



Evaluation of Prevention Activities in Nottinghamshire FRS

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1 Executive Summary

The project reviewed two areas of NFRS prevention activities in order to understand the benefits of their activities to communities and the value of their investment. These were the assessment of the costs and benefits of Safe and Well Visits (SWVs) and the use of the CHARLIE profile in identifying those who are most at risk of death or serious injury from fire.

HMICFRS believe that individual services have taken the SWVs forward in their own way, and there is too much variation between services with some needing to target their prevention work better. They consider that understanding the impacts, costs, and benefits of the SWV model and further evaluation of the effectiveness of SWVs is essential to accurately capture their main benefits.

Two background working papers have been produced prior to this final report. Working Paper 1 considered a range of alternative evaluation methodologies for undertaking the Nottinghamshire Fire and Rescue Service (NFRS) appraisal. Based on the quality and veracity of data and information available and adopting the principle of using the 'best available techniques not entailing excessive cost' (BATNEEC), NFRS considered the most appropriate evaluative technique at this time would be to undertake a 'Cost Effectiveness' appraisal.

Working Paper 2 looked at the definition and assessment of vulnerable people both locally and nationally including definitions and interpretations being used by key partners such as the police as well as the approach of HMICFRS. Working Paper 2 then examined NFRS approach and the validity of the CHARLIE profile. It is important to note that HMICFRS did not criticise the CHARLIE profile per se but criticised the way it was used; the lack of integration with other systems and processes, and that some external referrals to NFRS that received SWVs did not meet the profile (HMICFRS 2019 p.12).

Key Findings

1. Data and information available to NFRS have improved considerably since the HMICFRS inspection, although our detailed working papers indicate several potential improvements to operational data that NFRS may wish to consider.
2. The key to optimising the future investment in operational services and Safe and Well Visits is in matching the resources available (principally staff time and vehicles) to the case mix of visits that are anticipated as required in the short, medium and long terms.
3. The conceptualisation and use of the CHARLIE profile in identifying those who are vulnerable and those most at risk of death or serious injury from fire is both generally valid and robust.

4. The CHARLIE profile was found to be operationalised and integrated into other systems and processes much better than it was at the time of the inspection. However, further improvements and refinements are available from good practice elsewhere and from innovations since the service inspection reports were published, and NFRS will need to consider which of these improvements are most appropriate for Nottingham and Nottinghamshire.
5. NFRS should continue improve its integration of resource allocation and staff deployment for SWV with its core systems and processes and include any new or adjusted metrics targets and/or objectives within its corporate performance management arrangements.
6. Having reviewed the alternative assessment models available and the extent and quality of data and information available at the time of this evaluation, a Cost Effectiveness appraisal was commissioned and undertaken.
7. The Cost Effectiveness appraisal ascertained that the optimum number of visits and the deployment of staff resources ultimately depends on the resource envelope available at any time and the case mix of visits being anticipated and profiled by the CHARLIE profile. The project found that both case mix and profiling had improved since the Inspectorates visit, but the project identified potential further improvements and efficiencies which could be realised in both the short and the longer term subject to resource and operational decisions by NFRS.
8. In reviewing alternative assessment models, the project identified the data, information and analysis that needs to be available (together with some objective and methodological assumptions) in order for individual FRS or a group of FRSs (such as a subregional group or a 'nearest neighbour' group of services) to undertake a multi-agency Return on Investment appraisal or a more sophisticated Social Return on Investment evaluation.

2 Introduction

The aim of this project is to review 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 use of the CHARLIE profile in identifying those who are most at risk of death or serious injury from fire

NFRS's Safer Communities Strategy outlines an ambition to evaluate and assure the delivery of SWVs to communities. In the report following their inspection, HMICFRS suggested that NFRS should evaluate their prevention activities in order to understand the benefits of their activities to communities and the value of their investment (HMICFRS 2019).

The aim of this evaluation is to understand the social economic value or return on investment from SWVs – to identify if possible, the benefit to society including partner agencies, the NHS, and wider society. The programme and implementation of Safe and Well Visits at NFRS is based upon a definition and assessment of individuals and groups of people who are most at risk of death or serious injury from fire, and colloquially referred to as “vulnerable”.

