of HFSC

- Has the FRS set targets for the volume of HFSCs to be completed, for example, per year?
- To what extent have these targets been cascaded down to areas/stations within the FRSs?
- Is there a manager responsible for overseeing the conduct of HFSC work across each FRS?
- To what extent has effective use been made of: whole time station crews; retained station crews; volunteers; community fire safety advocates; FRS specialists?

Performance monitoring

- To what extent:
 - Has the volume of HFSCs been monitored at a local (e.g. by district or station) and central level?
 - Has the targeting of HFSCs on higher risk areas, households and building types been monitored?
 - Has the satisfaction of residents with the HFSCs been assessed, e.g. by customer surveys?
 - Have HFSCs been audited, such as by re-visits to people?

- Has the impact of HFSCs on outcomes been evaluated?

Training

- To what extent has suitable and sufficient training in HFSCs been completed for: station crews – including new and experienced staff; volunteers; community fire safety advocates; FRS specialists; partners?
- To what extent does training cover: hazard-spotting and fire risk assessment; communication with residents; influencing skills; referral processes; installation of equipment?

Targeting

- To what extent has a targeted approach or a blanket approach been used for HFSCs?
- To what extent have HFSC been targeted by: areas with higher rates of dwelling fires and casualties; household types with higher rates of dwelling fires and casualties; areas where the response time is over 10 minutes; type of buildings with higher rates of fire or more vulnerable people?
- Is there evidence that there was a process to achieve targeting? What evidence is there that targeting has been successful?
- What tools are used to target the HFSC work? E.g. FSEC, Mosaic, fire data etc?
- Who are considered to be the most 'at risk' groups of dwelling fires, and do these match research on those who are at higher risk ?
- To what extent are hotstrikes used in targeted areas to generate HFSCs?
- In what way has mass media (local radio, TV and newspapers) been used to generate selective requests for HFSCs from vulnerable people?

Partnership working

- To what extent have partnerships been formed with those organisations who work with vulnerable people, such as Age Concern, Help the Aged, Local Authority sensory teams, private and social landlords, Social Services, Primary Care Trusts etc?
- To what extent have these partners delivered a significant number of referrals for HFSCs to the FRSs?
- Have these partnerships been effectively managed? Of interest here are whether the following are evident:
 - an FRS liaison officer or community fire safety advocate to help set up and maintain partnerships;
 - a memorandum of understanding;
 - defined criteria for referring people to the FRS;

- guidelines on the expected number of referrals;
- appropriate FRS response time to a referral, for example, do a HFSC within two weeks;
- agreement on how and when a FRS may refer a resident for assistance from another agency, for example, handyman schemes; and
- the FRS offering to carry out tasks on behalf of their partners, such as advising elderly people on flu jabs, to encourage the partnership?
- To what extent do the partners indicate that they are willing to sustain the partnership?
- To what extent have the FRSs entered into single point assessment systems with other agencies?
- To what extent do partners provide support in: referrals; advising the FRS on HFSC processes and materials; specialist support for helping most vulnerable people or people with special needs; conducting specialist HFSCs?
- To what extent have the FRSs been able to share data with partners, such as contact details for elderly patients?

HFSC process

- Is there:
 - A procedure for carrying out HFSCs?
 - A checklist used by fire fighters when carrying out HFSCs?
 - A checklist or information left with the residents after the HFSC has taken place?
 - Picture/visual aids or other innovative information providers used in the HFSC?
- What are the main sources of HFSCs?
- How are non-English speakers and people with hearing or sight problems communicated with during HFSCs?
- To what extent is there support and resources for handling special needs including FRS specialists (for example, for sprinklers and community advocates)?
- Are the criteria for referring people for assistance from other agencies, for example, handyman schemes, clearly defined?
- Is there a process for scheduling re-visits to homes on the basis of the resident's risk?
- To what extent does the HFSC comprise:
 - Installation of equipment (alarms)?
 - Rectification of fire risks (for example, faulty wiring)?

- Advice on fire safety?
- Attempts to influence behaviours through communication?

Barriers

To what extent do FRSs report barriers to the achievement of HFSCs? And what are these?

1.4.4 Impact

What statistical evidence is there that HFSCs have impacted dwelling fires and their outcomes? Including:

- What is the change in dwelling fires and outcomes proportionate to the level of HFSC completed?
- Is the cost per HFSC consistent with estimated levels and practice elsewhere in the UK?
- Is there evidence that rates of fire, death or casualty have fallen more in the targeted groups and areas than in other areas/groups?
- To what extent can an association between the impact of HFSCs and the process of conducting HFSCs be observed?

1.4.5 Lessons learnt

What are the lessons learnt for the future delivery of HFSCs in Wales?

1.5 Method

1.5.1 Research tasks

This evaluation had several components. These included:

Telephone interviews with FRSs

A total of nine telephone interviews were carried out with personnel from the three FRSs in Wales (three members of personnel from each FRS). The telephone interviews with FRSs aimed to seek the views and opinions of FRS personnel on a range of issues, such as the targeting of HFSCs and monitoring and management of HFSCs. The topics covered were developed to align with the evaluation criteria developed from the previous HFSC evaluations carried out in England for the Communities and Local Government Department.

One proforma was used with a range of topics. The FRSs were asked to provide the contact details of appropriate FRS personnel to answer questions in each section. These staff members were then asked to participate and then sent a copy of the proforma in advance of the interview.

One telephone interview summary was produced for each FRS. This was sent to the FRS personnel that participated to comment. The content of each summary was used to form part of the overall thematic analysis and was compared against the evaluation criteria as detailed in the previous section.

Telephone interviews with partner organisations

Ten telephone interviews were conducted with organisations that FRSs had partnerships with as part of their HFSC work. FRSs were contacted and asked to provide contact details of partner organisations that they worked with. The partner organisations were asked to participate in the evaluation and sent a copy of the proforma in advance of the interview. These telephone interviews aimed to seek the views and opinions of those organisations that work with the FRSs to deliver HFSCs. One verbal summary was provided to each partner at the end of the interview. One summary was produced and used as part of the overall thematic analysis and the findings were compared against the evaluation criteria.

Data request questionnaire

A data request questionnaire was sent to each of the three FRSs in Wales. The aims of the questionnaire were to explore what data was collected by FRSs with regards to HFSCs, their analysis of the targeting of HFSCs, number and types of partners they worked with and dwelling fire data.

Statistical impact assessment

From a statistical perspective, the number of FRSs in Wales and the number of fires and casualties is relatively low. This leads to potential difficulties in assessing the impact of HFSCs on the rate of dwelling fires, casualties and especially dwelling fire deaths. That is, medium-term trends in the number of incidents may be masked by “spikes” or “dips”, in the number of incidents. Therefore, a number of impact assessments were completed. The results from each assessment were then considered together to ascertain whether there was evidence of HFSCs leading to fewer incidents.

In addition, the numbers of dwelling fires, deaths and casualties was tending to decrease in the four year period (2000 to 2003) prior to the WG funding of HFSCs. Therefore, it would be inappropriate to attribute the reduction in incidents after 2003 to the HFSC as the decline in incidents after 2003 might simply be a continuation of a previous trend unconnected to the HFSCs. Indeed, the 2009 Welsh Fire Statistics bulletin noted that between 2002/03 and 2005/06 the Welsh Government worked with the Fire and Rescue Service, local authorities and registered social landlords to fit hard-wired smoke detectors, providing over £6.437 million funding. Moreover, the proportion of mains powered alarms installed in all households rose significantly: to 28% in 2008 from 26% in 2004. The main increase occurred between 2004 and 2005, whilst the percentage remained stable from 2005 to 2008. This overlaps with the first two years of HFSCs completed by FRSs.

This again makes it important to assess the additional impact of HFSCs over and above other coincidental fire safety initiatives. Therefore, the impact assessments included:

- comparing the decrease in incidents in Wales with that reported for England during its four year Home Fire Risk Check capital fund;
- estimating the reduction in Welsh fires and casualties that would be predicted for the rate of alarms installed, using a formula that predicts the change in incidents for a particular rate of alarm installations;
- comparing the before and after trends in the number of dwelling fire incidents in Wales;
- exploring whether the rate of decrease in incidents was proportionate to the rate of HFSCs in each FRS;
- exploring whether the rate of decrease in incidents was proportionate to the rate of HFSCs in each local authority;
- exploring whether the number of incidents fell more for those age groups that were meant to be targeted for HFSCs, i.e. the elderly;
- reviewing if the rate of alarm operability rose; and
- reviewing the results of the Living in Wales survey, of 2004 and 2008.

The impact assessment was limited by the data supplied by the WG and the three FRSs. The data was incomplete in respect of:

- the number of fire deaths and casualties per local authority prior to 2005 and after 2007;
- no fire data was available for 2009;
- the number of HFSCs and alarms installed prior to 2005 by South Wales FRS;
- HFSC and alarm installation data was incomplete for 2009; and
- data on the operability of alarms was not available for two FRSs or for any FRS prior to 2004.

It is possible that more robust findings could have been achieved if a more complete dataset had been available. In particular, a longer time series of fire data (i.e. 2008 and 2009) might have strengthened the study in this respect.

Targeting analysis

Analysis was carried out to assess HFSC targeting. Firstly, the relationship between dwelling fires, deaths and casualties in Wales and the 2001 Welsh Census using local authority level data (22 data points) were explored through correlation and regression analysis. This produced a set of Census variables that were associated with dwelling fires. Secondly, the numbers of HFSCs per local authority were compared against these Census variables.

Review of the funding formula for the WG

This task aimed at providing the WG with options for allocating the HFSC funding between the three FRSs in Wales.

Synthesis

The synthesis of the findings was conducted by the whole research team. The findings from each part of the evaluation were used to systematically answer the questions in the evaluation criteria. The main findings from the synthesis are presented in Section 2 of this report.

2 FINDINGS

2.1 Overview

Number of HFSCs completed

The three FRSs have carried out a very large number of HFSCs and installed a large volume of smoke alarms using WG funding, i.e. about 200,000 HFSCs between 2004 and 2008, which is about one for every 15 Welsh residents. With close to £3 million funding in this period, this is about £14 per HFSC and £11 per installed alarm. This is comparable to the cost of HFSC and alarm installation reported in England for the four year Home Fire Risk Check capital fund. The rate of HFSCs was initially far below planned levels, with FRSs accelerating their work in subsequent years.

Impact on rate of dwelling fire

There is mixed evidence regarding the impact of HFSCs on the rate of dwelling fires, deaths and casualties in Wales. Whilst all three measures have declined, it is unclear to what extent the decline in incidents can be statistically attributed to the HFSCs. The rate of dwelling fires and casualties was declining prior to the start of WG funding in 2004, and the rate of decline does not so far seem to have accelerated. Also, the decline in fires and casualties is less than would be expected given the number of HFSCs completed. However, the rate of dwelling fire deaths has fallen since 2004, having previously risen and has fallen to the level expected given the number of HFSCs completed. Also, to some extent, dwelling fires and casualties have fallen more in those local authorities with higher rates of HFSCs. Thus, there is limited statistical evidence of an impact of the HFSCs on the rate of dwelling fires, deaths and casualties. Ideally, the statistical impact analysis should be completed when a longer time series of data and more complete dataset is available. (It is also possible that the limited evidence of impact on fires is related to the mixed findings about the process of HFSC, as noted below.)

Process review

Research was conducted across the FRSs i.e. South Wales, North Wales and Mid and West Wales. The findings have indicated that:

The South Wales area:

- has delivered less HFSCs than they estimated to WG;
- has not carried out a targeted HFSC approach until recently (prior to this they delivered a blanket approach to HFSCs), but have nonetheless actually done proportionately more visits for the elderly than other ages and have targeted other key target groups such as those with disabilities;
- has not set up any partnerships with organisations to help with their delivery of HFSCs; and

- has had less dwelling fires than predicted based on the number of HFSCs installed, i.e. fires have declined more than would be expected (with a clear association between the rate of HFSCs and the decline in fires and casualties per local authority).

The North Wales area:

- has delivered more HFSCs than estimated;
- has set up numerous partnerships with other organisations to help with referrals of HFSCs and the delivery of HFSCs;
- has been targeting HFSCs since 2007, however prior to this there was little or no targeting of HFSCs and a blanket approach was taken;
- has had more dwelling fires than predicted based on the number of smoke alarms installed;
- has had less dwelling fire deaths than predicted based on the number of alarms installed; and
- has had a rise in the number of dwelling non-fatal fire casualties.

The Mid and West Wales area:

- has delivered slightly less HFSCs than estimated to WG;
- has been targeting HFSCs since 2007 however, prior to this there was little or no targeting of HFSC and a blanket approach was taken;
- has set up numerous partnerships with other organisations to provide referrals for HFSCs; and
- has an unclear association between the rate of HFSCs and the change in dwelling fires and dwelling fire casualties per local authority.

