Evaluation techniques of prevention activities in Nottingham and Nottinghamshire

Working Paper 1

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Contents

1. Introduction

The aim of this project is to achieve independent, peer-reviewed analysis of two key areas of prevention activities of Nottinghamshire Fire and Rescue Service (NFRS).

The two areas are:

- Assessment of the social and economic value / social return on investment of undertaking Safe & Well Visits (SWVs).
- Assessment of the validity of the CHARLIE profile in identifying those who are most at risk of death or serious injury from fire[1].

This working paper investigates the assessment methodologies available for the social and economic value / social return on investment from undertaking Safe & Well Visits (SWVs) to identify an appropriate model for NFRSs' assessment.

NFRS's Safer Communities Strategy outlines an ambition to evaluate and assure the delivery of SWVs to communities. The aim of this evaluation is to understand the social economic value / societal return on investment from SWVs – to identify the benefit to society (including partner agencies, the NHS, and wider society) in terms of financial investment / expenditure resulting from visits. SWVs are delivered by response crews and specialist prevention personnel so a comparable evaluation is sought between these two delivery models. The external validation of both models presents an opportunity for an objective assessment that can both assure service delivery and highlight areas for improvement.

HMICFRS highlighted in their 2019 report that NFRS should evaluate their prevention activities in order to understand the benefits of their activities to communities and the value of their investment. This evaluation will support the internal processes that have been established in relation to understanding the value of service activities and will offer an independent review of prevention activities.

This paper adopts the following simple structure and process

- Background
- Literature review
- NFRS approach
- Methods
- Analysis
- Findings
- Recommendations for future practice

2. Background

Over the last 15 years, significant effort has been focused on reducing fire risk and preventing avoidable harms. All Fire and Rescue Services (FRSs) in England have been conducting fire prevention work, including Home Fire Safety Checks, Safe & Well visits, and promotional work with vulnerable

[1] The identification and implementation of SWV forms part of an approach that that starts with the comprehensive assessment of risk which underpins and is articulated in the IRMP which forms the basis for the services strategic plan including a clear prevention strategy, the delivery of which (together with wider strategic priorities) is driven through an appropriate performance management system. These strategic activities fall outside the scope of this project.

groups since they were established by the 2004 Fire and Rescue Services Act and included in the first national framework published in 2004 (Office of the Deputy Prime Minister 2004).

Over the past decade, the type and breadth of prevention work have significantly increased. However, the total number of home fire safety checks (including safe and well visits) carried out by FRSs has recently reduced by a quarter between 2010/11 and 2018/19 (HMICFRS 2020). Nevertheless, FRSs have been developing home fire safety checks to include additional factors such as falls risk assessment, smoking cessation, cold homes and fuel poverty, and a range of other health and community issues depending on local arrangements (Home Office 2020). These expanded assessments are known as 'Safe and Well Visits'. Safe and Well visits build on existing good practice of home fire safety checks, but they represent a change to the traditional delivery model.

The annual assessment of FRSs in England (HMICFRS 2020) demonstrates that each FRS has taken the Safe and Well Visits agenda forward in its own way, meaning that there is considerable variation between services and some FRSs need to target their prevention work better. Therefore, understanding the impacts, costs and benefits of the Safe and Well model is vital and further evaluation of effectiveness of Safe and Well Visits is essential to recognise its main benefits.

3. Literature review

3.1. Safe and Well visits

Most fires in the home can be prevented or mitigated by taking appropriate precautions. One way of educating the general public about home fires are community education interventions. Community education interventions are aimed at transmitting knowledge and information from one group of people to another (Reinhardt and Chatsiou 2019). In the FRS context, these community education interventions include Home Fire Safety Assessments and/or Safe and Well visits. Home Fire Safety Assessments/Safe and Well visits provide information flow from firefighters or prevention officers to members of the community

Home Fire Safety Assessments were an integral part of the statutory duty, introduced in 2004, relating to protection and prevention. They were primarily concerned with reducing home fires. In general, terms the original Home Fire Safety Assessments focused on three key areas

- Identification and raising awareness of potential fire risks,
- Informing residents of potential actions to reduce or prevent these risks and ensure working smoke alarms are installed, and
- Advise on an appropriate escape plan in case fire does break out.

Andrews (2010) called for a need to examine the effects of the Home Fire Risk Check Initiative on FRS performance. There is evidence that shows that Home Fire Safety Assessments were successful in reducing domestic fires and related injuries (Arch and Thurston 2013). However, numerous studies have identified other factors which, when coupled with fires in the home, might result in increased likelihood of having a fire and consequently increase the likelihood of sustaining more serious injuries or fatalities. For example, Holborn *et al.* (2003) identified risk factors that contribute to the unintentional dwelling fire fatalities, these include smoking, alcohol, old age, disability, illness, living alone, social deprivation and absence of smoke alarms. FRS have begun conducting Home Fire Safety Checks as part of a wider Safe and Well Visit, which can cover the additional risk factors.

The National Fire Chiefs Council recommends the following guidelines on the extended Safe and Well Visits

> *"Every fire and rescue service should consider extending its current approach to safety in the home to include risk factors that impact on health and wellbeing and which lead to an increase in demand for health and local authority services.*
>
> *The content of a 'Safe and Well' visit in any fire and rescue service area should be co-designed through discussions with local health and local authority colleagues and should be based on information regarding local risks and demand."*
>
> (NFCC 2021)

The evidence shows that the content of Safe and Well Visits varies across FRSs. This is in line with research by Andrews *et al.* (2014) who argue that prevention is an area with fewer rules and much more discretion on how to approach the task. Safe and Well Visits range from an essential assessment of fire, falls, fuel poverty and smoking, through to FRSs that work with partners to offer services and interventions that cover a range of issues including (but not limited to) visual impairment, dementia, social isolation, bowel cancer screening and flu (NFCC 2018). These expanded assessments build on existing good practice of home fire safety checks and, as NFCC recommends (2020), should take a person-centred approach and be seen as part of a single approach to the Home Fire Safety Checks. This is in line with previous research undertaken by NTU on people-centred and evidence-led approach to risk assessment (Murphy and Greenhalgh 2014).