The definition of these groups and individuals at NFRS is implemented through demographic profiling using the NFRS ‘CHARLIE’ profile, which identifies the demographics of those who NFRS deem as most likely to be at risk of death or serious injury from fire. NFRS wish to ensure that the profile accurately captures those characteristics and is a suitable approach to focussing resources to risk.

As part of this evaluation the NBS evaluation team have previously produced two ‘working papers’ that set out the underpinning details of this evaluation. They include the background and legislative context to the study; reviews of the academic and practitioner literature, current research, and emerging best practice in the key areas in the two areas of prevention activities that are the focus of this project.

Working Paper 1 also reviews various alternative evaluation techniques potentially available to apply to SWVs., In addition to assessing definitions of vulnerable people by the fire and rescue sector and by HMICFRS, Working Paper 2 provides the latest definitions being used by key collaborative partners in the police and the NHS. These clearly overlap with FRS definitions, but they do differ between the three blue light services. Working Paper 2 also provides the detailed evaluation of the use of the CHARLIE profile with some suggestions for incorporating emerging good practice.

This final report summarises and synthesises the findings of the two Working Papers and completes the project.

We would wish to record our thanks and appreciation to Area Managers Damien West and Bryn Coleman and Group Manager (Prevention and Fire Investigation) Andy Macey for their help and support in providing the data and information for this review. They responded to all our requests for information in an open, transparent and commendably professional manner.

3 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 groups.

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. The duties 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 has significantly changed. The total number of home fire safety checks (including safe and well visits) carried out by FRSs reduced by a quarter in the period when HFSC, were conducted between 2010/11 and 2018/19 (HMICFRS 2020).

Nevertheless, throughout this period many 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 now 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 the inspectorate consider that some FRSs need to target their prevention work better. Understanding the impacts, costs and benefits of the Safe and Well model is vital and further evaluation of the effectiveness of Safe and Well Visits is essential to accurately capture their main benefits. This overall assessment demonstrates that there is scope for improvement and potential for services to learn from each other's initiatives.

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.

Since 2017/18 Safe and Well Visits have broadened the scope of visits and from essentially an 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 HFSC. The NFCC recommends (2020), that visits should take a person-centred approach and provides the following advice 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. However, 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 service contribution to the local authorities work on public health and community wellbeing.

Clarke (2018) suggests that Home Fire Safety Assessments and Safe and Well visits have been central to Fire and Rescue Services public 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) have 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 residents to other services. Fire services, including NFRS, have employed specialist staff in addition to whole-time staff to undertake some of the visits as the role has become more complex and more sensitive.

The government and the fire service community already publish a wide range of leaflets and advice notes both on-line and in hard copy for different audiences such as vulnerable groups. Some examples include, Fire Safety for Parents and Carers, Fire Safety for Gypsies and Travellers, Frances the Firefly for Children and Fire Safety for Students. Theoretically, fire and rescue services appear to address vulnerability and vulnerable groups, as part of their mandatory and enabling legislation, albeit naturally focussing on vulnerability to *fire* risks.

The HMICFRS inspections show that Safe and Well visits are being reduced, although those that are being undertaken are becoming more focussed on ‘vulnerable’ groups (HMICFRS 2018, 2019, 2020). Nationally, this is because vulnerable groups are found to be over-represented in fire fatalities statistics. HMICFRS (2021) defines vulnerable people in the following way

“People less able to help themselves in case of an emergency, for example people with mobility problems, people with mental health difficulties, and children. Exact definitions of ‘vulnerable people’ vary across police forces and fire and rescue services.”

It is important to recognise that all people are at least at some risk of fire, but some individuals tend to be regarded as at higher risk of harm or death from fire and from other emergencies dealt by FRS (Clarke and Kaleem 2010).

Based on their recent research on population trends in Merseyside FRS, Taylor *et al.* (2019, 2021) suggest that fire prevention activities should increasingly target the elderly, the disabled, and those with mental health and neurological problems, because these factors increase individuals’ risk of fire. They found population behaviours and lifestyle, such as alcohol consumption and smoking as factors that do not increase fire risk, apart from alcohol consumption by the elderly.

