

# Delivery of an indoor air quality campaign in social housing: Learning about delivery (briefing 1)

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## Key points from this briefing

- This briefing reports on a 12-month campaign to improve the air quality of more than 200 homes in the Cheshire and Merseyside region (Liverpool, St Helens, Warrington). Its aim was to improve respiratory health for young children (under 11 years) living in social housing.
- Beyond: Cheshire and Merseyside ICB Children and Young People's Transformation programme funded the campaign and its evaluation. Torus Housing Group (Assets) provided match funding to secure additional monitors. Torus Foundation (the charitable part of Torus) delivered the campaign through its Healthy Neighbours project.
- By in large the campaign was able to deliver its aims, through the rollout of monitors in around 200 homes and follow ups completed with around two thirds of participating households.
- Initial recruitment to the campaign was slow but by widening the criteria for inclusion (from families with children or a child aged 0-5 to under 11 years of age) this facilitated greater uptake among tenants. Initial delays to recruitment did create some subsequent time pressures, narrowing the timeframe to deliver follow up advice and support.
- A community-based approach to recruitment encouraged uptake and interest (through the campaign's situation within a Healthy Neighbours project) using a combination of leafleting, door knocking, community events/spaces and word of mouth.
- Torus Foundation staff as well as the commitment of the Healthy Neighbour coordinators played a key role in the campaign's successful delivery.
- Providing support and training was important in building confidence and knowledge because some staff and volunteers felt uncertain about their own understanding of IAQ and ability to communicate this to tenants.
- Learning from the campaign is also reported to have heightened awareness of IAQ at a senior and strategic level within the housing provider where the campaign was delivered, attracting interest from social housing providers and public health teams elsewhere.

## Background

Poor air quality has been highlighted as the world's greatest environmental health risk (1), linked with several short- and long-term health consequences. These include impacts on lung development in children, heart disease, strokes, cancer, and asthma (2). In the UK, between 28,000 and 36,000 deaths a year are estimated to be associated with poor air quality (3). However, these figures are based primarily on outdoor air pollution, despite the average person in the UK spending ~90% of their time indoors (4), where the brunt of these exposures occur. Additional to outdoor air pollution coming indoors, there are a range of other sources of poor indoor air quality (IAQ) including emissions from cleaning products, building materials, cooking and heating, and tobacco products. Moreover, poor building conditions can exacerbate IAQ through high humidity leading to damp, condensation, and mould (5).

The challenges and opportunities of improving IAQ are particularly prescient at the moment owing to a series of high-profile reports in 2022, including from the UK Government's Air Quality Expert Group (6), and explicit mentions in the Chief Medical Officer's Annual Report on Air Pollution (2). Public and political attention is also exemplified through media and government focus following the death of a toddler, Awaab Ishak, caused by mould exposure in his family's social housing (7).

## The Indoor Air Quality campaign

This briefing reports on a campaign to improve indoor air quality (IAQ) in social housing, which was delivered across Liverpool, St Helens and Warrington in Cheshire and Merseyside. The campaign's aim was to improve respiratory health for young children living in social housing through the use of digital technology. Beyond: Cheshire and Merseyside ICB Children and Young People's Transformation programme funded the campaign and its evaluation. Torus Housing Group (Assets) provided match funding to secure additional monitors. Torus Foundation (the charitable part of Torus) delivered the campaign through its Healthy Neighbours project.

To qualify for a free monitor, a tenant needed to:

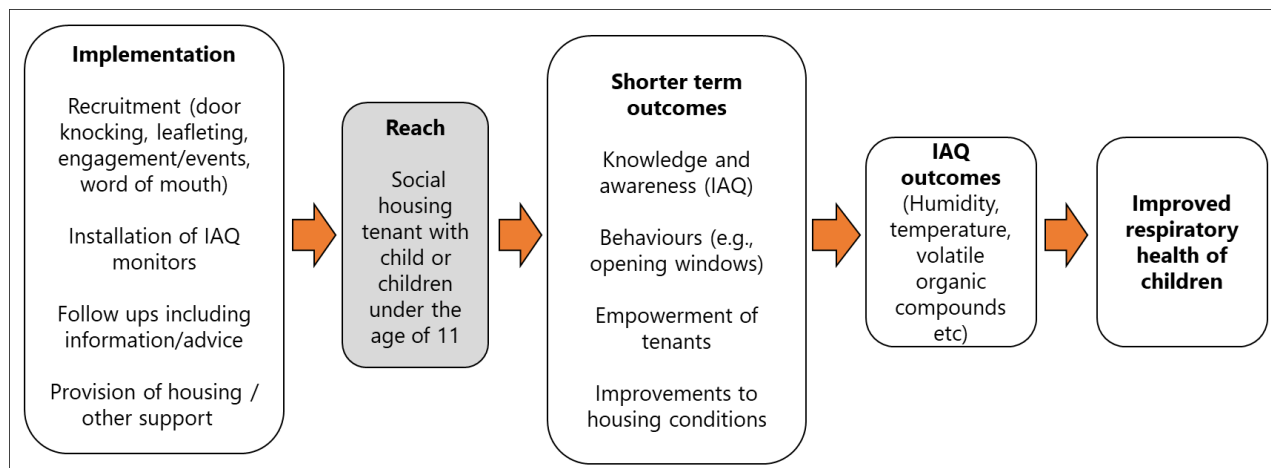
- Be a Torus housing customer
- Have a child or children under the age of 11 (initially under 5 years then extended)
- Live in one of the specific areas under the pilot scheme.

Where families expressed interest in taking part, they were offered smart IAQ monitors to detect the levels of humidity, temperature, volatile organic compounds and ambient pollutants. Following the identification of eligible families, the campaign involved the following stages: (i) recruitment and engagement (ii) installation of monitors (iii) follow up visits/contacts involving the provision of advice/information and or support from housing or other providers. Figure 1 provides an overview of the campaign's delivery and its intended outcomes.

Staff and volunteers from the Torus Foundation and its Healthy Neighbours project were closely involved with the campaign's delivery, on hand to promote uptake, support the set-up of devices, maintain engagement and troubleshoot. The Healthy Neighbours project is delivered across Torus neighbourhoods in Liverpool, St Helens and Warrington, commissioning local organisations to help

to deliver targeted activities to tackle local health issues. Each area has a dedicated volunteer - coordinator and volunteers who are helping to encourage community members to take part in a range of activities.

*Figure 1: Indoor air quality campaign logic model*



## About the evaluation

In 2022, Lancaster University and NAQTS (National Air Quality Testing Services Ltd.) were commissioned to deliver an evaluation of the campaign. The evaluation used mixed methods.

- Monitor data was shared with NAQTS who analysed this to understand IAQ in households at the start of the campaign, and to assess IAQ changes following their installation.
- Interviews were held with Healthy Neighbour and Torus Foundation staff involved with delivery of the campaign (n=6 staff members).
- Telephone interviews with social housing tenants who had installed monitors (n=7 tenants).
- Two focus groups with tenants, Healthy Neighbour and Torus Foundation staff (17 tenants and staff).

This is one of a series of briefings reporting the evaluation's findings. In this briefing we focus on learning about the campaign's implementation including professional perspectives on its purpose, key stages of delivery (e.g., recruitment, installations and follow up), support and training as well as its legacy.

## What did we find?

### Purpose of the campaign

Those interviewed believed that the campaign had most potential to benefit families with children living with existing respiratory conditions but could also help reduce the possibility of developing these conditions in the first place.

*What we recognise is that respiratory health is really significant in children under 5 and indoor air quality and clean air have some massive effect on that and can obviously make respiratory symptoms a lot worse. [IAQ Professional Participant 2]*

While poor indoor air quality (IAQ) could affect anyone, tenants living in social housing and people living in more disadvantaged circumstances were perceived to be at greater risk, as this professional participant explained:

*We know, for example, ... for people living in a lot of our properties. They might have behaviours which are contributing to poor indoor air quality, so they might be drying clothes indoors because they can't afford to run a dryer or they may not have a dryer or they may not have access to outdoor space to dry clothes outside, so we know that a lot of the people living in our properties are also impacted by some of those wider inequalities. [IAQ Professional Participant 1]*

Those interviewed explained that to achieve the campaign's purpose, it was important to increase tenants' awareness of IAQ but that housing issues such as maintenance and repair problems also needed to be considered as well. In the longer term, one interviewee suggested that learning gathered from the campaign could offer useful insights about the ways in which different property types affected IAQ.