It is important to emphasise that Safe and Well Visits are part of the wider health prevention agenda. They are not meant to reprioritise the work of FRSs away from firefighting, nor make firefighters health and social care specialists, rather they are a fire contribution to the local authorities work on public health. Clarke (2018) suggests that Home Fire Safety Assessments and Safe and Well visits have been central to Fire and Rescue Services engagement strategies and to the development of a range of partnerships. These obligations to partnerships (such as the Community Safety Partnerships or the Safeguarding Vulnerable Children Partnership) has led to identification of potential non-fire risks and vulnerabilities that become apparent during the visits, which may be of interest to their key partners. These partnership responsibilities added a further objective to the Safe and Well visits when it came to identifying vulnerabilities and/or risks that FRS staff need to pass on to partner organisations and signpost other services. Some services have employed specialist staff to undertake the visits and. the role has become more complex and more sensitive with more training required.

3.2. Delivery and reporting

Although most FRS have certain methods of assessing the need for a home fire safety check/safe and well visit before sending staff to visit, some FRSs offer such assessments to any member of the public who asks, regardless of their circumstances (HMICFRS 2018). In these financially constrained times FRS may not have the capacity to adopt this universal approach. Therefore, HMICFRS recommends that FRS should prioritise those people who are in their higher-risk category, such as those "over 65 and people with disabilities".

The way in which Safe and Well visits are delivered also varies across FRSs, with some FRSs using crews, others using only community safety staff and some a mixture of both. Visits are also recorded in different ways, with some using paper-based systems and others using electronic tablets. There are also different computer software packages used including the CFRMIS system, Customer Relationship Management software and a small number designing their own, bespoke systems.

3.3. Numbers of Safe and Well visits

As the latest HMICFRS inspection reports demonstrate (HMICFRS 2018, 2019), Safe and Well visits may be the reason for the decrease in overall numbers of home fire safety checks in recent years. Those who conduct safe and well checks go beyond identifying fire risk, they often look for potential risks to health and wellbeing and are becoming more focussed on the more vulnerable people as vulnerable groups are over-represented in fire fatalities statistics. NFCC recommends

> *"To ensure that visits improve quality of life outcomes, and lead to reduced demand for services, the quality of the visit should be balanced against the number delivered."*
>
> (NFCC 2021)

3.4. Evidence from other Safe and Well evaluations

To date, there have been only a few studies that have investigated Home Fire Safety Assessments/Safe and Well Visits in the UK. Safe and Well Visits have been previously assessed only to a very limited extent because they are still developing. Nevertheless, previous evaluations into the effectiveness of Safe and Well visits show encouraging results.

Most studies focus on the impact of visits on the number of home fires. For example, Arch and Thurston (2013) assessed the impact of home safety assessments on fires and injuries in Cheshire FRS in comparison to other 37 English FRSs. Using regression models, they demonstrated that home safety assessments were successful in reducing domestic fires and related injuries between 2002 and 2011. Reinhardt and Chatsiou (2019) confirmed Arch's and Thurston's findings in the study of Essex FRS. Home safety checks in Essex were undertaken in 2016/2017 by trained volunteers, who visited local homes of at-risk groups to review fire safety. The study of Essex FRS showed a positive impact of those visits on the incidence of home fires – there was a greater probability of home fires prior to the visits.

London Fire Brigade's evaluation by Cordis Bright consultants (2013) also confirmed that homes, which received a Home Fire Safety Visit were less likely to experience an accidental dwelling fire than those which did not receive a visit. Homes that received a visit in the six and a half years up to 2006, were 10 times less likely to experience a fire, than homes that were not visited by FRS. In general, the available evidence shows that Home Fire Safety Assessments/Safe and Well Visits have been a successful prevention tool and have contributed to the decreasing number of home fires. However, this should be treated very cautiously as most of the studies have not taken other factors into account when looking at decreasing number of home fires. Nevertheless, the LFB accepted it could do better and in 2016 refined its approach to the targeting and delivery of home fire safety interventions (London Fire and Emergency Planning Authority 2016)[2].

An early attempt to evaluate SWV in Derbyshire (Powers unpublished) noted that the HMICFRS inspections focussed on value for money and that NFCC pilots had found difficulty using cost benefit analysis. They attempted to look at the effect of individual interventions based on previous 20-year data (1994/95 to 2017/18). These interventions were part of HFSCs i.e. they looked at the value of installing alarms (smoke, wi-safe and carbon monoxide) and then looked at the costs and benefits of SWV referrals. For the former they used costs drawn from the 2008 'Cost of Fire' Report[3]' and the HSE 2016 estimates of the cost of fatalities. For the referrals they conducted 'before and after'

[2] The Brigade's vulnerable people criteria was made up of a list of six characteristics. A more sophisticated strategy that differentiated between prevention aimed at reducing the overall number of fires in the home (and injury) and those fires that are most likely to cause a fire fatality would facilitate more sophisticated intervention approaches to be developed.

[3] The NFCC Community Risk Programme have commissioned a new 'Cost of Fire' methodology and model.

questionnaires to analyse changes occupants experienced 3 months after visits and applied values drawn from the HACT UK Social Value Bank calculator 2018 to evaluate the social benefit of the SWC referrals. HACT is the housing sectors ideas and innovation agency. The evaluations were generally positive for both the installation of alarms and for the referrals although the results must be treated as no more than generally indicative because of the age of the data and the lack of verification. Derbyshire are attempting to address the latter issue by replication studies with other FRS. If this approach is to be adopted wider within the sector it would be more robust and efficient if a bespoke social value calculator was commissioned from one of the three current providers rather than using and adapting a calculator designed for another purpose. This is not meant as a criticism of Derbyshire's innovative initiative which has been welcomed by the Home Office but merely as a potential improvement.