A key concern relates to the basis on which HFSCs are targeted. It is uncertain whether areas should be targeted based on the socio-demographic factors within FSEC as these factors may be outdated. The targeting of areas (assessed at local authority levels) in Wales does not appear to have matched those areas with historically higher rates of dwelling fire or what are currently regarded to be the socio-demographic risk indicators. It is also uncertain whether FRSs have, until recently, targeted higher risk households or worked with partner organisations to reach those most in need. These concerns may explain the limited evidence regarding the impact of HFSCs in Wales and indicate areas for further development of HFSC methods in Wales. Finally, the allocation of funds was not proportionate to risk in each FRS.

2.2 Delivery of HFSC and provision of equipment

2.2.1 Planned versus reported number of HFSCs

To what extent have FRSs delivered the estimated number of HFSCs and safety equipment as funded by the WG?

The funding enabled 200,000 HFSCs and 238,000 alarms in 2004/05-2008/09, which is about one for every 15 Welsh residents. The WG provided data on the number of HFSCs that each FRS planned to complete using the WG HFSC funding. The estimated number of HFSCs, were part of the FRSs' bids for the WG funding. The planned number of HFSCs in the period 2004/05 to 2008/09 was equivalent to a rate of one for every 12.5 Welsh residents and one per seven residents by the end of 2010/11 (see Table 1 below).

Table 1: Planned number of HFSCs per FRS

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
South Wales	7,000	21,500	21,500	20,000	25,000	25,000	25,000
North Wales	6,000	10,000	12,000	16,500	30,000	30,000	35,000
Mid and West Wales	10,000	10,000	14,535	16,000	18,000	25,000	27,500
Total	23,000	41,500	48,035	52,500	73,000	80,000	87,500

In England, one alarm was installed for every 23 residents in the four year Home Fire Risk Check capital fund. By comparison, if you assume 1.22 alarms per HFSC (2004-2008), the Welsh FRSs planned one alarm per 11 residents in the period 2004/05 to the end of 2008, i.e. two times higher rate than England. Thus, the Welsh FRSs planned to carry out a relatively high rate of HFSCs.

The number of HFSCs reported by Welsh FRSs as having been carried out have been compared with the planned number below, in Table 2.

Table 2: Planned versus reported number of HFSCs

	Number of planned HFSCs (2004/05 to 2008/09)	Reported HFSCs carried out (2004/05 to 2008/09)	Difference
North Wales	74,500	78,873	6% higher than planned
Mid and West Wales	68,535	73,258	7% higher than planned
South Wales	101,250	61,103	40% lower than planned ⁵

⁵South Wales did not provide any data on their HFSCs for 2004/2005 therefore their reported totals may be different.

Table 2 compares the planned number of alarm installations against the number reported by FRSs for the period 2004/05 to 2008/09. Overall the achieved number was 7% below plans. However:

- South Wales' reported number of alarm installations was 38% below.
- North Wales was 21% above.
- Mid and West Wales was 7% above plans.

It is important to note that data on the number of HFSCs completed by South Wales was not available in 2004. Also data was not provided regarding the distribution of other fire safety equipment by FRSs, such as domestic sprinklers, replacement electric blankets, circuit breakers etc.

The number of alarms installed per HFSC was relatively high for North Wales at 1.4 alarms per HFSC. The number of HFSCs carried out was 7% higher than planned in Mid and West Wales. Mid and West Wales installed just over one smoke alarm per HFSC. It should be noted that South Wales did not provide data on their HFSCs for 2004/05 and so their reported totals may be lower than the number of actual alarms installed.

Figure 2: Comparison of planned versus achieved smoke alarm installations

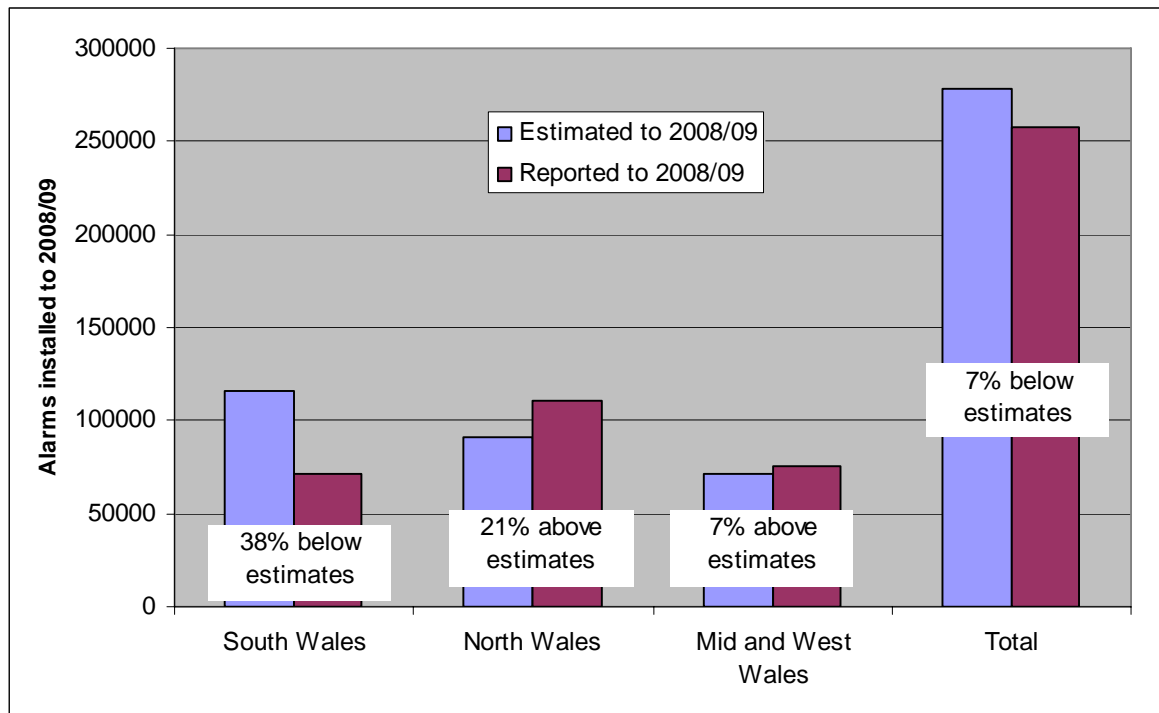
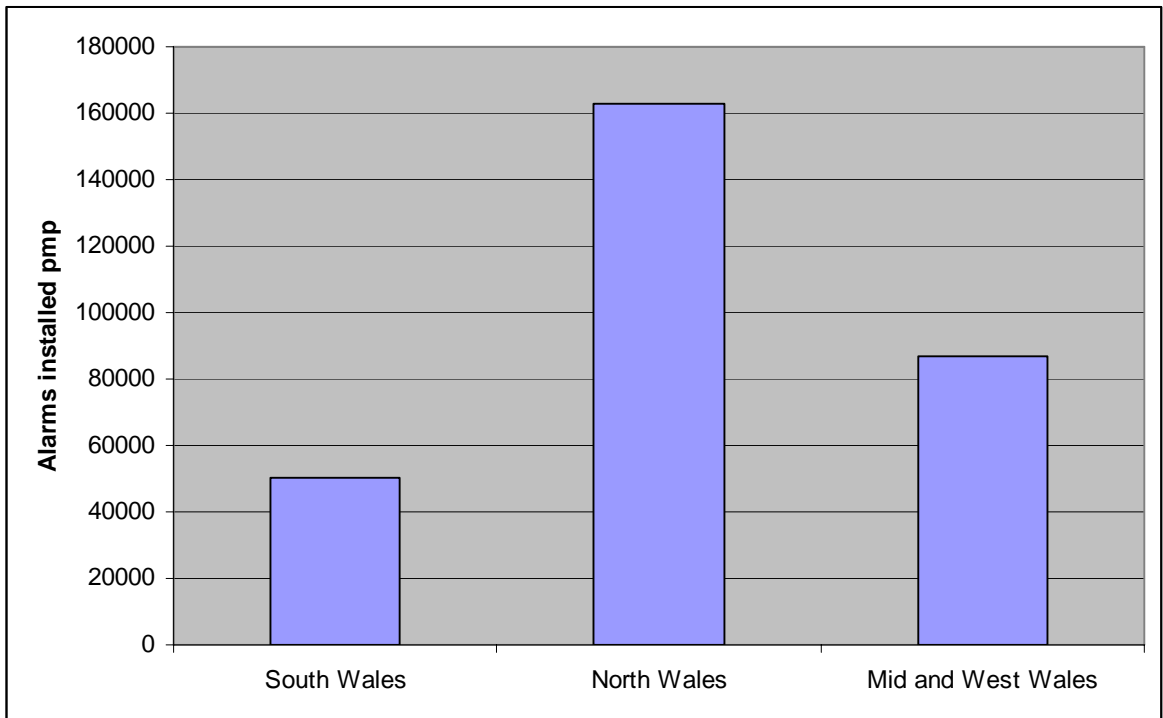


Figure 3 shows the estimated rate of alarms installed per million population (pmp) for the three FRSs in the period 2004/05 to 2008/09. Clearly North Wales achieved the highest report rate of about one for every six residents compared to one per 11.5 in Mid and West Wales and one in 20 for South Wales. Again it should be noted that no data was available for South Wales for 2004/05.

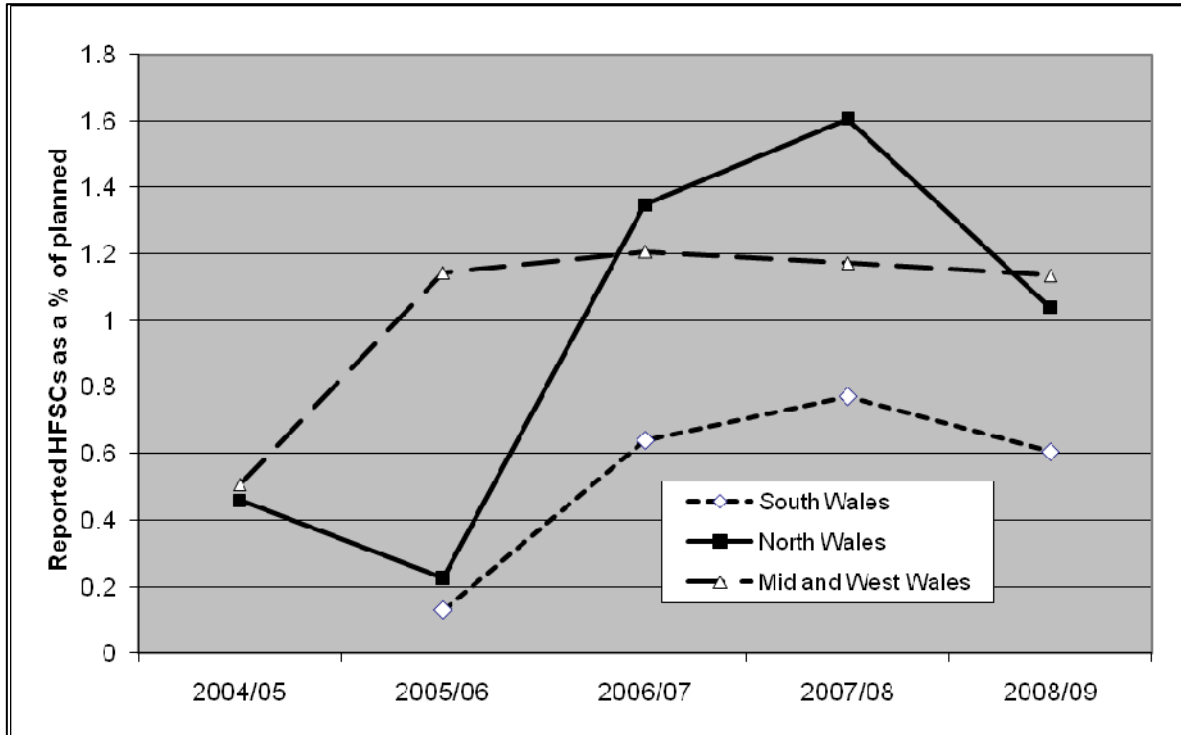
Figure 3: Rate of alarms installed pmp



In all cases, the reported number of HFSCs was lower than planned in 2004/05.