Targeting vulnerable people who are at increased risk reduces harm from fire and other FRS related risks and provides an overall reduction in the number of emergencies attended by FRS and more efficient use of public resources.

In order to prioritise and focus the operationalisation of Safe and Well visits, NFRS utilizes a demographic profiling model known by the acronym 'CHARLIE' which stands for **C**are and support; **H**oarding; **A**lcohol; **R**educed mobility; **L**ives alone; **I**nappropriate smoking; and **E**lderly, (i.e. over 65).

Our reading of the Nottinghamshire inspection report is that HMICFRS appear do not appear to be critical of the CHARLIE profile per se they are concerned about the lack of monitoring and quality of assurance of its use and the lack of integration in what they consider inadequate performance management arrangements. However, this review provided the opportunity of investigating contemporary practice.

The remainder of this report will summarise the key findings of the review drawing from the two detailed working papers and provide some conclusions, suggestions, and recommendations.

4 Identifying vulnerabilities in Nottingham and Nottinghamshire

This section will look specifically at how NFRS identify vulnerable people and target their prevention visits, in particular it will look at how NFRS address targeting vulnerable people in their IRMP ("Strategic Plan 2019-2022") and the use of the CHARLIE profile.

Working Paper 2 provides a review of literature on vulnerable people and more details on how NFRS identify vulnerabilities. This section provides a brief summary of Nottinghamshire communities' profile, NFRS's SWVs delivery programme and our recommendations on how NFRS could improve identifying vulnerable people in future.

4.1 Nottinghamshire communities

NFRS launched "Strategic Plan 2019-2022" in April 2019, which replaced NFRS's previous IRMP. Refreshed in March 2020, "Strategic Plan 2019-2022" (NFRS 2020a), sets out how Nottinghamshire FRS achieve their vision of creating safer communities. The main aim of this plan is to identify foreseeable risks to communities and put in place arrangements to mitigate those risks in order to show NFRS's continuing commitment to the safety of those living and working in Nottingham and Nottinghamshire. The plan emphasises that NFRS wish to be especially responsive to the most vulnerable people.

"Nottinghamshire Fire and Rescue Service (NFRS) is dedicated to the safety, care and protection of the County's 1.15 million residents through the delivery of high quality services which are responsive to local need, accessible to all citizens – especially the most vulnerable - and effective in keeping people safe and well."

(NFRS 2020a, p. 4)

The total population of Nottinghamshire and Nottingham City, based on ONS mid-year population estimates from 2019, is 828,200 and 332,900 respectively. The table below provides the population break down in terms of age groups. Older people (65+) represent over 20% of the Nottinghamshire population, and over 10% of the Nottingham City population. Despite Nottingham City's young age-structure, Nottingham has a higher than average rate of people with a limiting long-term illness or

disability (Nottingham Insight 2020). The ‘People of Nottinghamshire’ report (McCormick *et al.* 2017) anticipates that ‘increasingly, older people in Nottinghamshire will live alone (increasing by 21% between 2017 and 2026).’

Table 1. Nottinghamshire and Nottingham City population (ONS 2019).

	Nottinghamshire	Nottingham City
Children (0-17)	167,600	69,100
Working population (18-64)	487,400	231,600
Older people (65+)	173,300	38,800
Total population	828,200	332,900

4.2 Safe and Well Visits

People’s vulnerability to fire increases as they age and increases even further by living alone. NFRS offer targeted SWVs, which provide information on a number of factors that may increase vulnerability to fire or injury. These include ‘smoking cessation, alcohol addiction, falls prevention and keeping warm during winter, in addition to fire safety advice’ (NFRS 2020a, p. 12).

Over the three years to March 2020, NFRS delivered over 15,000 traditional HFSC and SWVs (Table 2). For several years, HFSC have also delivered fire safety messages. More recently, NFRS has moved away from the HFSC and the service began delivery of more expanded checks, through SWVs. The Prevention Team and Wholetime Crews (WDS) started conducting SWVs in August 2018 and the On-Call crews began in October 2018. The delivery of HFSC ended in October 2018, since when NFRS has only delivered SWVs. The Strategic Plan sets a target for the service to increase their number of SWVs each year, and by 2022, to deliver 12,000 visits per year (NFRS 2020a, p.12).