A few studies into Home Fire Safety Checks have also adopted different perspectives. For example, Williams and Manning (2016), in their study of Avon FRS, investigated behavioural changes following Home Fire Safety Visits. The study revealed that before the visits, householders tended to overestimate their safety and were unaware of the risks at home. The authors recognised that understanding householders' perceptions of fire could also help FRSs in tailoring and targeting their advice. Home Fire Safety Visits can help not only the communities, but also FRSs in identifying specific needs and vulnerable residents.

Similarly, a study of Safe and Well Visits in Kent FRS Mahmood *et al*. (2019) investigated the behavioural changes of householders receiving a Safe and Well Visit, in particular) they were interested in the impact of visits on fire safety awareness. Using a logic model and interviews they found that the visits made householders feel safer because they could get tailored advice on fire safety from experts. In addition, householders indicated that they could not think of any other organisation that would offer such bespoke advice. While the Safe and Well visits programme has been identified as largely successful, Simcock (2020) found nuances in the delivery of Safe and Well Visits in his (anonymised) study. For instance, he points out that some participants receiving Safe and Well visits found them to be a 'tick-box exercise'. Simcock associated this finding with the expansion of community prevention activities the increasingly target-driven culture and increasing demands on the service.

More recent studies have tended to focus on specific extensions of Safe and Well Visits. For instance, a study by Clarke (2020) suggests that Safe and Well visits can be expanded by additional health and wellbeing checks, such as atrial fibrillation screening and affordable warmth checks. Using Cheshire FRS which was the first FRS to add atrial fibrillation screening to the Safe and Well visits, Clarke (2020) demonstrated that the extension of the model can contribute to public health and more efficient use of resources and public money. Cheshire are currently investigating blood pressure testing during Safe and Well visits[4].

[4] It is interesting to note that the services carrying out the later studies on SWV rather than earlier HFSV such as Cheshire, and Kent scored 'good' for both effectiveness and efficiency whereas hosts of the earlier studies Avon, London and Essex all 'required improvement in both effectiveness or efficiency. Nothing significant should be drawn from this as it is of course a very small sample.

4. Methods (Evaluation techniques)

Over the last 15 years, significant effort has been focused on reducing fire risk and preventing avoidable harms. In 2010, a report commissioned by DCLG (2010) revealed that most FRSs tracked their productivity and audit outcomes, however, only a minority evaluated fire safety. Although the type and breadth of prevention work have significantly increased throughout the last decade, research shows that there is still a need for FRS to move towards performance measurement that assess effectiveness rather than just outputs (Murphy and Greenhalgh 2013, Taylor *et al.* 2019).

The new inspection approach introduced by HMICFRS places greater emphasis on measures of efficiency and effectiveness. However, the inspectorate in their latest State of Fire report (2020) states that there has not been enough evaluation to consider the effect or benefit of prevention work:

> *'Services don't know what works, nor can services learn from what others are doing. This makes it harder for services to make evidence-based decisions on what future work they should do to meet local risk, as well as the volume of that work and who they should target.'*
>
> (HMICFRS 2020)

NFCC in their pilot study with a small number of representative FRS in England (2018) called for a need to standardise, gather, and aggregate evidence of effectiveness for Safe and Well Visits in 2018. This has resulted in developing core standards and a methodology for addressing community fire risk (Hill *et al.* 2019). However, the pilot study (NFCC 2018) highlighted that it is very difficult to evaluate Safe and Well Visits on the national level because of the varied and inconsistent approach to Safe and Well Visits delivery.

What is available at the national scale is a series of guidelines from the Treasury that have recently been updated. The two most relevant are

- "The Green Book: appraisal and evaluation in central government" was updated and reissued by HMT in 2020. It provides guidance to central government departments and their agents on how to appraise policies, programmes, and projects.

- "The Magenta Book: Central Governance Guidance on evaluation" was updated in 2020 by HMT, and provides guidance for local authorities, and other relevant place-stakeholders, applying for funding and creating business cases. It focuses on how to evaluate impacts, processes, and projects.

Figure 1 identifies some common techniques for evaluating policy initiatives in public sector organizations.

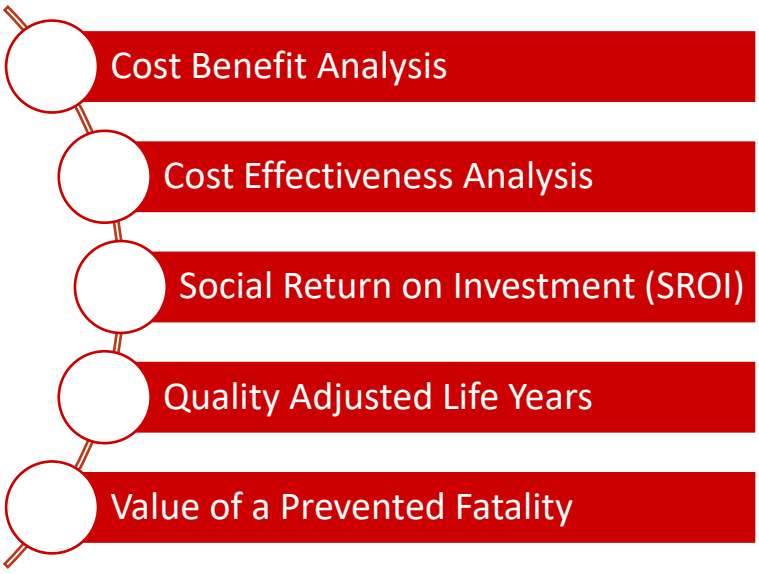


Figure 1. Evaluation techniques

4.1. Cost Benefit Analysis

The main problems with public sector evaluations is their uneconomic nature and impossibility to measure such data. Common techniques such as Net Present Value or Internal Rate of Return are not applicable because of the intangible nature of some public sector initiatives and their non-profit profile (Brzozowska 2007). In such cases, Cost – Benefit Analysis (CBA) has sometimes been applied. The CBA technique compares all the benefits with the costs that are monetized.