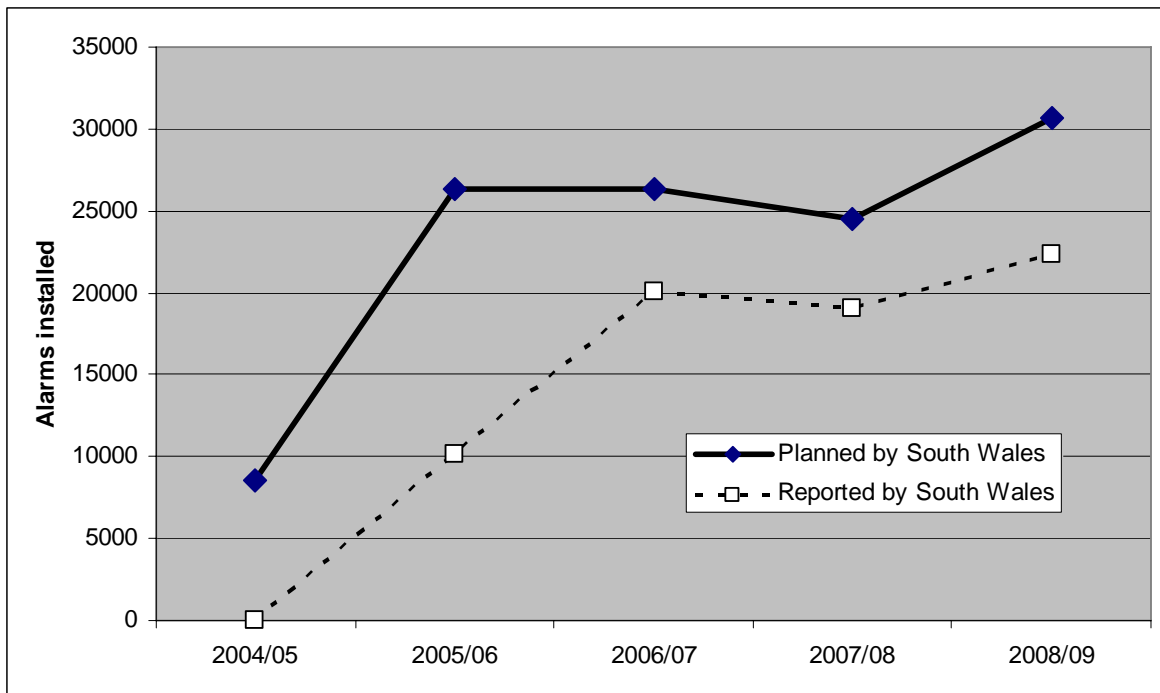
Figure 4 shows the reported number of HFSCs as a per cent of reported HFSCs for each FRS. Both North Wales and Mid and West Wales exceeded the planned number from 2006/07 onwards. Thus, after a “slow start” Mid and West Wales FRS accelerated the number of HFSCs and North Wales exceeded their planned HFSC totals.

Figure 4: Reported HFSCs as a per cent of planned HFSCs



South Wales' HFSC work was far below planned levels in 2004/05 and 2005/06. Indeed, the reported number of alarms installed was below the planned number of HFSCs for all reported years. They report installing 71,635 alarms in 2005/06 to 2008/09 compared to plans to carry out 88,000 HFSCs in this period. The number of HFSCs is below the planned level throughout this period. However, it is clear that the number of alarms installed by South Wales accelerated from 2006/07 onwards, as per Figure 5.

Figure 5: Comparison of reported alarm installations against planned installations for South Wales



2.2.2 Funding relative to rate of fire and casualty

To what extent was the allocation of funds and estimated number of HFSCs proportionate to the risk of dwelling fire in each FRS?

The WG provided data on the allocation of funds per FRS (see Table 3 below). The funds were divided by the population per FRS to estimate the funds per million of population, as shown in the right hand column. The funding per million population (pmp) is plotted against the rate of dwelling fire pmp in 2000-2003, in Figure 6. If funding was directly proportionate to risk, the three data points would fall onto the diagonal line. Based on the reported rates of dwelling fire, Mid and West Wales would have received more funds pmp than North Wales, with South Wales receiving the lowest level of funding pmp. Whilst South Wales did receive the lowest rate of funding, North Wales had the highest rate of funding.

A similar comparison is made in Figure 7 using the rate of dwelling fire casualty. Again, it indicates that the allocation of funds was not proportionate to the relative rate of dwelling fire casualty. On this measure, North Wales would have received the lowest level of funding pmp rather than the highest.

Table 3: Funding per FRS

FRS	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Total funding	Allocation pmp
South Wales	£65,000	£185,450	£235,450	£292,690	£354,710	£415,500	£1,548,800	£1,089,170
North Wales	£63,100	£89,000	£149,000	£306,589	£393,602	£416,670	£1,417,961	£2,097,575
Mid and West Wales	£64,000	£89,000	£205,000	£260,372	£330,800	£381,440	£1,330,612	£1,532,963
Total	£192,100	£363,450	£589,450	£859,651	£1,079,112	£1,213,610	£4,297,373	£1,448,878

Figure 6: Comparison of funding pmp against rate of dwelling fire pmp

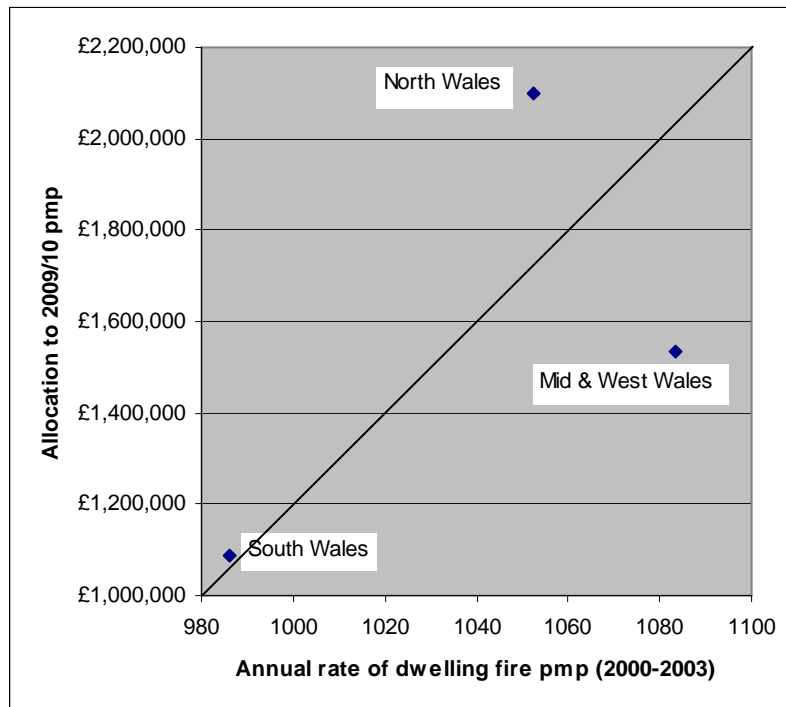
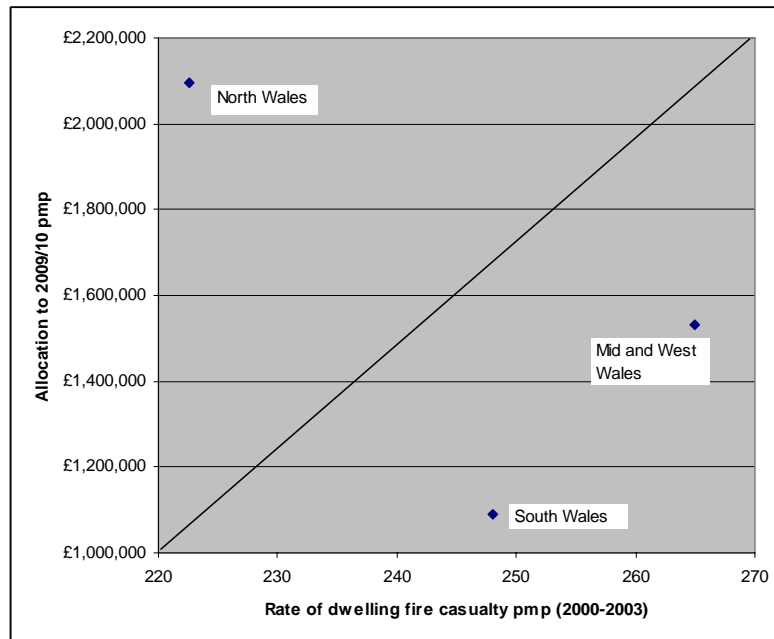


Figure 7: Comparison of funding against rate of dwelling fire casualty pmp



2.3 Management of HFSC

Introduction

The following section of the report presents a synthesis of findings from the telephone interviews with FRSs, the telephone interviews with partners and targeting analysis. The findings have been compared against the evaluation criteria and critically evaluated against these.

Overview

All FRSs have similar management processes in place for their HFSC work. They all reported having targets in place since 2004 for the amount of HFSCs to complete at FRS level and station level, although it is not certain when the station level targets were developed. Senior management was reported to be responsible for communicating these targets and cascading them down the services.

Has the FRS set targets for the volume of HFSCs to be completed, e.g. per year?

All FRSs set targets (in their funding bids) for the amount of HFSCs to be completed each year and continue to do so. For example, North Wales FRS reported that they have a target of completing 30,000 HFSCs per year (10% of the housing stock), with 20% of these to be referrals from partner agencies for vulnerable residents. Mid and West Wales reported basing their targets on

FSEC; however none of the FRSs reported setting targets for types of households.

To what extent have these targets been cascaded down to areas/stations within the FRSs?

All FRSs stated that targets are set at different levels such as whole time stations, day crew and retained staff. South Wales FRS and North Wales FRS reported that stations are given monthly targets of HFSCs to complete. North Wales FRS stated that each whole time watch has a target of conducting 100 HFSCs per month, Practitioners⁶ and Home Fire Safety Support Workers⁷ have targets of conducting 30 HFSCs per week and retained staff are planned to conduct four HFSCs per year.

Is there a manager responsible for overseeing the conduct HFSC work across each FRS?

All FRSs reported to have management in place responsible for HFSCs. For example, North Wales FRS reported that there is a Safety Manager in each county responsible for individual county HFSC targets, which are managed at a local level. South Wales FRS stated that targets are set at a senior level and disseminated down the FRS. HFSCs are managed across directorates and every station would have a return to the Head of Department indicating how many checks have been completed. Local Station Managers in Mid and West Wales FRS were reported to be responsible for targets and report to the Command Managers. These managers then report to the Head of Community Risk Reduction. Mid and West Wales FRS reported to have an extensive business plan in order to communicate targets to those responsible for managing the HFSCs. Targets are entered in to the Performance Management Database, which is reviewed quarterly. Anyone can access this database at any given time. They also reported having a Central Policy Unit in place to advise each of the six commands on the number of HFSCs they should complete.

What staff has the FRS made effective use of?

All FRSs reported having a wide range of personnel involved in their HFSC work. In all FRSs, operational crew carry out the main bulk of HFSCs; however, non-operational staff are also involved in delivering HFSCs. For example:

- North Wales FRS stated that they have 13 Community Safety Practitioners and five Home Safety Support Workers with specific areas of experience (e.g. sign language, drugs/alcohol, elderly and disabilities) involved in delivering HFSCs. These employees can reach and have the skills to work with vulnerable residents.

⁶ Non-operational FRS staff.

⁷ Non-operational staff with specialist expertise in issues such as alcohol, disability and sign language.

- South Wales FRS reported having a team of four dedicated to those people at a high risk involved in delivering HFSCs. This team consists of two non-operational light duties officers and two advisors funded by the WG. If fire fighters identify a specific risk through a HFSC, the resident is referred to this team to follow-up.
- Mid and West Wales FRS also reported involving non-uniformed staff such as educationalists in the delivery of HFSCs as well as advocates. For example, they employ an Ethnic Minority Outreach Worker, who is trained in HFSCs to break down any barriers the FRS may experience in this respect.

North Wales FRS and Mid and West Wales FRS stated also including the use of partners to deliver HFSCs. For example, North Wales FRS fund Care and Repair to deliver HFSCs. Mid and West Wales FRS also include Care and Repair partners to deliver the checks. North Wales FRS reported including Age Concern Gwynedd and Mon via Home Care Assistants and the Red Cross in Conwy and Denbigh to deliver HFSCs. These agencies have the ability to reach and skills to work with vulnerable groups such as the elderly. The FRS Voluntary Sector Co-ordinator was reported to be looking to further these delivery mechanisms for HFSCs in other counties and work with many voluntary groups to deliver HFSCs.

North Wales FRS reported that every member of the service has been provided with HFSC training. They are encouraged to accompany staff during hotstrikes to complete a HFSC and/or are able to deliver this preventative service and be inclusively involved in the delivery strategy.

All of the FRSs reported that they do not currently have difficulty deploying fire fighters on to HFSCs. Mid and West Wales FRS and North Wales FRS did report that at one point difficulty may have been experienced deploying fire fighters to these activities but the culture has now changed and problems are not experienced. For example, North Wales FRS reported that at one time they experienced some difficulty deploying retained fire fighters to HFSCs as some believed that this would reduce the amount of pay they would receive as fewer fires were occurring. However, the culture of the FRS has changed and more staff members are willing to conduct HFSCs. Mid and West Wales FRS reported that staff realise that 'prevention' is better than 'cure'.