Table 2. Home Safety Checks/Safe and Well Visits numbers (NFRS 2020b).

	2017/2018		2018/2019		2019/2020	
Home Safety Checks/Safe and Well Visits	3784		4219		7752	
Wholetime Crews (WDS)	2636	69.7%	3192	75.7%	5270	68%
On-Call	26	0.7%	338	8.0%	1441	19%
Prevention	1122	29.7%	689	16.3%	1041	13%
Total	3784	100%	4219	100%	7752	100%
Low Risk (after NFRS intervention)	2080	55.0%	2522	59.8%	4520	58%
Medium Risk (after NFRS intervention)	908	24.0%	807	19.1%	1924	25%

NFRS identify vulnerable people using the CHARLIE Profile, applied to the following:

- Referrals from partner organisations,
- Referrals from members of the public, and
- Direct Engagements.

4.2.1 CHARLIE Profile

Nottinghamshire FRS’s intelligence-led CHARLIE profile (which stands for Care and support, Hoarding, Alcohol, Reduced mobility, lives alone, Inappropriate smoking, Elderly) identifies the main

contributory factors that increase a person's risk from a fire in the home. CHARLIE evaluates and 'scores' vulnerable people and circumstances against the criteria shown in Figure 1 below.

Anyone scoring above 20 on this Matrix (i.e. Medium or High Risk) receives a SWV from NFRS (under 20 – Low Risk, 21-34 – Medium Risk, 35+ High Risk). The CHARLIE profile was developed using data from 5-years of serious/fatal fire incidents in Nottinghamshire.

The service uses this profile to raise awareness with partners and refine their use of data to generate targeted SWVs. NFRS regularly re-assesses the CHARLIE profile to ensure it remains relevant. At the time of reporting, a revised matrix is anticipated in the immediate term. If the following are not already under consideration, they should be reviewed as part of this ongoing process.

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 1. CHARLIE P Matrix (NFRS 2020c).

4.2.2 Partner organisations

The majority of people at increased risk of fire are identified by partner organisations and subsequently referred to NFRS. Partner organisations also use the NFRS CHARLIE profile matrix to undertake a risk assessment of the people they come across. Partners identify referrals after having contact with them and identify a fire risk based on the training NFRS have provided on the CHARLIE profile.

According to the inspection report, partnership working has had a positive effect on the scope of home fire safety visits.

“Nottinghamshire FRS works well with partner organisations, including local authorities and the health service. This has had a positive effect – for example, through close working with health professionals, the service has increased the scope of home fire safety visits. These now follow a safe and well checks model, which includes: identifying potential fire risks; taking action to reduce fire risks; ensuring working smoke alarms are fitted; advising on social welfare; advising on avoiding slips, trips and falls; and advising on other measures such as fire-retardant bedding.”

(HMICFRS 2019, p. 11)

4.2.3 Referrals from members of the public

NFRS also receives referrals from members of the public for themselves, friends and families.

“If you feel you are unable to assess the risks in your own home, or one of your friends, family or neighbours is potentially vulnerable, we may be able to organise a home visit. Safe and Well visits take approximately an hour and involve firefighters, or members of our Prevention team, visiting your home to offer advice on how to make your home safer and what to do if you're trapped by fire.”

(NFRS 2020d)

These are sifted using the CHARLIE profile to determine a risk level (with only those deemed to be Medium or High risk receiving a visit). Following the HMICFRS inspection, a target was established for 80% of visits to be at least at Medium risk. At the time of reporting this has been met and for last 3 quarters up to the end of December 2020.

4.2.4 Direct Engagements (Data-led process)

Finally, NFRS identify vulnerable persons themselves via the ‘data-led’ process. The service uses the following data sets for this process (NFRS 2019):

- Exeter Data – the list of all people over the age of 65 living in Nottinghamshire who are registered with a GP.
- Mosaic - Experian's system for highlighting UK consumer groups, reflecting the latest consumer and societal trends. Over 850 million pieces of information across 450 different data points are condensed to identify 15 summary groups and 66 detailed types that are easy to interpret and understand (This is in the process of being reviewed by NFRS as new MOSAIC fields and categorizations have recently been released)
- Indices of Multiple Deprivation – The ONS official measure of relative deprivation for small areas in England. Ranks every small area in England.
- Previous Dwelling Fire – as this influences the likelihood of recurrence.
- Attendance Time – If it takes an appliance longer to get to a property from base station, the score is increased as the incident is more likely to have intensified.