Net Benefit = Benefits – Costs

A project is considered to be good, if the change in benefits exceeds the costs associated with the project. CBA has been applied to a range of public sector initiatives. In the emergency services context, Weinholt and Andersson Granberg (2015) applied CBA to two collaboration projects between emergency services in Sweden; they evaluated security officers that respond to FRS calls and home care nurses that assist the FRSs when they respond to urgent medical calls. The findings indicate that the case with the security officers was socially beneficial, while the case with the home care nurses was not. However, the authors found that it was difficult to quantify the effects of either initiative.

4.2. Cost Effectiveness Analysis

Cost Effectiveness Analysis (CEA) is the second most popular evaluation technique in public sector organizations. It is often used when there is considered to be a finite resource. The method compares different intervention strategies based on relative cost and outcomes, without necessarily quantifying the benefits. Unlike the CBA, Cost Effectiveness Analysis focuses on non-monetary outcomes, such as years of life saved, hospital days prevented, number of deaths prevented. Cost-effectiveness analysis is often used in the field of health services, where it may be inappropriate to monetize health effect. Typically the CEA is expressed in terms of a ratio where the denominator is a gain in health from a measure (years of life, premature births averted, sight-years gained) and the numerator is the cost associated with the health gain.[2] The most commonly used outcome measure is quality-adjusted life years (QALY).

Quality Adjusted Life Years is a comparative metric which measures the healthy years lived by an individual as a result of a clinical intervention such as medication or a medical operation (Glover and Henderson 2010, Adhiraki 2017). QALYs have been used as a measure for analysing cost effectiveness of health programs and making resource allocation decisions for many years (first published by Department of Health in 1996 as "Policy Appraisal and Health").

The QALY itself cannot tell you if a treatment provides value for money. Instead, MHS combine the QALY for a new medicine with the cost of the new medicine. This produces a ratio called the cost per QALY. The monetary value of a QALY were based on a very small sample-survey of the UK public carried out in the 1990s. In 2020 the Health and safety Executive published a scoping study on the valuation of risks to life and health: the monetary Value of a Life year (VOLY) and the QALY (Chilten *et al.* 2020)

The QALY score of 1 represents life in perfect health, whereas a year of less than perfect health has a QALY between 0 and 1 and 0 indicates death (see NHS Scotland 1998, Taylor *et al*. 2019, Clarke 2020). The value of a QALY was set originally in 1999 at a minimum of £20,000 per annum. This has been updated to £60,000 (HM Treasury 2018). £60,000 represents the value of an individual remaining in good health for a year. Prieto and Sacristan (2003) found a QALY assessment can be beneficial in terms of assessing the usefulness of referrals to other agencies (such as the NHS or local council) via Safe and Well Visit.

The National Institute for Health and Care Excellence have published a Process and Methods Guidelines Manual that attempts to combine the best available evidence of both clinical and cost effectiveness in making decisions when developing new clinical guidelines (NICE 2012) and in 2020 the Health and safety Executive published a scoping study on the valuation of risks to life and health: the monetary Value of a Life year (VOLY) and the use of QALYs (Chilten *et al.* 2020).

In simple terms the CEA would take into account the relative costs and outcomes of utilising different inputs. In terms of SWV different FRS use different inputs such as

- Whole-time and/or retained firefighters
- Specialist prevention staff
- Trained volunteers or
- A combination of some or all of the above.

Cost effectiveness ratio = Cost of intervention/Effect of Intervention

Saramago et al. (2014) point out that assessing cost-effectiveness is crucial for public sector organisations that operate under a fixed budget restraint. Taylor *et al.* (2019) argue the need for such approach to assessing the effectiveness of operations in FRSs rather than relying only on outputs measurement. London Fire Brigade's evaluation by Cordis Bright consultants (2013) is an example of Cost Effectiveness Analysis that showed that dwellings could be 10 times less likely to experience home fires after a FRS visit provided they were targeted at the most vulnerable.

4.3. Social return on investment (SROI)

Social return on Investment (SROI) is another technique that can be used by public sector organisations that create procure or add to social value, as a way to objectively assess contract criteria relating to social value. The SROI approach looks at the outcomes – the difference that a project makes

– and considering the value of these outcomes in social, economic, and environmental terms. Although using monetary terms, the SROI ratio does not express financial value as such but is intended to be a comprehensive way of expressing the 'currency of social value' (Arvidson et al. 2013).

$$SROI = \frac{\text{Net present value of benefits}}{\text{Net present value of investment}}$$