2.4 Performance monitoring

Overview

The FRSs are conducting similar performance monitoring. They all reported recording and tracking the HFSCs completed and comparing these against targets. North Wales FRS were the only FRS to report conducting aspects of quality assurance of the HFSCs completed and are also the only FRS to conduct re-visits.

To what extent has the volume of HFSCs been monitored at a local (e.g. by district or station) and central level? To what extent has the targeting of HFSCs on higher risk areas, households and building types been monitored?

All FRSs reported recording and monitoring the number of HFSCs completed. This is done at FRS level and station level. South Wales FRS also reported recording how many HFSCs are completed by individuals per month, such as operational crews or those in specific community safety roles.

All FRSs also stated recording the type of property and the type of area that the HFSCs have been conducted in. South Wales FRS and Mid and West Wales FRS reported that this is done according to FSEC categories. South Wales FRS did report recording the type of household, however, it also noted that this has been difficult to record as the FRS often only have a single resident contact when conducting the HFSC, making it difficult to identify the type of household.

North Wales FRS reported using a new data system that records details such as the type of household, if the HFSC was through a referral and who the referring agent was. The reporting programmes will also be able to search any field, or combination of field within the HFSC form as completed in the database. This will provide an opportunity to set programmes of re-visits based on known risk factors. However, this database has only been live for a few months with its ability to produce reports from the completed HFSC still being developed.

All FRSs reported comparing recorded HFSC figures with targets. All FRSs also reported that these targets are then reviewed regularly by senior management. South Wales FRSs work with the Performance Management Unit to look at the demographics of areas to determine the vulnerable groups within an area, and ensure that the achieved number of HFSCs is representative of these vulnerable groups.

To what extent has the satisfaction of residents with the HFSCs been assessed, e.g. by customer surveys?

North Wales FRS reported sending two FRS members to survey the community on the service they received during their HFSC. South Wales FRS and Mid and West Wales FRS stated that they do not conduct any customer surveys (South Wales FRS reported attempting to do this, but limited resources prevented it being carried out and they are looking into monitoring this service in the same way they monitor the service the public receive during incidents).

To what extent have HFSCs been audited, for example, by re-visits to people?

North Wales FRS were also the only FRS that reported conducting audits of HFSCs. These are conducted every six months in each county to check the conduct of the completed HFSC. In order to monitor the quality of partners' work, North Wales FRS traditionally looked through every return they received

from a partner. If this was seen as unsatisfactory, the FRS would send their staff to conduct a quality assurance check.

Has the impact of HFSCs on outcomes been evaluated?

All FRSs reported that they have not conducted a formal evaluation of their HFSC work to determine the direct impact on outcomes such as number of fires. They all keep track of their work and have some measurements in place. For example, North Wales FRS stated that they do report on the number of dwelling fires they attend and whether smoke alarms were installed. They also reported that the number of dwelling fires have been decreasing as the number of HFSCs has increased. The FRSs noted that the proportion of fires attended that had received a HFSC, is included within the performance indicators they report on.

Mid and West Wales FRS also reported having performance indicators set by the WG that require reporting every incident that has received a HFSC or an operable alarm in place in the past 12 months. Positive figures have been achieved for the FRS; however, this is likely to be due to all the schemes and programmes run by the FRS, not solely due to the HFSC scheme. South Wales FRS reported that they use quarterly reports to identify areas where fires have occurred and how many of these had operable smoke alarms present. This then drives FRS behaviours as any high risk areas identified would have additional resources dedicated to them.

2.5 Training

Overview

All FRSs have a consistent approach to training. All those carrying out HFSCs were reported to be trained through a standard package. None of the FRSs reported providing training in softer communication skills⁸.

Who does the FRS provide suitable and sufficient training in HFSCs for?

All FRSs stated that they train all staff members carrying out HFSCs; however North Wales FRS also stated training every member of the service in HFSCs. North Wales FRS reported that those who regularly deliver HFSCs, are operational fire fighters, 13 Community Safety Practitioners and five Home Safety Support Workers who have specific areas of experience. These all receive training in HFSCs. Mid and West Wales FRS reported that staff that deliver HFSCs are uniformed staff, non-uniformed staff, Care and Repair partners and advocates. These are all trained in HFSCs. South Wales FRS reported that they mainly have the operational crews delivering HFSCs and have a team of four dedicated to high risk activity at the FRS headquarters. These are all trained in HFSCs. Mid and West Wales FRS and North Wales FRS also stated that they train the partners who deliver HFSCs. North Wales FRS reported that partners are assessed before they can carry out a HFSC. South Wales FRS reported not having any outside organisations delivering

⁸How to communicate and influence behaviour effectively, with residents in a suitable and approachable manner.

HFSCs on their behalf and therefore do not provide training to anyone outside the FRS.

What does the training cover?

All FRSs have a consistent approach to training. This is through a standard training package delivered by a PowerPoint presentation and demonstrations. South Wales FRS reported delivering this on an initial recruit's course. All FRSs reported also delivering 'on the job' training. For example, Home Safety Support Workers and practitioners from North Wales FRS accompany other agency staff until they are deemed competent to carry out HFSCs.

The training for all FRSs was reported to include how to identify and communicate fire risks such as those associated with cooking, smoking and electrics. All FRSs provide staff with HFSC checklists to work through to help identify and communicate these risks. Mid and West Wales FRS reported that this checklist also provides prompts for questions that the staff need to address. For example, identifying the number of occupants and whether children or elderly people live in the property. North Wales FRS also reported that training includes instruction on installing smoke alarms.

All FRSs lacked the provision of soft communication skills training. South Wales FRS reported that although they do include this training, it has been relatively difficult to carry out.

South Wales FRS and North Wales FRS reported providing staff with equality and diversity training; however this is not specific to HFSCs. On occasions South Wales FRS stated that they run courses for staff where guest speakers from varying religions and backgrounds will provide talks and presentations. Mid and West Wales FRS reported having an Ethnic Outreach worker in place to provide training and advice to staff on cultural issues or faith sensitivities. North Wales FRS also reported that partners delivering HFSCs have the support of the County-based Practitioners and County Safety Manager if difficulties or concerns are identified. These can then be referred back to the FRS to resolve or further reduce risk through provision of appropriate interventions.

2.6 Targeting

Overview

North Wales FRS stated that they have been targeting their HFSC work since 2007 at the most vulnerable and high risk residents. Mid and West Wales FRS have been targeting HFSCs using FSEC since they started carrying out HFSCs in 2004. South Wales FRS stated that they only started using a targeted approach in 2008. All FRSs use FSEC to geographically target their work in addition to other methods that draw on fire data, Mosaic, IMD scores and the resources of partners.

To what extent has a targeted approach or a blanket approach been used for HFSCs?

All FRSs reported currently using a targeted approach to their HFSC work. However, South Wales FRS and North Wales FRS are also carrying out a blanket approach in conjunction with a targeted approach. For example, North Wales FRS runs a parallel policy where there is a need to keep up the volume of HFSCs, but to also take a 'quality approach'⁹ by gaining at least a 20% rate of referrals for vulnerable residents from outside agencies. The North Wales FRS Task Group Report published in 2007 prompted the FRS to move towards a more targeted approach to their work and provided information on how to do so. In the past year, South Wales FRS moved from a blanket quantity approach to a 'quality approach'. However, they are still using this blanket approach by methods such as advertising in supermarket car parks. Mid and West Wales FRS are currently using a targeted approach to their work, ensuring that HFSCs are targeted at the most vulnerable. It is unclear if they are also using a blanket approach in conjunction with their targeting.

What groups have been targeted? Who are considered to be the most 'at risk' groups of dwelling fires, and do these match research on those considered to be at a higher risk?

The FRSs all reported to target their HFSCs to the most vulnerable residents. FSEC also provides the FRS with areas to target. South Wales FRS, using internal fire statistics, found that since April 2007 there were 15 accidental dwelling fire deaths. Ten of these deaths were persons over 60 years old and eight of these 10 were known to other care agencies. Therefore, the FRS is now targeting elderly people who live alone. Since 2007, North Wales FRS had a policy of targeting by area and household (this was prompted by the North Wales FRS Task Group Report (2007)). The vulnerable groups they target are those living alone; those showing fire interaction behaviours; no smoke alarms fitted; old and young; alcohol involvement; rented property and the disabled. Mid and West Wales FRS are aware of the most at risk groups such as the elderly. They have also identified through incident data that high risk categories also include single men with drug and alcohol dependencies. However, they have experienced difficulty targeting these groups due to accessing vital data from outside agencies.

Is there evidence that there was a process to achieve targets and what evidence is there that targeting has been successful?

All FRSs reported monitoring the number of HFSCs completed and comparing them to targets. This is done at FRS and station level. Targets are also reviewed regularly. North Wales FRS reported that the most effective method of targeting has been referrals from partner agencies. This is due to them providing referrals for those in most need of a HFSC and helps the FRS reach the most vulnerable. South Wales FRS and Mid and West Wales FRS reported that hotstrikes have been a good method of targeting. Mid and West

⁹ A targeted approach to HFSCs.

Wales FRS also reported that fire safety weeks have been a good method of generating referrals.

Findings from the targeting analysis, has found a strong correlation between the rate of HFSCs and the per cent of single pensioners ($R=0.72$), which indicates that FRSs did target HFSCs on areas with higher rates of single pensioners as per the direction to use FSEC to target areas. However, the two socio-demographic risk factors used in FSEC (lone pensioners and rented accommodation) were not correlated with the rate of dwelling fire or casualty in Wales.

We explored how the rates of dwelling fires and casualties related to socio-demographic factors in Wales. This found that factors such as lone parents, single adults and living in purpose-built flats were correlated with rates of dwelling fires and casualties in Wales (using 2002-2004 fire data and the 2001 Census). However, those local authorities with higher predicted rates of fires have lower rates of HFSCs pmp ($R=-0.41$). It was also found that there was no association between areas with more lone parents (-0.36), single adults (0.057) or purpose-built flats ($R = -0.32$) and the rate of HFSCs, i.e. local authorities with more "risk" did not receive more HFSCs pmp. Thus, using local authority data and HFSCs data for 2005 to 2008, the targeting of HFSCs was not related to dwelling fire risk as measured by a new dwelling fire risk formula based on Welsh data.

South Wales FRS appears to have been quite successful in their targeting of certain household types. These findings suggest that South Wales do target by household type such as those living with a disability and those aged over 65. However, this analysis has also revealed that South Wales could focus their targeting of HFSCs more on males rather than females, those in social accommodation and those living in flats.

Mid and West Wales FRS provided details of their geographical targeting using FSEC and response times from high risk areas. Analysis revealed that 21% of Mid and West Wales FRSs' HFSCs were carried out in well above average and above average risk areas. This relates to approximately one in three well above average high risk households being targeted. However, the rate of HFSCs per household was similar for the other risk categories.

Analysis has revealed that in 2008/09, South Wales FRS carried out 7% of their HFSCs in well above average risk areas and above average risk areas, based in the FSEC criteria.

What tools are used to target the HFSC work? E.g. FSEC, Mosaic, fire data etc.

All FRSs reported using FSEC and historical incident data to target their work. Each FRS also uses other tools to target their checks. For example, although South Wales FRS had always used FSEC to generate addresses provided to the Fire Fighters Charity for tele-appending, the addresses produced have been exhausted and the use of FSEC is now limited. Therefore, they reported to now be looking at using other methods and have recently purchased

Mosaic. It was stated that this package will help with targeting vulnerable and hard to reach groups. It is hoped that the FRS will be able to develop “risk walks” within fire station areas. A risk walk is a pre-determined list of addresses that crews can visit to carry out a HFSC arranged in such a way that the crew can “walk” from address to address without the need to use the appliance, thereby covering the maximum amount of addresses in the minimum amount of time without the need for any appliance movements. Mid and West Wales FRS use FSEC as the primary tool for targeting their work. However, they reported that they have recently purchased software, which can map HFSCs. Using this in conjunction with FSEC has allowed the FRS to target further. The FRS also uses the population bases drawn on to administer Council Tax. This provides the FRS with information on the locations of the young and older population groups. North Wales FRS also use IMD scores and Census data to identify key wards that need targeting.

The targeting analysis carried out using 2002-2004 dwelling fire data revealed that the factors within FSEC (lone pensioners and rented accommodation) are not correlated with more up-to-date dwelling fire data and therefore are not risk factors any more. It is likely that FSEC factors will be revised with more up-to-date data. In the meantime, it is recommended that FRSs use other socio-demographic factors as identified within this research to target their HFSCs. However, analysis was conducted using more up-to-date dwelling fire data (2007). This revealed that factors that had previously been linked with dwelling fires were no longer associated. Therefore, it is recommended that further research is carried out to explore the risk factors associated with dwelling fires in Wales.

To what extent are hotstrikes used in targeted areas to generate HFSCs?