4.3 Identifying vulnerabilities - recommendations

From the fire service perspective, all people are at least at some risk of fire, but some individuals tend to be regarded as at higher risk of harm or death from fire and from other emergencies. NFRS

acknowledge this fact by providing a variety of prevention programmes targeted at the most vulnerable.

“Through the continued delivery of Safe and Well Checks, education programmes, community events and our work alongside our partner agencies to target the most vulnerable, we ensure that our safety messages are far-reaching, raise awareness of every day risks and help to keep our citizens safe.”

(NFRS 2020a, p. 12)

As part of the CHARLIE profile, NFRS already prioritises individuals with care and support needs, living alone, the elderly, those with reduced mobility, those with alcohol, smoking, and hoarding problems, and those who have had incidents when preparing food and those who do not understand the danger of using electricity. The profile also includes those that have already experienced previous fires.

Research has indicated that there are certain factors related to the individual that can be associated with house fire incidents. NFRS apply the majority of those factors in their CHARLIE profile. However, it is important for NFRS to regularly review and revise their risk matrix to reflect changing patterns of fire risk.

Based on the latest research, we **recommend increased priority** be considered for the elderly, particularly with known alcohol issues: the disabled and those with mental health and neurological conditions. We also recommend NFRS reconsider the priority on smoking and alcohol consumption (under 65s). This should be done by adding the following data and information to the CHARLIE matrix (if it has not already been considered):

- long-term health problems (UK Census, ONS),
- disability (UK Census, ONS),
- mental health data from NHS Digital (<https://digital.nhs.uk/>).

This would help NFRS to create a comprehensive vulnerability profile based on risk levels that could help identify individuals who require FRS intervention.

In addition, NFRS should **examine the patterns across fire fatalities** victims and fire injuries at home in Nottinghamshire. This would provide additional insights into the fire victims’ demographic profiling across Nottinghamshire that NFRS could use in their CHARLIE profile.

We understand that NFRS rely heavily on **referrals from their partners**. The evidence from the HMICFRS inspections shows that NFRS works well with partner organisations, which has enabled NFRS to widen the scope of the SWVs, but we still recommend further work with partners to identify vulnerable people.

From their fieldwork in 2019, HMICFRS (2019) found that some referrals from partner organisations did not meet the NFRS’s targeting profile. This is because NFRS were only recording post intervention risk levels at a time, as there was no pre risk assessment. This has been changed since the inspection and in the first three quarters of 2020/21, partner referrals of at least medium risk were recorded at 82%, 80% and 80% respectively against the 80% target. This is because partner referrals are now quality assured through monitoring of the CHARLIE Matrix risk assessment score providing by the referrer (the pre) compared to the one NFRS complete after their intervention (the post).

The introduction of **proactive direct engagement**, where NFRS identify and target vulnerable people without referral, has removed the over-reliance on public/partner referral. To date this has identified sufficient numbers of SWVs for all delivery teams to meet the current services targets. However, for

direct engagements via the data-led process, NFRS do not have a risk rating pre-intervention so it is more difficult to prove that the 80% target is being met.

Additional, quality assurance measures implemented since the inspection include

- a Quality Assurance Manager accompanying every delivery team at least once per year to audit their delivery.
- 10% of all SWVs are 'dip-sampled' to assure the appropriateness of the outcomes, recording and onward referrals.
- A High-Risk Review Group has also been established to ensure that all possible multi-agency steps have been taken to lower the risk of the most vulnerable.

This shows that NFRS have revised and consequently implemented performance management and quality assurance arrangements since the HMICFRS inspection.

Performance against current objectives and targets has recently improved as a result. Since 2019/20, NFRS have recorded 7.12 visits per 1,000 population. This is below the 2019/20 national average of 10.9 (HMICFRS 2020), however, it has been a significant improvement.