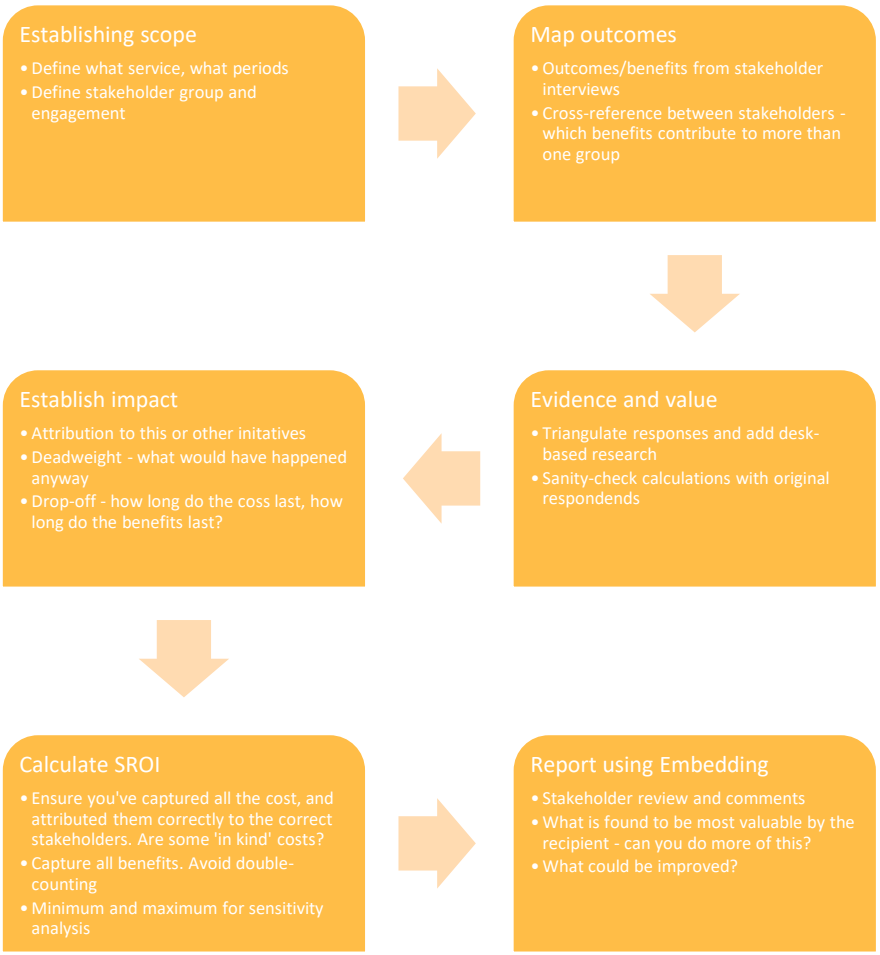


Figure 2. The six stages of SROI (Nicholls et al. 2012)

The SROI model includes six stages illustrated on Figure 2 (Nicholls et al. 2019). SROI has been promoted as a more holistic approach to demonstrating Value for Money than traditional CBA and CEA techniques (Banke-Thomas et al. 2015).

Value of a Prevented Fatality

The Department of Transport defines casualty levels in the following way:

> *'**Fatality**: any death that occurs within 30 days from causes arising out of the accident.*
> ***Serious injury**: records casualties who require hospital treatment and have lasting injuries, but who do not die within the recording period for a fatality; and*

***Slight injury**: where casualties have injuries that do not require hospital treatment, or, if they do, the effects of the injuries quickly subside*. '

(Department for Transport 2020, p.2)

The Department of Transport's values for serious injury and fatality were previously used in research on the estimates of economic cost of fire (DCLG 2011), although this is currently being revisited by the NFCC (Hewitt and Biermann 2020). In 2008, a fatality was valued at £1,648,539, a serious injury at £185,241, and slight injury at £14,279. The latest government data values a fatality at £2,029,237, a serious injury at £228,029 and a slight injury at £17,579 (Department for Transport 2019).

Traditionally, Cost Benefit Analysis and Cost Effectiveness Analysis have been used to assess value-for-money of public sector interventions. However, the SROI has increasingly been used to identify benefits for interventions if adequate data is available (Krlev et al. 2013). Theoretically the method has the potential to measure broader socio-economic outcomes, analysing and computing views of multiple stakeholders in a singular monetary ratio rather than the more limited Cost Benefit Analysis and Cost Effectiveness Analysis (Banke-Thomas et al. 2015).

The aim of such an evaluation is to understand the social economic value from Safe and Well Visits – to identify the benefit to society (including partner agencies, the NHS, and wider society) in terms of financial investment / expenditure related to financial savings from interactions.

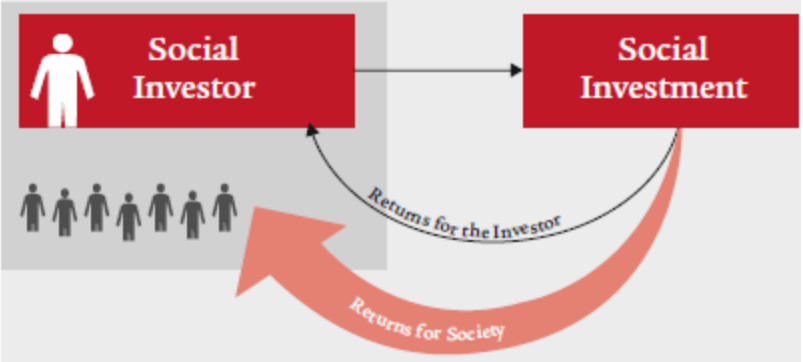


Figure 4. SROI technique (Krlev et al. 2013)

Stage 1. Establishing scope and identifying key stakeholders to identify impacts

The Safe and Well Visits initiative aims to make the communities of Nottinghamshire safer via preventing incidents from happening in the first place. In this case, the *input* is the Safe and Well Visits programme, which is a recognised way of reducing fires, fire-related deaths and fire-related injuries. The main *stakeholders* are the recipients of the Safe and Well visits, firefighters or members of NFRS Prevention team, who conduct the visit, and NFRS partner agencies who refer into the service. Table 1 illustrates key stakeholders involved in the Safe and Well visits programme and the reason for potentially including them in a SROI analysis.

Table 1. Stakeholder group

Key stakeholders	**Reason for inclusion**
Recipients of Safe and Well visits	Group that is expected to gain the most benefits
Nottinghamshire Fire and Rescue Service	Firefighters or members of NFRS Prevention team who conduct the visit

Partner agencies (e.g. NHS)	Refer into the fire service and receive referrals from NFRS
Local communities and central government	Provide finance (a small levy on the council tax and a grant respectively)

Stage 2. Mapping project activity and outcomes with stakeholders

The home visits offering advice on how to make homes safer and what to do if trapped by fire are the *activity*. The *output* is recipients' awareness of fire-related and health risks. Table 2 represents all key stakeholders and their outcomes with indicators.