All FRSs reported using hotstrikes in areas that have recently experienced a fire in order to generate HFSCs. This has been a successful method of targeting for all FRSs. In the case of South Wales FRS, Operational Fire Fighters and Community Safety staff flood the immediate area, leafleting households and providing information on how to contact the FRSs to arrange a HFSC. Where possible, residents are also offered a HFSC on the spot. This can result in the FRS visiting 12 to 50 households in an area.

In what way has mass media (local radio, TV and newspapers) been used to generate selective requests for HFSCs from vulnerable people?

North Wales FRS and Mid and West Wales FRS reported using local radio and newspapers to advertise HFSCs, providing the free ‘0800’ number to arrange a check (Mid and West Wales FRS also reported advertising on television). All FRSs reported attending local events to advertise the checks (North Wales FRS have a multi-purpose vehicle – a fire safety bus – they use when attending events). However, none of the FRSs tailor their advertising to target certain vulnerable groups. Mid and West Wales FRS reported that advertising in newspapers has been the least effective method of securing access to people’s homes. This was reported to be due to the adverts not being targeted or focused on certain populations and those people who the FRS want to target, not necessarily reading the newspapers. North Wales

FRS also reported that they are unaware if advertising in newspapers has been an effective targeting method and found advertising on the radio to not be very effective.

2.7 Partnership working

2.7.1 FRS feedback

Overview

North Wales FRS and Mid and West Wales FRS reported having many partnerships in place for their HFSC work. South Wales FRS did not have any formal partnerships in place at the time of the interview¹⁰. Partnerships tended to be skewed towards care agencies whose clients were vulnerable residents. These partners provide the FRSs with referrals and data on vulnerable residents.

To what extent have partnerships been formed with those organisations who work with vulnerable people – such as Age Concern, Help the Aged, Local Authority sensory teams, private and social landlords, Social Services, Primary Care Trusts etc?

North Wales FRS and Mid and West Wales FRS reported having many partnerships in place for their HFSC work. These included care agencies such as Care and Repair; Age Concern; sensory teams; Red Cross; Victim Support and Social Services. Mid and West Wales FRS noted that they are working with the Local Health Board and identified areas of deprivation and linked with agencies in these areas. Whilst North Wales and Mid and West Wales FRSs appear to be working with some key partners, it is recommended that they ensure these partnerships are in each local authority. For example, Mid and West Wales FRS work with Age Concern in three of their six local authorities. However, neither of these FRSs seemed to have formed partnerships with GPs, social landlords or private landlords. While South Wales FRS reported that they did embark on a joint partnership with Care and Repair Cymru, data-sharing issues from these agencies hampered useful engagement with the FRS and as a result this partnership had been put 'on hold' (yet some Care and Repair representatives did refer clients directly to the FRS High Risk Team).

To what extent have these partners delivered a significant number of referrals for HFSCs to the FRSs?

North Wales FRS provided details of the number of referrals they received from partners for HFSCs¹¹. The data that was provided indicated that in 2007/08, North Wales received 838 referrals from a total of 44 different partners and in 2008/09, they received 573 referrals from a total of 44 partners. A review of the list of partners and the number of referrals from each

¹⁰The WG were aware of a previous partnership called the 'Gwent Bobby Van' scheme. However, this was not discussed by South Wales FRS.

¹¹This data was provided by North Wales FRS. It is unclear whether this dataset was complete or not.

revealed that in 2007/08, North Wales FRSs mainly received referrals from 18 partners (these are partners that have provided 10 or more referrals). In 2008/09 referrals were mainly received from 14 partners (these are partners that have provided 10 or more referrals). This indicated that 41% in 2007/08 and 32% in 2008/09 of partners provided North Wales FRSs with a reasonable number of referrals. This suggests that North Wales could reduce the number of partners that it works with and concentrate on those that provide a significant number of referrals with the most at risk groups. Mid and West Wales FRSs did not provide details on the number of referrals from each partner. However, they did indicate that they have 60 partnerships set up and of these the majority refer people to the FRS for HFSCs. As previously stated, South Wales FRS have not developed partnerships.

Does the FRS have a liaison officer or community fire safety advocate to help set up and maintain these partnerships?

Mid and West Wales FRS stated that they have a Partnerships Officer in place and North Wales FRS is currently trialling a WG-funded post to encourage voluntary sector partners to conduct HFSCs on behalf of the FRS. However, if they are not able to conduct these checks they are encouraged to refer their clients to the FRS to conduct the HFSC. South Wales FRS did not state that they have a specified role responsible for partnerships in place.

Is there a Memorandum of Understanding between the FRS and the partners?

North Wales FRS and Mid and West Wales FRS reported having Memoranda of Understanding in place. For North Wales FRS these were signed with all six local authorities, North Wales Police, the Betsy Cadwalader NHS Trust and Wales Ambulance (North Wales Region). The FRS has been working with the Pension Service to identify elderly residents who live alone and the Probation Service to identify vulnerable individuals with lifestyle issues. They also have Service Level Agreements (SLAs) in place with their partners to overcome any liability issues and to formalise the roles of each partner. For example, they have signed a SLA with North Wales Housing Association and Pennaf, who control Clwyd Alyn Housing, the largest provider of social housing in North Wales. These SLAs provide referrals when tenants move in to properties, access to properties during routine maintenance and referrals to identify vulnerable properties. Data-sharing protocols are in place with local health boards and local NHS trusts. Mid and West Wales FRS reported having Protocols and Memorandums of Understanding (MOU) prepared by Community Safety Headquarters on behalf of the FRS with the managers of caring agencies and/or other stakeholders. These agreements set out the shared objectives of the partnership, including the sharing of information and the roles of the partners and the FRS.

Has the FRS defined criteria for referring people to the FRS?

None of the FRSs stated that they have defined criteria for referring people to the FRS. However, all partners have been identified as those agencies dealing with vulnerable people that the FRSs wish to target. Therefore, HFSCs are offered to all clients. Mid and West Wales FRS reported that partners do not use a risk assessment to identify people for referrals; it is left to the judgement of the partner.

Are there guidelines on the expected number of referrals?

Mid and West Wales FRS reported that they do not have a minimum or maximum number of referrals required by partners. However, North Wales FRS reported that they aim to gain at least a 20% rate of referrals for vulnerable residents from outside agencies. They reported that ideally they would like to have 100% of the HFSC referrals to come from partners.

Is there an agreed FRS response time to a referral, e.g. complete a HFSC within two weeks?

Mid and West Wales FRS and North Wales FRS reported aiming to conduct a HFSC within 28 days of receiving a referral. Mid and West Wales FRS aim to do these quicker for high risk individuals, whereas North Wales FRS have set a three day time limit for referrals for high risk individuals.

To what extent is there an agreement on how and when a FRS may refer a resident for assistance from another agency, e.g. handyman schemes?

This was only discussed with Mid and West Wales FRS. They reported that they do refer high risk residents and families back to other agencies. There are two likely scenarios in which the FRS will inform the caring agencies of their findings. These are after a HFSC fails to resolve the fire risk and at an operational incident, where crews are aware of unacceptable conditions for an individual, family or child.

To what extent does the FRS offer to carry out tasks on behalf of their partners, such as advising elderly people on flu jabs, to encourage the partnership?

This was only reported by North Wales FRS. North Wales FRS reported that they help the Pension Service achieve their targets and referring clients to the FRS for a HFSC helps them achieve their targets. The FRS are also prompting their staff to enquire if residents are receiving benefits and if not they refer them to the Pension Service.

To what extent can the partnerships be sustained?

North Wales FRS and Mid and West Wales FRS stated that they believe that their current partnerships can be sustained in the future. Mid and West Wales FRS reported that partner agencies were keen to work with the FRSs and due to the reputation of the FRS, are happy to be associated with them. The FRSs

have experienced an increase in the number of referrals they receive from partners.

To what extent have the FRSs entered into single point assessment systems with other agencies?

Only North Wales FRS reported to have procedures in place to develop a single point assessment system. They are currently working to develop a system to prompt those conducting the HFSC to refer to other services. For example, the FRS currently receives many referrals from the Pension Service. Therefore, they are working to prompt FRS staff to enquire if residents are receiving benefits etc, and if not they will refer the residents to the Pension Service. This two-way quality referral process will be launched early in the New Year via the Home Safety Support Staff who have received training from the Pension Service.

To what extent do partners provide support to the FRS?

For those FRSs that have partnerships in place, they were reported to have been extremely useful for the FRSs and have provided great support for their HFSC work. This support included:

- providing referrals for vulnerable residents;
- carrying out HFSCs and installing smoke alarms;
- providing FRSs with population-based information to target their work; and
- provide specialist advice to the FRS.

To what extent have the FRSs been able to share data with partners, such as contacts for elderly patients?

South Wales FRS reported experiencing difficulty agreeing a data-sharing protocol and have experienced data-sharing issues with partner agencies. This has resulted in partnerships with these agencies being 'on hold'. It was reported that education is needed to ensure that data-sharing with the FRS is permitted and the FRS continues to offer and deliver awareness sessions and training on the services that it provides. It was hoped that if the partnership with Care and Repair had been established, it could be used as an example of best practice and encourage other agencies to work with the FRS. North Wales FRS has also reported experiencing difficulties accessing data from other agencies regarding vulnerable residents. However, they do have Memorandums of Understanding in place to overcome the issues surrounding the Data Protection Act. Mid and West Wales FRS stated that they are able to access data from other agencies. Care and Repair also provide data to the FRS and conduct HFSCs on their behalf. Social Services hold very useful data for the FRS; however, they have experienced difficulty obtaining this data from Social Services. This is an area that the FRS continues to work on.

2.7.2 Views of partners

Overview

In general, there were no apparent differences between the types of responses between partners in different regions. The types of partners that were interviewed included:

- Care and Repair – South Wales FRS.
- Care and Repair – North Wales FRS.
- Care and Repair – Mid and West Wales FRS.
- Crime Prevention Organisation – Mid and West Wales FRS.
- Age Concern (x2) – North Wales FRS.
- British Red Cross – North Wales FRS.
- Neighbourhood Watch Association – North Wales FRS.
- Gofal a Thrwsio (x2) – North Wales FRS.

On the whole, partners were positive when discussing their partnership with FRSs, with many noting that HFSCs had been beneficial in ensuring the safety of their core client group, which were typically elderly people. Further to this, partners throughout all regions stated that they work with the FRS in order to help achieve their aims, with many also stating that their objectives and the objectives of the FRS are the same (ensuring the safety of their core client groups). Partners also believed that elderly people were also a core target group for the FRS as well.

Formal working agreements

Most partners stated that they were working with FRSs as part of a Service Level Agreement (SLA). A minority of partners stated that they had no formal agreements in place (but were looking into developing this). In addition to this, the majority of partners stated that they had a Memorandum of Understanding in place or some other form of formal working with the FRS.

Benefits of working with FRS

In addition to achieving their own aims, partners also noted that a benefit of working in partnership with FRSs has allowed staff to be trained to carry out HFSCs and identify risk of fire within client homes. Further to this, partners also noted that they are able to provide a more holistic service to their clients as well. Some partners also suggested that as a result of working in partnership, the profile of their organisation has been raised.

Obstacles in working with the FRS

Other than lack of funding and resources cited by a minority of respondents, the majority of partners stated that they faced no obstacles in working with the FRS. One partner however noted that initially the partnership was lost, as there was a poor relationship between the partner and the FRS. However, this

has since been re-established, with the partner looking to undertake HFSCs again. With regards to resourcing, the majority of partners stated that they were able to resource the partnership, with some partners identifying that they carry out home visits for clients anyway and as such did not face problems.

Lessons learnt from working in partnership with FRS

Some partners could not comment on lessons learnt as they had only recently begun activity with the FRS or saw the partnership as an ongoing process. However, one comment included the fact that the partnership had informed them that other organisations deliver similar services, which could lead to the potential for sharing of information and good practice

Encouraging and supporting future work

Partners suggested that FRSs could do the following to encourage and support work with similar organisations:

- awareness-raising on how the FRS can help an organisation meet their objectives;
- fund resources to campaign marketing and awareness-raising initiatives;
- provide training to partners on how to carry out HFSCs;
- respond quickly to referrals;
- recognise at a strategic level the work done by partners; and
- additional marketing and publicity for HFSCs.

In addition, partners suggested that the following could be done to support community fire safety activity:

- the FRS accompanying partners on roadshows/events;
- using existing services (such as older person forums, home visits etc) to pass on information to clients and raise awareness; and
- supporting existing projects already in place.

Future work with FRS

All partners stated that they would like to continue working with the FRS, with none stating that they would withdraw from the partnership. In addition to this, all partners also stated that they wish to do further work with the FRS, typically surrounding awareness-raising and promotion, but again this was dependant on funding.

2.8 HFSC process

Overview

The FRSs have similar and consistent processes for their HFSC work. Similar materials were reported to be used, such as checklists, and fire safety literature. They all also provide similar equipment. All FRSs reported

experiencing similar difficulties delivering HFSCs to non-English speaking residents.