At the time when HMICFRS carried out their inspection, there were no targets in place for SWVs completion by delivery teams and their performance was not being managed in this way. Since 2019/20, all Delivery Teams have had completion targets that are regularly evaluated. NFRS consider that targets for 2021/22 will result in more than 12,000 SWV completed, which will mean NFRS being above the 2019/20 national average. Using mid 2019 population estimates, 12,000 SWVs in 2021/22 would equate to approximately 10.34 per 1000 population.

NFRS anticipate HMICFRS will assess the service in terms of the national average in their forthcoming inspections. NFRS consider their current performance as being above the performance of fire services classified as 'predominantly urban'¹ by DEFR. The 2019/20 average for this group is 5.2 per 1000. Therefore, NFRS's ambition to complete 12,000 by 2022 will nearly double this average for FRs in this group of services.

NFRS uses 'predominantly urban' group as the benchmarking group as set by the HMICFRS. In the circumstances, the service cannot be criticised for adopting this model. We would however recommend NFRS also use additional benchmarks such as the CIPFA Nearest Neighbour Model to identify the most appropriate authorities to benchmark against. Once the 2021 Census data becomes available and/or more rounded evaluation is established, we would recommend revisiting the current targets.

HMICFRS referred to **big variations between stations** in the NFRS inspection report. The main reason for variation was the different appetite for community safety work amongst response crews. In addition, at that time, NFRS were reactive rather than proactive on this issue and relied solely on partner and public referrals, so if a delivery team was based in a district that did not receive significant numbers of referrals, they did not have SWV work to complete. Furthermore, as mentioned above there were no targets in place for SWV at the time.

¹ This classification is defined by the Department for Environment, Food and Rural Affairs, which assigns authorities to one of three categories: Predominantly Rural, Significant Rural and Predominantly Urban. Predominantly urban services include Avon, Berkshire, Cleveland, Greater London, Greater Manchester, Hampshire, Hertfordshire, Lancashire, Merseyside, Nottinghamshire, South Yorkshire, Surrey, Tyne and Wear, West Midlands, and West Yorkshire.

Since 2019/20, targets have been set for all stations based on delivery team type (i.e. 1 pump, 2 pump, Day Duty, Technical Rescue and On-Call). This has standardised expectations and performance management in relation to target attainment and has significantly reduced the variations previously reported by HMICFRS.

In 2020/21, SWVs have been focused on people that are 65+ (51.89% visits), disabled (47.57% visits), and of white ethnic background (92.2% visits). The remaining 7.8% visits targeted other ethnic groups, which demonstrate an imbalance between ethnic groups, which needs to be addressed in future NFRS's SWVs delivery.

HMICFRS in their reports refer to 'hidden' as well as hard to reach groups. They regularly cite as examples of the former for investigation unscrupulous private landlords and overcrowded dwellings. The most appropriate sources of public and official information in relation to both of these groups is likely to be the housing services departments of the city and district councils. These services should be consulted, and the numbers and distribution of those affected in Nottingham and Nottinghamshire included within future analysis to inform service deployment.

Similarly, immigrants, asylum seekers, and long stay prison releases are examples of potentially (future) vulnerable people that may resort to the area. If NFRS is not already doing so, the Notts and Nottingham Refugee Forum should be consulted on the former and Nacro (National Association for the Care and Resettlement of Offenders) on the latter with a view to adding their information to the process.

The evaluation of NFRS's tools used to identify vulnerabilities demonstrates that the services have revised and consequently implemented HMICFRS recommendations. We further advise NFRS to update and refine the CHARLIE model to make best use of available databases, the risk profiles and the objectives and targets based on reviewed literature on vulnerabilities. This will enable NFRS to demonstrate how it is working proactively on SWV agenda, both as an organisation and with partners.

5 A Cost Effectiveness Analysis

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) found 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 the effectiveness of Safe and Well Visits. 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) found 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. As a result, NFCC are currently investigating the economic and social cost of the UK FRS as a project within its' Community Risk Programme (Hewitt and Bierman 2020). However, at the local

service level we looked at the tools and techniques potentially available for looking at both the economic and social costs of a local services programme of visits.

Working Paper 1 presented a review of some established tools and techniques for evaluating policy and delivery initiatives in public sector organizations, together with their individual strengths and the types of circumstances, where each of the techniques have been consider the most appropriate.