Table 2. Outcomes data

Key stakeholders	**Outcome**	**Indicator**	**Data collection**
Recipients of Safe and Well visits	Increased awareness of fire and health related risk at home Reduced risk of fire through installing prevention equipment	Number of fire incidents experienced by participants after the visit, Improved QALY	Evaluation and feedback survey (NFRS Safe and Well Visit Survey 2019/20 Report)
Nottinghamshire Fire and Rescue Service	A reduction of fire risk and drop in demand for FRSs	Number of home fires Number of deaths and injuries from accidental fires at home	Home Office/NFRS data
Partner agencies (e.g. the NHS)	Increased number of identified vulnerabilities that become apparent during the visits	A number of referrals from and to partner agencies	Home Office/NFRS data
Local communities and central government	Safer communities, improved perception of the local area	Number of home fires Number of deaths and injuries from accidental fires at home Community Safety reports	Home Office/NFRS data Community Safety reports

Stage 3. Evidencing project outcomes and giving them a financial value.

It is assumed that Safe and Well visits will result in a reduction of risk and drop in demand for FRSs, and reductions in the number of deaths and injuries from accidental fires in the home (direct outcome) and improved quality of life (*secondary outcome*), and ultimately safer communities (*secondary outcome*) as illustrated in Table 3.

Table 3. Valuation of the outcomes

Key stakeholders	Outcome	Indicator	Possible proxies
Recipients of Safe and Well visits	Increased awareness of fire risk at home and improved quality of life	Number of fire incidents experienced by participants after the visit, QALY	Cost of visiting private doctor clinic Cost of health insurance
Nottinghamshire Fire and Rescue Service	A reduction of fire risk and drop in demand for FRSs	Number of home fires, Number of deaths and injuries from accidental fires at home	Value of a prevented fatality, Value of a serious injury, Value of a slight injury
Partner agencies (e.g. the NHS)	Increased number of identified vulnerabilities that become apparent during the visits	A number of referrals from and to partner agencies	
Local communities and central government	Safer communities, improved perception of the local area	Number of home fires , Number of deaths and injuries from accidental fires at home, Community Safety reports	Community Safety reports, Change in property prices, Amount spent on home improvements

Stage 4. Establishing project impact – accounting for attribution, deadweight, displacement and drop off.

The SROI approach encourages discussion around impact, which requires assessors to take into consideration the following:

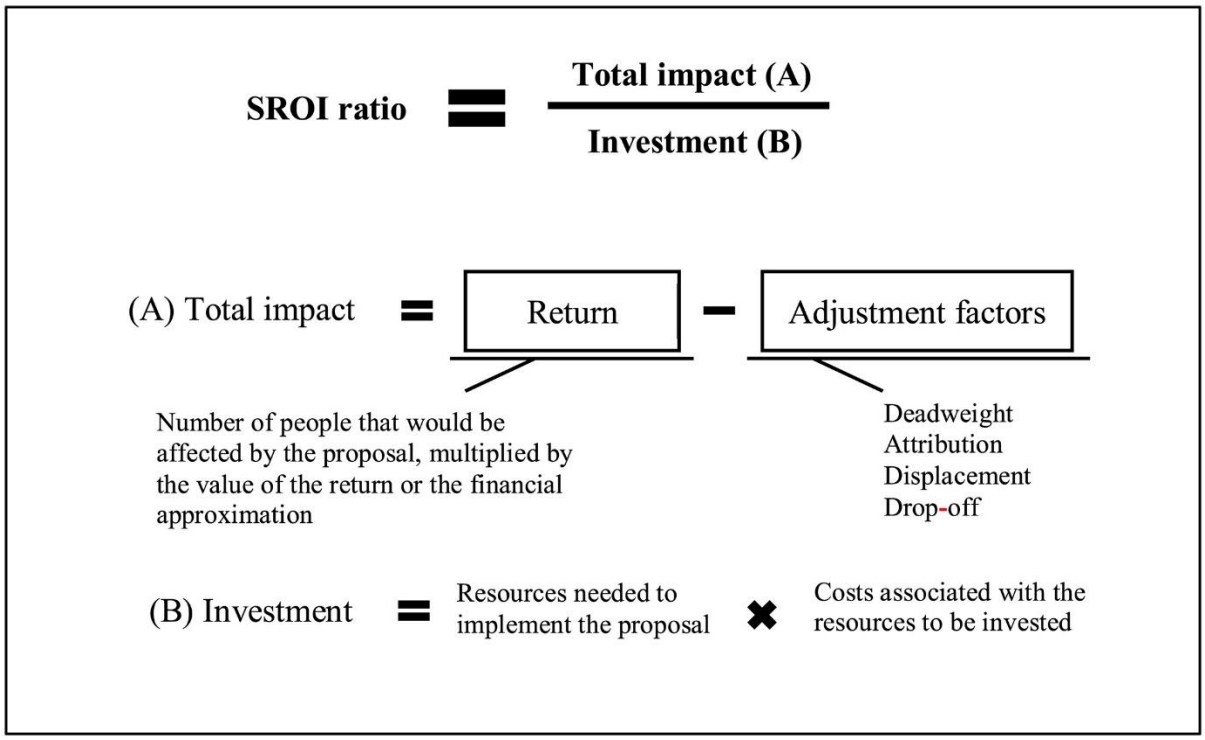
- **Displacement** -the extent to which the intervention creates unintentional negative impacts rather than creates additional value.
  Displacement is the possibility of a negative reaction to the Safe and Well Visit from recipients.

- **Deadweight** tells what would have happened anyway whether an intervention took place or not. - The possible *deadweight* is that if the Safe and Well visits would not have been executed, some accidental fires, deaths and injuries at home would take place anyway.

- **Attribution** is about how much of the outcome (a reduction of risk and drop in demand for FRSs) was caused by the project itself or by other external factors (e.g. living conditions).
  – Attribution is about living conditions and health conditions, for example gas safety and electrical safety that can contribute to fires and injuries at home and health.