Have the FRSs a set procedure for carrying out HFSCs?

All FRSs have a consistent procedure for carrying out HFSCs. They all reported using checklists when carrying out HFSCs in order to spot risks, hazards and unsafe behaviours. These include cooking hazards, electrical hazards, smoking and domestic housekeeping. The FRSs reported that they do not leave a copy of the checklist with the residents. However, they do leave standard literature such as information booklets providing further advice. North Wales FRS did report that in the future, checklists used by partner agencies for a HFSC will be left with the resident, as well as a hard copy being kept by the FRS.

What are the main sources of HFSCs?

All FRSs reported many ways of securing access to homes for HFSCs. Some of the methods carried out by all FRSs include hotstrikes, attendance at local events and a free phone number (across Wales) for self referrals. Mid and West Wales FRS and North Wales FRS also reported advertising through posters, radio and newspapers. South Wales FRS and Mid and West Wales FRS also reported carrying out promotion at locations such as supermarket car parks.

One of the main ways in which South Wales FRS gains HFSC referrals is through a contract with the Fire Fighters Charity. The Firecall scheme provides client details gained through tele-appending FSEC data held within the FRS. These client details are then passed directly to the local fire stations who then contact householders to arrange suitable appointment times for HFSCs.

South Wales FRS and North Wales FRS reported hotstrikes to be a very effective method of gaining access to homes. North Wales FRS and Mid and West Wales FRS also reported partnership referrals to be an effective method of gaining access to homes. On occasions, North Wales FRS reported that some agencies will refer clients to the FRS without consent, if the resident is deemed to be very high risk.

Overall, although each FRS has experienced some difficulty, generally they have all been successful in gaining access to homes for HFSCs. South Wales FRS, for example, does recognise that different groups do need to be approached in different ways. One group that South Wales FRS has found difficulty to engage is the healthy over 65 year olds who may not necessarily live alone. These people are still very able and do not feel that they need a HFSC. However, this is the group South Wales FRS wants to target to prevent fires in the future.

How are non-English speakers and people with hearing or sight problems communicated with during HFSCs?

All FRSs have reported difficulties communicating with non-English speakers. For example, North Wales FRS reported difficulties engaging with population groups from Central and Eastern Europe. To help overcome these barriers, the FRS have produced flyers in different languages to communicate the risks and are working with key employers of these groups to raise awareness and drive the leaflets through. Mid and West Wales FRS reported also providing leaflets in different languages. They also have an Ethnic Minority Officer who can provide advice and translate in some cases. LANGline is also used to help translate during a HFSC. South Wales FRS stated that they attempt to arrange for an interpreter or relatives to be present during the check with non-English speakers. However, they have not found this to be very effective. They are currently involved in seeking funding from the WG on an all-Wales basis to provide interpreter services for HFSCs of this type.

All FRSs reported installing alarms for the hard of hearing. When South Wales FRS install these alarms they require a carer or relative to be present in order to interpret safety messages to the resident. North Wales FRS has utilised a free text messaging service for deaf residents. The residents are able to text the FRS to request a HFSC, and will then receive a message back from the FRS recognising their request and providing a date when the HFSC will take place. Mid and West Wales FRS work in partnership with deaf society groups when conducting HFSCs to communicate effectively with this group. Mid and West Wales FRS also reported producing large print leaflets and leaflets in braille for residents with sight problems.

To what extent is their support and resources for handling special needs including FRS specialists (e.g. for sprinklers and community advocates)?

All FRSs have procedures in place for handling special needs cases. North Wales FRS and Mid and West Wales FRS stated that they refer residents to specialist FRS staff and outside agencies if specialist advice is needed. North Wales FRS reported working with Care Line, who provide elderly residents with panic pendants to wear, that link up with a telephone system when alerted. The FRS are working to include smoke alarms in the packages that Care Line deliver to their clients. Sprinklers are also provided to high risk cases.

South Wales FRS stated that they refer very high risk cases to the local authorities and work with local community leaders from places such as mosques to identify any issues before conducting HFSCs with ethnic minority groups. All FRSs reported to have procedures in place to provide support and assistance to those carrying out HFSCs. For example, North Wales FRS staff can report any issues to the County Safety Manager and, if needed, a specialist visit can be arranged with a Home Safety Support Worker who specialises in areas such as sign language, working with the elderly and drug

and alcohol use. Mid and West Wales FRS staff can report any issues to the Central Policy Unit, who can provide advice for specialist cases. South Wales FRS staff can refer any specialist cases to the High Risk Team who specialise in areas such as sign language and hard of hearing alarms.

Are the criteria for referring people for assistance from other agencies, e.g. handyman schemes, clearly defined?

There does not appear to be a clearly defined set of criteria for referring people to other agencies by the FRSs. If specialist care is needed or high risk behaviours are observed, the FRSs reported that they will refer residents to outside agencies. Mid and West Wales FRS reported that if premises are in poor condition they will write to the local authorities or if the residents are smokers, they will refer them to smoking support organisations.

North Wales FRS reported that they are currently working to develop a system to prompt those conducting the HFSC to refer to other services. For example, the FRS currently receives many referrals from the Pension Service. Therefore, they are working to prompt FRS staff to enquire if residents are receiving benefits etc, and if not they will refer the residents to the Pension Service. This two-way quality referral process will be launched early in the New Year via the Home Safety Support Staff who have received training from the Pension Service.

Is there a process for scheduling re-visits to homes on the basis of the resident's risk?

Only North Wales FRS reported having a programme of risk-based re-visits. This is based on the judgement of the FRS staff conducting the HFSC. If the residents are seen to display four or more high risk lifestyle factors such as living alone, alcohol user, smoker, disability, elderly and in rented accommodation, they will receive a re-visit.

What else does a HFSC comprise of?

All FRSs reported developing fire escape plans with residents when conducting a HFSC. North Wales FRS tailor these plans to each home. For example, in some cases such as high rise flats, it may not be appropriate to advise on how to escape, but what to do and where to go in the case of a fire. South Wales FRS devise these plans in a practical session with the resident and leave literature for the resident to refer to. Mid and West Wales FRS stated that they aim to promote the HFSC as a package to residents including explaining what the HFSC entails and its benefits, devising an escape plan, lifestyle advice and providing equipment. Residents are also advised to show escape plans to other residents that may not be present during the HFSC.

All FRSs reported providing equipment to residents other than just smoke alarms. These include smokers' bed packs, fire retardant bedding and throws, deep fat fryers, electric blankets, deaf alarms, safety ashtrays and extension cables. In one case, the North Wales FRS stated that they supplied a very high risk resident with a new sofa, to replace the one that did not meet current

furniture regulations. Similar cases have included the provision of a combination of microwave, toaster, George Foreman griddle and kettle for alcohol-dependant individuals. These clients have displayed risky use of a cooker/grill, yet do not use it for any other purpose other than what can be cooked by the alternative appliances suggested. Such cookers can then be removed with consent. These represent extreme cases having resulted in the joint funding of domestic sprinkler systems ultimately being provided where other measures and engagement were considered by FRS to be inadequate.

All FRSs also reported having procedures in place when firesetting behaviours, such as children playing with fire, have been identified during a HFSC. All FRSs refer these cases to specialist FRS departments and schemes. For example, Mid and West Wales FRS and North Wales FRS refer cases to their Fire Awareness Child Education (FACE) scheme for further specialist advice. Mid and West Wales FRS fire crews are also trained in spotting signs of potential abuse and if identified can refer cases to specialist trained officers or Social Services.

2.9 Barriers

Overview

All FRSs reported experiencing barriers to conducting their HFSC work. These barriers differed for each FRS; however, all experienced difficulty gaining access to people's homes.

To what extent do FRSs report barriers to the achievement of HFSCs? And what are these?

All FRSs have experienced some barriers to the achievement of HFSCs. For example, they all reported experiencing some difficulty gaining access to people's homes. South Wales FRS have experienced difficulty convincing the public that the HFSCs are free, even though they are advertised as such. Indeed, many residents refuse entry to the fire crews due to misconceptions that the HFSCs and the equipment installed are not free. They have also experienced residents changing their minds and refusing entry to their homes even after they agreed to a HFSC through a referral taken in locations such as supermarket car parks.

Mid and West Wales FRS also reported experiencing further difficulty gaining access to people's homes due to misconceptions of the HFSCs. The FRS have attempted to overcome this by engaging with the public around the reasoning and procedures of the HFSCs. This includes explaining that they will not be inspecting people's homes for anything other than fire safety issues and ensuring residents are aware that the checks are not a lengthy process. North Wales FRS reported that identifying who needs a HFSC, and how to successfully engage with the hard to reach, is the ongoing challenge. They have encountered a few occasions where a landlord may be wary of letting the FRS into their property in case the FRS identify any other issues that the landlord would need to tend to.

North Wales FRS and Mid and West Wales FRS stated that they have experienced barriers associated with limited time and resources. For example, North Wales FRS reported that they have encountered difficulty having vehicles and staff available to accommodate the amount of referrals they receive and ensuring that the HFSCs are delivered within the certain timescales. Mid and West Wales FRS reported experiencing difficulty having retained staff conducting HFSCs within the 28 days time limit due to limited time and resources.

Although partnership Memorandums of Understanding/data-sharing protocols have been reviewed by North Wales FRS and have been found to be strategically well written and presented, in some cases they have failed to deliver the intended referrals. This is often due to a breakdown in effective communication between front line staff of partner organisations and their clients.

2.10 Lessons learnt

Overview

All FRSs reported that they have learnt from their HFSC work and would like things to be improved for their future work.

What are the lessons learnt for the future delivery of HFSCs in Wales?

The FRSs seem to have learnt different lessons for their future delivery of HFSCs.

South Wales FRS stated that they have found that the checklist they use when conducting the checks to be an extremely useful tool to ensure that all the key points are covered and will continue to use this in the future. In contrast, North Wales FRS stated that they have reviewed their checklist as it was found that it was not capturing all the information required. For example, a section was added regarding previous fires with details relating to lifestyle issues having contributed to the cause of the fire. North Wales FRS also reported that they would like to develop an aide memoire for partner organisations to use with their clients to prompt fire safety messages and referrals. For those partners that use a formalised check sheet or single unified assessments, the FRS would like to add questions such as '*does the client have a working smoke alarm?*', followed by '*do they want a free HFSC supplied by their local FRS to include free smoke alarms with 10 year life batteries?*'. It is believed that this would help communication between front line staff in these organisations and their clients on fire safety issues and would generate more referrals for the FRS. Mid and West Wales FRS reported that their partnership working has been very successful and will continue to be used in the future. However, more work may need to be conducted to gain a fuller understanding of which partners are the most useful to work with.

All FRSs would like to see aspects of their HFSC work improved in the future. These aspects differ for each FRS. South Wales FRS stated that they

would like to improve their targeting by gaining more quality referrals for high risk groups such as the elderly or low income groups. Mid and West Wales FRS stated that they would like the advertising of HFSCs to be improved to ensure that the public are aware that the checks are free of charge. This may encourage more residents to take up the opportunity to have a HFSC. North Wales FRS reported that they would like to improve a system of revisiting properties for a HFSC after a set period. Although this would be offered to all residents it would be particularly aimed at vulnerable groups. Additionally, it is hoped that this could be developed so that those who are not considered to present a significant risk are encouraged to take ownership of their fire safety.

All FRSs provided tips on how to effectively carry out HFSC initiatives.

Mid and West Wales FRSs' tips are as follows:

- ensure that HFSCs are conducted within 28 days of receiving referrals; and
- ensure quality time is spent conducting the HFSCs (the checks are supposed to take one hour and it is important that staff spend all of this time completing the check and advising residents).

South Wales FRSs' tips are as follows:

- ensure that the home owner is aware that the HFSC and equipment provided are free of charge as this will encourage more people to take up a HFSC;
- ensure that the home owner knows what the HFSC entails and that access to the entire property will be needed; and
- have as many residents of the property present during the HFSC. This ensures that the message reaches the widest audience and advice is provided accurately to all residents.

North Wales FRSs' tips are as follows:

- ensure HFSCs are targeted at the correct people and concentrate resources at the right audience;
- deliver consistent standard messages, for example, one person from the FRS delivers training to ensure all personnel receive the same messages; and
- be innovative to reduce risk of fire for challenging individuals. This could include use of a Careline monitored smoke alarm, or a hard of hearing smoke alarm incorporating vibrating pillow for an alcoholic who uses the bed, but whom does not have hearing difficulties.

2.11 Impact of HFSCs

2.11.1 FRS perceptions

What is the perceived impact of HFSCs?

None of the FRSs conducted a formal evaluation to determine the direct impact of their HFSC work. However, they all reported that since their HFSC work had been in place they had experienced decreases in accidental dwelling fire casualties and deaths. Mid and West Wales FRS also reported that their HFSC work had helped, in their opinion, to change people's behaviours.