The tools and techniques included

- Cost Benefit Analysis.
- Cost Effectiveness Analysis.
- Financial Returns on Investment, and
- Social Returns on Investment (SROI).

It also investigated the way other parts of the UK government (primarily the NHS and Her Majesty's Treasury) have attempted to quantitatively assess (or monetarise) loss of life, serious injury and/or longevity of life, as result of policy actions in order to compare alternative clinical, medical and social interventions.

It initially appeared to both NFRS and the authors that a 'Social Return on Investment' model could potentially be the most fertile approach and the most appropriate for meeting the objectives and capturing the full costs and benefits of SWVs.

Unfortunately, when this approach was modelled and 'tested,' long standing and outstanding issues relating to the quality and availability of data within the sector at both national and local levels, together with the availability and agreement on a number of key assumptions necessary for the creation of a SROI model (with acknowledged limitations) were not available and could not be created in the practical timescale of the research. In these circumstances, NFRS adopted the BATNEEC principle of using the 'Best Available Technique Not Entailing Excessive Cost' for practical purposes and commissioned a Cost Effectiveness Analysis.

The modelling and testing undertaken for a potential SROI did however indicate that in a more appropriate and sophisticated data and evidential environment, a more appropriate SROI model was feasible, although it would be most appropriately conducted across a group of fire and rescue services or the sector as a whole rather than focussing on a single service.

The Cost Effectiveness analysis subsequently undertaken used data on SWVs from 12 consecutive months between 2019 and 2020. The assessment did not include data from the time of the outbreak of the COVID-19 pandemic. It compared the costs and benefits of using wholetime, on-call and specialist prevention staff using national standards and rates (Table 3), although the costs are not completely comparable as the prevention specialists unsurprisingly were allocated visits which were anticipated as being the most challenging and/or the most complex. Nevertheless, and notwithstanding the much longer average duration of the visits undertaken by prevention team, these were by far the cost-effective form of visits. The most resource intensive visits were those undertaken by the response delivery team when they consisted of 5 members of staff and a fire appliance.

Table 3. Cost of SWVs in 2019/2020 with break down on the staffing model (NFRS 2021).

	No of SWVs in 2019/20	Average cost per visit
Response Delivery Team	6,715	£124.62
Prevention Team		
- Firefighters	258	£38.06
- Crew Manager	71	£25.07
- Watch Manager	3	£16.81
- Specialist Home Safety Operative	661	£36.60
- Various Members	48	N/A

It was however clear that FRSs generally, as well as NFRS, need to optimise staff deployment according to the nature and amount of resources available to them and the size and case mix that is anticipated for Safe and Well Visits. Clearly this is also likely to vary within and between FRSs according to the demography and geography of a service's area.

6 Conclusions

At the end of the study period, the number of visits being undertaken by NFRS was higher than at the time of the inspection visits, when the number and management of the checks and the inadequacy of evaluation was highlighted by HMICFRS (2019), although it was still below the national average.

The research revealed potential improvements to both the process and the implementation of Safe and Well Visits that would help increase the economy, efficiency, and effectiveness of the service. These are articulated in both the working papers and in this final report.

Prevention activity and the nature and scope of the SWVs is a dynamic and developing area for all FRS. It will therefore require regular monitoring and periodic review to understand how prevention activities can be more focused if services continue to invest significant resource and seek value for public money in their commissioning.

SWVs are more complex in terms of their impact than previous home fire safety checks because they seek to influence the activities of a wider number of service providers rather than just FRS. This suggests increasing importance of collaborative working in both identifying and addressing vulnerabilities. NFRS and FRS generally need to be aware of the definitions and interpretations that key local strategic partners are using and any changes in the definition of vulnerable groups by strategic partners.

Changing demographics, and particularly anticipated increases in the over 65 populations, within both Nottingham and Nottinghamshire, mean that NFRS is likely to have to reprofile and target SWVs as changes become evident. This need will increase in importance if central government continues to reduce medium and long-term term support to public services after the funding for pandemic response ends. It is also likely that there will be lessons to be learned and assimilated from additional duties undertaken during the COVID-19 Pandemic.

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