- ***Drop off*** measures how long the benefits of Safe and Well Visits will last.

Stage 5. Calculating the SROI.



5. NFRS current approach to evaluation of Safe and Well Visits

This section looks specifically at how Nottinghamshire FRS approach Safe and Well Visits, in particular, it will look at how Nottinghamshire FRS target people at risk, how they work with partner agencies and finally, how they evaluate the visits.

Over the last three years, Nottinghamshire FRS delivered over 15,000 traditional Home Safety Checks and the expanded Safe and Well Visits. For several years, Home Safety Checks have been utilised as a method of delivery of fire safety messages. More recently, Nottinghamshire FRS has moved away from the Home Safety Checks as the service began delivery of Safe and Well Visits.

The Prevention Team and Wholetime Crews (WDS) started conducting Safe and Well Visits in August 2018 and the On-Call crews began in October 2018. The delivery of Home Safety Checks ceased in October 2018, since when Nottinghamshire FRS has only delivered Safe and Well Visits. The Strategic Plan sets a target for the service to increase their number of Safe and Well visits each year and aims to deliver 12,000 visits per year by 2022 (NFRS 2020, p.12).

5.1. Targeting people at risk

The majority of people at increased risk of fire are identified by partner organisations and referred to NFRS. Partner organisations use NFRS CHARLIE profile that was developed using data from 5-years of serious/fatal fire incidents in Nottinghamshire. Partner organisations use the CHARLIE P Matrix (Care and support needs, Cooking, Hoarding, Alcohol use, Reduced mobility, Lives alone, Inappropriate

smoking, Elderly, Electrical, Previous signs of fire) to undertake a risk assessment of the people they come across.

Descriptor	Risk Score =1 (Rare)	Risk Score =2 (Unlikely)	Risk Score =4 (Possible)	Risk Score =8 (Likely)	Risk Score =10 (Almost certain)
(C) Care and support needs	No care or support needs	In receipt of comprehensive care and support package	Support in place but not deemed adequate	No support in place but concerns for health and welfare	No support in place but significant concerns for health and welfare
(C) Cooking	No concerns	Meal/drink preparation completed by others	Prepares own food and drink but concerns identified by others or regularly uses hot oil	Preparing own food and drink but repeated episodes regarding safety	Actual incidents requiring support of others prior to safe and well visit
(H) Hoarding	1-2 CIR	3 CIR	4-5 CIR	6-7 CIR	8+ CIR
(A) Alcohol	Not used	Signs of alcohol use no concerns	Signs of alcohol use some concerns	Signs of alcohol being used Query dependency	Concerns alcohol use may impact upon fire safety, including escape
(R) Reduced mobility and Clinical Frailty Score (CFS)	Independently mobile CFS 1, 2, 3	Walks with support CFS 4	Requires mobility aid or history of falls e.g. stick or frame CFS 5, 6	Unable to walk e.g. wheelchair user CFS 7	Cared for in bed CFS 8, 9
(L) Lives alone	Lives with others	Lives alone but fully independent	Lives alone with daily support	Lives alone with occasional visitors or social contact	Lives alone with no visitors or social contact
(I) Inappropriate smoking	Non-smoker	Occasional smoker aware of safety	Regular smoke aware of safety	Occasional smoker unaware of safety	Regular smoker - unsafe smoking practices
(E) Elderly	Under 40	41-50	51-64	65-79	80+
(E) Electrical	No concerns	Some risks identified but solved during visit	Risk identified, client to resolve	Risk identified and client would need assistance to resolve	Poor understanding and dangerous use of electrics
(P) Previous signs of fire	No concerns	Evidence of historic burn marks	Evidence of recent near miss fires - would respond to alarm	Evidence of recent near miss fires - would not respond to alarm	Previous fire within the last 12 months

Figure 3. NFRS CHARLIE profile

Anyone scoring above 20 on this Matrix (i.e. Medium or High Risk) receive a Safe and Well Visit from NFRS. In addition, NFRS receives referrals from members of the public for themselves, friends, and families. These are sifted using a set of criteria to determine a risk level (with only those deemed to be Medium or High risk receiving a visit). Finally, NFRS target vulnerable persons themselves via the 'data-led' process.

5.2. Safe and Well Visits' Recipients

In 2019/20, 54.04% of recipients were 65+ and 32.72% identified as having a disability. Using the 'broad ethnic groups' found in the 2011 Census, in 2019/20

- 92% of recipients were White,
- 0.9% Mixed/Multiple Ethnic Group,
- 2.4% Asian/Asian British,
- 2.6% Black African & Caribbean & Black British,
- 2.1% Other Ethnic Group.

So far in 2020/21, 51.89% have been 65+ and 47.57% have identified as having a disability (the Disability question was altered in the SWV questions in October 2019 from 'does the person have a mental or physical disability that may affect their reaction to fire' to 'do you consider yourself to have a disability' – as this is more in line with what the NFCC require reporting on). To date, 2020/21 recipients have been

- 92.2% White,
- 0.8% Mixed/Multiple Ethnic Group,
- 3.4% Asian/Asian British,
- 2.0% Black African & Caribbean & Black British,
- 1.7% Other Ethnic Group.

This demonstrates that SWVs delivered in 2020/21 are fairly representative of ethnic groups in Nottinghamshire when compared to 2011 Census Data (ONS 2013):

- 95.5% White,
- 1.36% Mixed/Multiple Ethnic Group,
- 2.18% Asian/Asian British,
- 0.68% Black African & Caribbean & Black British,
- 0.26% Other Ethnic Group.

However, ethnicity representation is not as close within Nottingham City – which is far more diverse than the county as a whole. The 2011 Census found the following ethnicity breakdown of Nottingham City (ONS 2013):

- 71.54% White,
- 6.63% Mixed/Multiple Ethnic Group,
- 13.1% Asian/Asian British,
- 7.26% Black African & Caribbean & Black British,
- 1.47% Other Ethnic Group.