All FRSs provided examples of the benefits of their work such as residents escaping after having a smoke alarm installed in a HFSC. For example, a case study provided by North Wales FRS is as follows:

"North Wales FRS attended a kitchen fire in the Wrexham area. A 30 year old male was lucky to escape from the property as he had fallen asleep following drinking and cooking. The occupant was alerted to the fire by the smoke alarm which had recently been fitted by North Wales FRS. The male acted upon advice given during the HFSC and escaped from the property safely."

A case study provided by South Wales FRS is as follows:

"In May 2007 an 88 year old woman had a narrow escape in the early hours one Wednesday morning when she awoke to find her bed on fire. Smoke alarms were fitted in 2006 by fire fighters from her local Fire Station after her neighbour received a HFSC, which prompted the victim to have smoke alarms installed. The alarms alerted her early enough to close the bedroom door and rush downstairs and outside to safety. The alarms continued and she realised the bed was still on fire. Her son called 999 and fire fighters extinguished the fire, which she had managed to contain to one room by closing the door. She couldn't thank the Fire and Rescue Service enough for fitting the smoke alarms and giving her the advice that meant she got out alive and kept damage to a minimum. She said, "I'm one of the lucky ones, it could have been so much worse. I'd tell everyone to get an alarm if they haven't already got one."

An example provided by Mid and West Wales FRS is as follows:

"Days after a crew had conducted a HFSC, an air conditioning unit caught fire during the night. The smoke alarm that was installed woke the resident up, who was then able to take action that had been passed on to them during the HFSC. The FRS received a letter of thanks from the resident."

2.11.2 Summary of impact assessment results

What statistical evidence is there that HFSCs have had an impact on dwelling fires and their outcomes?

Overall it was found that there was mixed evidence regarding the impact of the HFSCs. Whilst the rate of dwelling fires, deaths and casualties has

continued to decline, maintaining a previous downward trend in fires and casualties whilst reversing the increase in fire deaths, it is uncertain whether the decline is in proportion to the amount of HFSCs completed or what proportion of the decline can be attributed to the HFSCs.

Comparing the decrease in incidents in Wales with that reported for England during its four year Home Fire Risk Check capital fund

The rate per million population of HFSCs and alarms installed in Wales exceeded that reported for England, i.e. the rate in Wales was about 27% higher than in England in the period 2004-2008. This would suggest that, all other things being equal, the number of dwelling fire incidents in Wales might fall more than in England. It is clear that:

- the number of fires and fire casualties fell more in England than in Wales; and
- the number of Welsh dwelling fire deaths fell more than in England.

Thus, there is mixed evidence whether the higher rate of Welsh HFSCs was associated with a greater decline in incidents than in England. There is some evidence that the Welsh HFSCs had the expected impact on dwelling fire deaths, whilst the impact on dwelling fires and casualties was (by comparison with England) lower than would be expected for the higher rate of HFSCs.

Estimating the reduction in Welsh fires and casualties that would be predicted for the rate of alarms installed, using a formula that predicts the change in incidents for a particular rate of alarm installations

The evaluation of the English HFRC fund produced a regression formula that predicts the decline in dwelling fire casualties for a particular rate of alarms installed. Similar formulae were produced for dwelling fires and deaths. These were used to predict the fall in Welsh fire incidents given the level of HFSCs completed in Wales. It was found that:

- In the case of fires, the predicted rate for South Wales is close to the reported rates, but this is not so for Mid and West Wales or North Wales. The reported rate of fires and casualties in 2008, is far higher than would be predicted for the rate of alarms installed in North Wales and Mid and West Wales.
- In the case of dwelling fire casualties, the predicted rate for South Wales and Mid and West Wales is close to the reported rates, but this is not so for North Wales.
- In the case of fire deaths, the prediction for South Wales is close to the reported rates but not so for Mid and West Wales or North Wales. Given the relatively low rate of fire deaths you would not expect any prediction to closely match the reported rate of fire deaths in any one year.

The same comparison was made for Wales as a whole. The actual fall in incidents was less than predicted for fires and casualties but was more than predicted for fire deaths.

Comparing the before and after trends in the number of dwelling fire incidents in Wales

The rate of change in dwelling fire incidents was compared for the period 2000 to 2003 and 2004 to 2008. In addition, the amount of change was estimated for Wales as a whole between 2000 and 2003, and for 2005 and 2008. The aim was to test if the rate of change accelerated after the start of the HFSCs. There was no evidence of an accelerating rate of change for fires and casualties, but a rise in fire deaths was reversed and became a decline in fire deaths.

Exploring whether the rate of decrease in incidents was proportionate to the rate of HFSCs in each FRS

We compared the rate of decrease in incidents to the rate of alarms installed pmp in each FRS. The aim was to assess if those FRSs with higher rates of alarm installations reported greater decline in incidents. A before period of 2000 to 2003 and an after period of 2008 was used again. There was no clear association between the rate of alarm installation and the amount of change in incidents. Indeed, the number of dwelling fire casualties rose rather than fell in North Wales.

Exploring whether the rate of decrease in incidents was proportionate to the rate of HFSCs in each local authority

The comparison of HFSCs pmp versus rate of alarms installation was repeated at the level of the 22 Welsh local authorities. The aim was to see if a clearer association could be found with more data points. The first analysis compared the rate of HFSC in 2005 and 2006 per million population with the change in fires between 2005 and 2007. There was a weak association between the rate of HFSC and the change in the number of fires. A similar result was found for the association with the change in the rate of dwelling fire casualties. Thus, there was some limited evidence that incident rates fell more in those local authorities with higher rates of HFSCs. However, this comparison is based on limited data.

The second analysis compared the rate of HFSCs in 2005 to 2007 pmp with the change in the number of fires between 2005 and 2008 for South Wales local authorities. There was a strong association ($R=-0.76$), whereby there was a greater fall in the number of fires in those local authorities with higher rates of HFSCs.

Exploring whether the number of incidents fell more for those age groups that were meant to be targeted for HFSCs, i.e. the elderly

The HFSCs were intended to target vulnerable groups, including the elderly. The number of elderly fire deaths fell slightly more than that of people as a whole between the before the period 2000 to 2003 and 2006 to 2007. The

number of casualties fell most for the younger age groups and actually rose for persons aged over 80. The fall in casualties for persons aged 65-79 was no different to the amount of change for all age groups.

Reviewing if the rate of alarm operability rose

It was possible that the HFSCs and alarm installations would lead to a higher rate of alarms reported for fires attended by FRSs, and a higher rate of alarm operability. Data was only available for South Wales on the operability of smoke alarms. The trend is positive with the proportion rising from 31% in 2004 to 40% in 2009. However, data was not available for 2000 to 2003 to assess if there was already a positive trend before the HFSCs started in 2004.

Living in Wales Survey

The fire and fire safety section of the Living in Wales¹² surveys, sought to find out whether households had smoke alarms and whether they had been tested, as well as what types of things respondents had in their homes to protect themselves from fires. The “Fires in the Home Results from the Living in Wales surveys” bulletin (September 2009) compared some results from the 2004 and 2008 Living in Wales surveys. Some key points included:

- In 2008, 1.2 per cent or around 15,000 households, reported a fire in the home. This remained stable compared with previous surveys.
- Ten per cent of all households did not have any fully working smoke alarms in 2008. The proportion decreased significantly from 14 per cent in 2004.
- Over the same period, a higher proportion of households had installed more smoke alarms within the property. Sixty-one per cent of households possessed two or more fully working alarms in 2008 compared with 54% in 2004.
- The proportion of houses with no fully working alarm fell over all surveyed years in all household types: by three percentage points in all-pensioner households and by five percentage points in all other households.

Thus, the trends were in the anticipated direction in respect of the installation and working of smoke alarms but there was no change in the number of fires and the increase in alarms was lower for pensioners than other households. Also, the Living in Wales survey does not provide a basis on which to attribute changes in smoke alarms or rate of fires to any one fire safety initiative.

2.11.3 To what extent can an association between the impact of HFSCs and the process of conducting HFSCs be observed?

As noted above, the impact assessment provided mixed evidence regarding the impact of HFSCs. This is consistent with the process review in so far that

¹² (<http://www.wales.gov.uk/livinginwalesurvey>).

the process review identified potential concerns with the conduct of HFSCs, particularly in the first few years. Thus, the finding that the HFSCs may have had less impact than might have been expected could be associated with the cited concerns about targeting and partnership working. Indeed, whilst North Wales completed the highest rate of HFSCs, it is not clear that a proportionately greater benefit can be detected so far. North Wales may have prioritised achieving higher rates of HFSCs over their targeting, which may have reduced their impact. South Wales may have achieved targeted HFSCs and thus had a more proportionate impact. Given that the FRs are all developing their HFSC processes and increasing the level of targeting, it is possible that a clearer association between HFSCs and impact could be detected if fire data for the period 2008 onwards is analysed when it becomes available.

3 FUNDING OPTIONS

3.1 Introduction

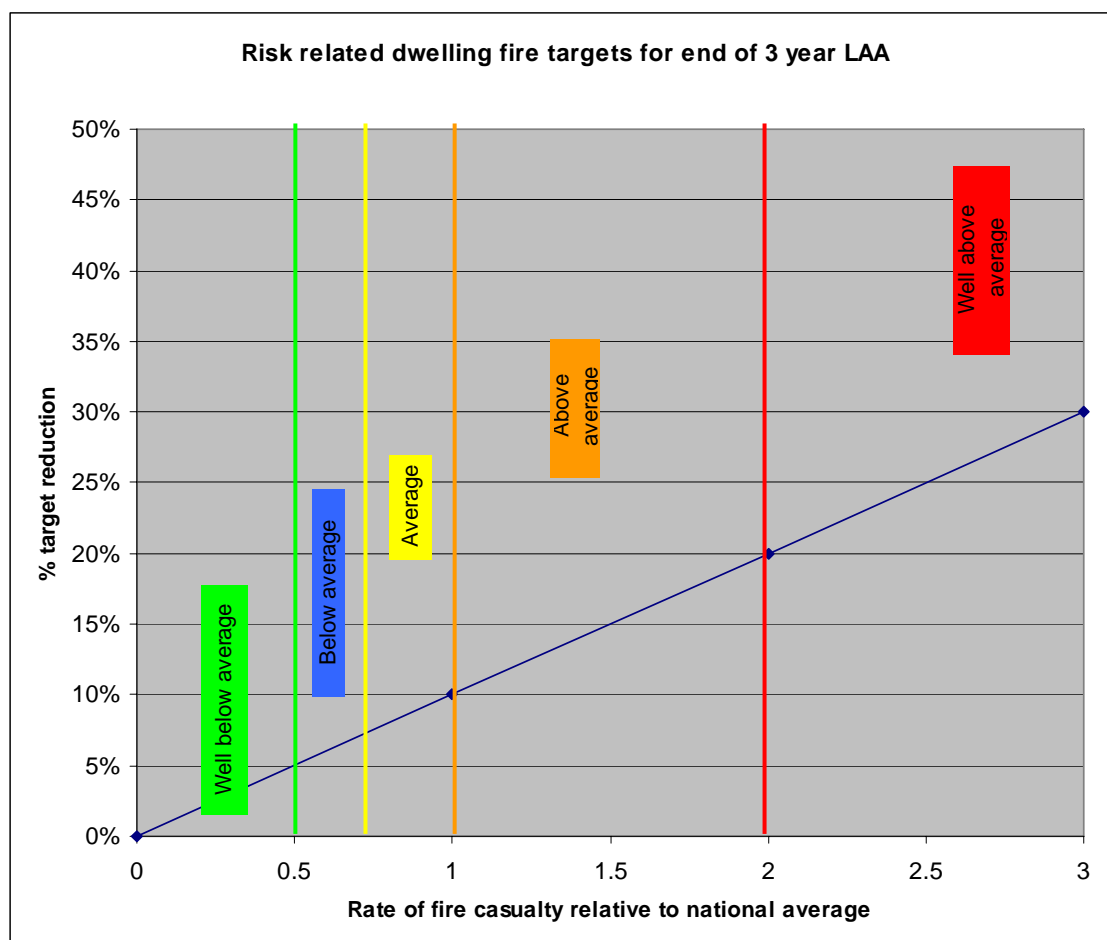
The allocation of funds for HFSCs was not proportionate to historical rates of dwelling fire and dwelling fire casualties. Funding for HFSCs was previously based on bids from FRSs. Therefore, as part of this evaluation, alternative ways of allocating future funding were explored. In addition, a brief review was completed of the potential overall level of finding.

3.2 Options

3.2.1 Overall level of funding

The overall level of funding can be informed by considering the degree of risk reduction sought and the number of alarms needed to achieve the target level of risk reduction. CLG issued a toolkit that suggested targets for reducing incident rates, such as in Figure 8. The application of this toolkit (option 2) would suggest a 9% reduction in the rate of dwelling casualty incidents and 10% in deaths in Wales, based on the 2008 rate of casualties and deaths being about average (i.e. a ratio of about 1 to 1).

Figure 8: CLG advice on risk based targets



The application of a formula¹³ for predicting the impact of alarms would suggest that about 123,000 alarms are needed to achieve a 10% reduction in the rate pmp of dwelling fire casualties from 540 in 2008. At a cost per alarm of £11 this equates to £1.36 million. The WG have proposed £1.3 million funding for future HFSCs across Wales.

3.2.2 Budget per head

If funds were allocated evenly across all three FRSs, £1,300,000 would equate to about £0.44 per head. An option is to allocate funds per head of population to each FRS based on a measure of risk. A series of options were developed and applied. The options are outlined below.

Historical incident rates

The historical incident rate is generated by calculating the rate of fire incidents (using 2006 to 2008 data) per million population in each FRS, then calculating the rate in the FRS as per cent of the rate for Wales as a whole. For example, South Wales FRSs' rate of fire was 94% of the rate for Wales as a whole. The latter per cent is then multiplied by the £0.44 per head budget to give a weighted budget per head for South Wales. The same method was used for fire deaths and casualties. This gave three measures based on historical incident rates.

Weighted incident rates

This involved weighting the number of incidents by the value per incident using the values below:

Fires	Casualties	Deaths
£7,894	£12,000	£1,375,000

Each incident was multiplied by these values and the total value of loss was then summed per FRS. The calculation used fire data for 2007/08. The values of loss are shown in Table 4. First, the number of fires, deaths and casualties in each FRSs was multiplied by the values noted above, such as £7,894 per fire. This gave a total value of loss of £22,920,229 for all of Wales, with values of £10,037,221 for South Wales, £6,019,175 for North Wales and £6,863,833 for Mid and West Wales. The value of loss per FRS was divided by the total for Wales to give a percentage of total Wales losses per FRS, such as 44 per cent for South Wales. With a total budget of £1.3 million for Wales, 44 per cent would be allocated to South Wales, i.e. £569,296 for example. The budget per FRS was divided by the population per FRS to get a budget per head in each FRS, such as £0.40 per person in South Wales.

¹³ $y = -0.001x - 12.99$ where x is the number of smoke alarms pmp.

Table 4: Value of dwelling fires per year and HFSC budget per person

	Fires	Casualties	Deaths	Total	% of total	£1,300,000	Budget per head of popn
South Wales	£8,158,449	£1,819,567	£59,205	£10,037,221	44%	£569,296	£0.40
North Wales	£4,621,937	£1,353,821	£43,417	£ 6,019,175	26%	£341,398	£0.50
Mid and West Wales	£5,731,044	£10,89,372	£43,417	£ 6,863,833	30%	£389,306	£0.45
Total	£18,511,430	£4,262,760	£146039	£22,920,229	100%		

Regressions

The predicted rate of incidents was calculated for each FRS using:

- formulae derived using English data by CLG for predicting rates of dwelling fires and fire casualties; and
- a new formula developed using Welsh Census and fire data – based on proportion of lone parents and households in purpose-built flats.

The predicted rates were used to weight the funding per head.

Results

The resulting budget per head of population is shown in Figure 9 and Table 5: Budget per head using various metrics. It can be noted that the allocation varies significantly between the metrics:

- North Wales' budget is higher when historical data is used.
- South Wales' budget is higher when the socio-demographics predictions are used.

South Wales has a lower actual incident rate than is predicted by the socio-demographic predictions. Also, the budget varies greatly between the three historical incident rates measures of fires, deaths and casualties. This is because North Wales has a particularly high reported casualty rate. The weighted incident rates measures smooth out some of the volatility within the simpler incident rate measures.

Figure 9: Budget per head using various metrics

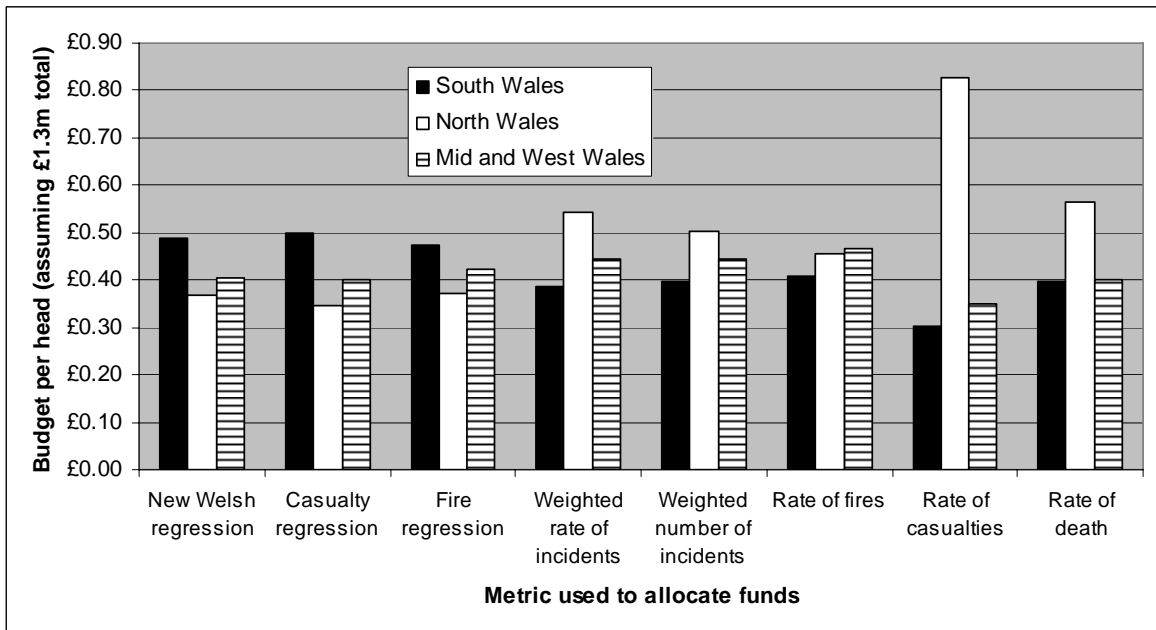


Table 5: Budget per head using various metrics

	New Welsh regression	Casualty regression	Fire regression	Weighted rate of incidents	Weighted number of incidents	Rate of fires	Rate of casualties	Rate of death	Average
South Wales	£0.49	£0.50	£0.47	£0.39	£0.40	£0.41	£0.30	£0.40	£0.42
North Wales	£0.37	£0.35	£0.37	£0.54	£0.50	£0.45	£0.83	£0.57	£0.50
Mid and West Wales	£0.41	£0.40	£0.42	£0.44	£0.45	£0.47	£0.35	£0.40	£0.42

Discussion

The lack of consistency in the metrics makes it difficult to provide a clear direction on whether or not to use any one of the metrics. It can be noted that incident rate measures can be viewed as creating a perverse incentive of rewarding higher incident rates – which is why allocating funding based on risk indicators such as lone parents can be preferred. However, on this occasion the risk indicators do not clearly align with reported incident rates. Therefore, an option on this occasion is to use a weighted rate or number of incidents as the basis of funding, until an up-to-date and more accurate socio-demographic metric can be developed for Wales.

4 DISCUSSION

4.1 Conclusions

The WG funding of HFSCs clearly enabled the FRSs to deliver a very large and increasing number of HFSCs across Wales, notwithstanding a slow start to the conduct of HFSCs. The number of dwelling fire incidents have continued to decline from the time before the start of funding. There is some evidence, particularly in South Wales, that local authorities had more HFSCs show a greater decline in incidents, indicating that the HFSCs added to the rate of decline. However, the evidence regarding the impact of HFSCs on dwelling fire incidents is mixed. This may be due to (1) the relatively short time series of data available at the time of reporting; and/or (2) some concerns about certain elements of the HFSCs.

The approach to HFSCs has developed since the start of funding in 2004. Some key developments include:

- a greater emphasis placed on targeting by area and by household type; and
- an increase in partnership working in two of the three FRSs.

These developments are considered to be critical as the effectiveness of HFSCs is considered to be closely related to the targeting of HFSCs and the extent to which FRSs are able to access vulnerable households. Thus, the limited targeting and, in some cases, limited partnership working may have reduced the impact of the HFSCs in the first few years of work. In addition, the FSEC socio-demographic risk factors used to target areas may be out-of-date and do not appear to correlate with dwelling fires in Wales. These have been superseded by more recent CLG research. Therefore, the geographic targeting of HFSCs may have been skewed away from higher risk areas. Many aspects of the FRSs' approach to HFSCs, are consistent with previous good practice research. In particular, the FRSs:

- have reported implementing management systems to oversee HFSCs;
- developing and cascading targets within the FRSs for completing HFSCs;
- using HFSC risk assessment forms; and
- provide fire safety advice as well as installing smoke alarms.

However, some ongoing concerns include:

- minimal partnership working in South Wales;
- the balance of a targeted as opposed to blanket approach to HFSCs in all FRSs; and
- limited monitoring and review of HFSCs by the WG and the FRSs.

Finally, the level of funding per FRS was not proportionate to the number of dwelling fires in each FRS. Alternative funding principles could be considered.

4.2 Recommendations

4.2.1 Recommendations for the WG

Funding

It is recommended that:

- The WG continue funding HFSCs at the proposed level of £1.3 million in 2010/11 and consider funding beyond this period.
- Future funding is allocated to FRSs based on a weighted measure of dwelling fire incidents until a more accurate socio-demographic index can be identified.
- That a proportion of that funding is linked to reported progress in completing HFSCs, such as 20%.

As part of this it is suggested that the WG requires regular reporting of the number of HFSCs and alarms installed, such as every quarter, and that the WG checks reports and acts on any emergent issues.

WG Guidance

It is recommended that the WG issues guidance on selected aspects of HFSCs including:

- The importance of accessing “hard to reach” vulnerable people through partnerships with organisations such as housing associations, private landlords, charities and social services.
- Targeting HFSCs onto vulnerable households, particularly those with:
 - elderly people, especially single elderly people and those with a mental or physical impairment;
 - any single adult, especially those with a mental or physical impairment, alcohol or drug dependency; and
 - single parent families.
- Tracking the number of HFSCs by household type, disability, age, gender and type of property and the number of referrals per partner organisation.
- Tracking provision of other fire safety equipment, such as electric blankets, residual current devices etc.
- Conducting quality assurance of HFSCs, such as through some level of “customer feedback” (e.g. telephone survey of a sample of residents), and re-visits.

Geographic targeting advice

It is also recommended that the WG reconsiders its current guidance on targeting of HFSCs. At present the guidance suggests the use of FSEC to target areas. It is recommended that FRSs do not use the potential risk

factors (lone pensioners and rented accommodation) currently in FSEC to target HFSCs. Instead, it is recommended that data on lone parents and never worked, as well as dwelling fire incident data (which might be based on FSEC dwelling risk maps as they use reported numbers of dwelling fire casualties) is used, at least until FSEC's potential risk factors are updated by CLG.

The WG suggestion to target areas with above average rates of fire casualty and longer fire appliance emergency response times, remains valid. It is also suggested that the WG considers a study into the relationship between dwelling fire risk and socio-demographic factors using the most up-to-date data possible. It is possible that the relationships have changed over the last decade and that previous targeting guidance is becoming out-of-date.

National forum

It is suggested that the WG promotes the development of a national forum for the FRSs to share experience, co-ordinate national level partnerships, develop common HFSC tools and techniques and any other national level HFSC activity. There is currently a Chief Fire Officers' Association forum that could possibly take on this additional role.

4.2.2 Recommendations for all FRSs

The following section provides a set of recommendations for all FRSs. It is recognised that some FRSs may have implemented the following in varying degrees. The recommendations include:

- to focus resources more on targeted HFSCs, particularly targeting by household type;
- to consider setting targets for the number of HFSCs per types of households, or at least for the key high risk types of households;
- to reconsider the extent to which referrals are secured through the use of mass media, and consider reforming this practice;
- to continue to set up and maintain effective partnerships with the full range of agencies that have contact with target groups and checking these partnerships are delivering the desired numbers of referrals;
- to continue to explore and pursue data-sharing opportunities with Primary Care Trusts and Social Services, especially for reaching the elderly and disabled, with the option of a national data-sharing protocol developed to support this;
- to use referral criteria for partners, for example, single adult, older people (over 65), disabled, no smoke alarm, alcohol or drug dependency, cigarette smoker;
- to continue to pursue more partnership work with private and social landlords, Social Services and sensory teams;

- to consider the possibility of national partnerships with key organisations such as Age Concern;
- to continue to monitor the rate of referrals from partnerships as part of ongoing partnership evaluations;
- to continue to track the number of HFSCs by household type;
- to complete re-visits of higher risk households to check implementation of fire precautions and offer further support; and
- to consider the development of a common HFSC form for Wales.