NFRS have an Action Plan in place to address where there may be differences in population breakdown by ethnicity. We would recommend NFRS consider using the profiling data that is coming through the partner referral pathway and the self-referral pathway in order to influence the data-led model to identify new and emerging trends for people that require SWVs.

5.3. Staffing model

NFRS use a variety of staffing models for the delivery of SWVs (Table 4).

Table 4. Safe and Well/Home Fire Safety Checks for the last 3 years with break down on the staffing model

	Wholetime Crews	**On-Call**	**Prevention team**	**Total**
2017/2018	2636	26	1122	3784
2018/2019	3192	338	689	4219

2019/2020	5270	1441	1041	7752

The majority are conducted by Wholetime Crews and involve a fire appliance with a crew of 4 firefighters and 1 watch manager. On-Call crews either utilise a fire appliance with a crew of 4-6, but on occasion may also send 2 firefighters in a van. The specialist Prevention Team typically deliver Safe and Well Visits as lone-workers. Since April 2020, all SWVs have been conducted by NFRS members of staff. Prior to April 2020, both Age UK and Framework were commissioned to conduct some SWVs on NFRS behalf.

We were interested in calculating the effectiveness of each of the staffing models on delivery of SWVs, hence, we have taken into consideration the period when the Home Safety Checks ceased and when NFRS has only delivered SWVs – 2019/20.

Table 5. Cost of Safe and Well Visits in 2019/2020 with break down on the staffing model[5] (NFRS 2021).

	No of SWVs in 2019/20	Average length of a visit	Average cost per hour of a visit	Average cost per visit
Response Delivery Team	6,715	1.18 hour	£105.61 (1 WM & 4 Firefighters)	£124.62
Prevention Team				£36.09
- **Firefighters**	258	1.89 hour	£20.13	£38.06
- **Crew Manager**	71	1.12 hour	£22.38	£25.07
- **Watch Manager**	3	0.67 hour	£25.09	£16.81
- **Specialist Home Safety Operative**	661	2.46 hour	£14.88	£36.60
- **Various Members[6]**	48	N/A	N/A	N/A

As shown in Table 5, Specialist Home Safety Operatives spend the longest time per visit (2.46hr), whereas Watch Managers and Crew Managers from specialist Prevention Team spend the shortest time (0.67 hour and 1.12 hour respectively). However, the number of visits conducted by Prevention Team is significantly lower than the number of SWV completed by Response Delivery Team.

With regard to resources, SWVs' conducted by Response Delivery Team are the most resource intensive. This is because the majority of them require one Watch Manager and at least 4 Firefighters who travel on a fire appliance to complete each SWV (with 2 Firefighters actively engaged in the delivery). The average cost of a SWV conducted by Response Delivery Team is £124.62 including on-costs. On the other hand, the average cost per visit completed by Prevention Team is £36.09 including on-costs. The difference is due to all Prevention Team SWVs being completed by lone-workers rather than by a group of people, as by Response Delivery Team.

5.4. Partner agencies

NFRS have many partner agencies that refer into the fire service. The most numerous referrals in 2020/21 have included

[5] Pay rates (2019/20) are as follows:
SHSOs (Grade 3- top of scale) £14.88 including on-costs
Firefighter £20.13 including on-costs
Crew Manager £22.38 including on-costs
Watch Manager £25.09 including on-costs

[6] Remaining 48 SWVs completed by Prevention Team were undertaken by various staff members during Direct Engagement Activities who don't fall into the SHSO/FF/CM/WM profile and have therefore been discounted.

After SWV, NFRS typically refer residents to

There are also bespoke referrals dependant on individual needs (e.g. Social Care, Telecare etc.).

6. A Cost Effectiveness Analysis for SWV in Nottinghamshire

In commissioning a CEA for SWV I Nottinghamshire, NFRS took into consideration

- the various techniques available and their level of sophistication and development
- the robustness of the techniques
- the extent and quality of data and information available upon which to build the evaluation
- their appropriateness of the techniques for this evaluation.

They were conscious of the BATNEEC principles introduced in the UK in the 1980's. BATNEEC stands for Best available technology (or best available techniques) not entailing excessive cost. It was originally introduced in the UK by an EU Directive in 1984 applied to pollution. It has subsequently been used by health and safety and environment health regulators for assessing output and meeting standards when developing societal values and advancing techniques may change. It has also been interpreted as best practical means and/or best available means.

It was acknowledged by the researchers and by NFRS that in the future the decision to use a Cost Effectiveness evaluation should be revisited when and if local and national data and information

improves and/or becomes available. At that time, NFRS might also consider either itself or in partnership with similar or adjoining services commissioning the design of a Social Value Bank calculator that is specifically intended for use by Fire and Rescue Services.

7. COVID-19

It appears from both the academic and practical literature and from the HMICFRS inspection reports that some services are trying to address the under-resourcing of prevention and protection work by involving staff from across the service including station based and inspection staff. Others have trained volunteers to do the low risk assessments although this has become more challenging as SWVs broaden the objectives and scope of the visits and therefore involve more risks.

Most recently the response to the COVID-19 pandemic (HMICFRS 2021a) has shown that response was generally prioritised over prevention and protection services. In Nottinghamshire, a risk-based approach to continuing prevention activity was adopted and NFRS also reviewed which individuals and groups it considered to be at an increased risk of harm as well as allocating additional resources to prevention work.

> "Overall, it conducted fewer safe and well visits than it would normally undertake. Inevitably, backlogs have built up in the system as a consequence. The service has made good use of COVID-19 grant funding to employ four members of staff to boost prevention capability. They were recruited on one-year contracts, and their role is to reduce the backlog.
>
> We also recognise that the service has stepped forward to connect vulnerable residents to local authority-run COVID support lines"
>
> (HMICFRS 2021b)

In March 2021 NFRS's vaccination and testing teamwork was formally commended by NFCC (NFCC 2021)

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