*So what we anticipate is that ... when we look into the data that [show] certain properties or certain areas [are] more susceptible to poor indoor air or lower temperatures or more prevalence of damp condensation and mould etcetera...through this project, it might help to support future development of plans [IAQ Professional Participant 2]*

### Targeting and reach

At the start of the campaign, the aim was to identify 200 families with children aged 0-5 living within three of seven localities where Torus provided and managed social housing and where the Torus Foundation's Healthy Neighbours project was located. In the first instance, the organisation's assets team provided 'business intelligence' to help identify households meeting the eligibility criteria. Healthy Neighbour staff were then given access to this information; their volunteer coordinators and resident volunteers also used their local knowledge to initiate engagement with eligible tenants.

*We have the data that was compiled by Torus Foundation that was given to us, which the campaign was initially looking for, the children under the age of five [IAQ Professional Participant 4]*

Due to a relatively slow uptake with the campaign, with only a handful of tenants coming forward initially (see recruitment below), the eligibility criteria were expanded in two ways. Firstly, this was done on a geographical basis to include all seven localities coming under the Healthy Neighbours project. Secondly the age range was widened to include families with children or a child up to 11 years of age. Interview participants, particularly local volunteer coordinators, reported this to have a positive effect on recruitment.

*They're obviously allowing us now to give it to further [households] which made it a bit easier really because I was coming across families that didn't live in Neighbourhood 1 or Neighbourhood 2 and that was quite a bit frustrating...I mean they were Torus tenants but they didn't live in the area. But yeah, now we've been able to give them out to surrounding areas. It's made it a lot easier. [IAQ Professional Participant 3]*

## Recruitment and engagement

A range of approaches were adopted to involve families from leafleting and door knocking to community events to 'word of mouth' in the community. Each of these approaches are outlined below; in reality, recruitment in a locality often involved a range of approaches to encourage families to sign up to the campaign.

### *Leafleting and door knocking*

As outlined above, initially recruitment was highly targeted. This involved the distribution of promotional materials through leafleting. However, those leading the campaign felt this approach was having limited success, leading to a more face-to-face approach.

*Now in all honesty, you know leaflet dropping, didn't potentially give us as much uptake as we initially expected ...so we had to then look at that and say actually you know this is a really important offer.... leaflet drops haven't worked, so we then ... turned to door knocking [IAQ Professional Participant 2]*

The introduction of door knocking was described as 'a lot more positive' offering the opportunity to engage tenants in a conversation. These conversations helped to explain what the campaign was about but also allowed tenants to ask questions about the monitors specifically, allaying anxieties or suspicions. Overall, door knocking was viewed positively, although one worker described this approach as 'quite challenging' in their locality. This was due to a perceived lack of social cohesion and trust in the neighbourhood as well as language barriers where many tenants did not have English as a first language.

### *Community events and spaces*

Both Healthy Neighbour organisations and Torus Foundation health promotion officers were closely involved in delivering the campaign. The campaign was perceived to benefit from this

involvement because these individuals and organisations had established 'strong links' across local communities. In particular, their local knowledge was described as 'a real advantage', enabling more informal conversations struck up with local families or a more tailored approach to recruitment to be taken.

Those involved on the ground described working proactively to identify relevant families and encourage their engagement via community events and spaces. This included engagement at coffee mornings, toddler groups and nurseries, children's centres, libraries, community events, litter picks, warm hubs, and schools as well as social media.

*I've active actively, got took part in everything from trying to find the families that the criteria fits, so I've been out to school. I've been to community centres ... nurseries, children's centres, libraries, trying to basically locate these families that these monitors could benefit [IAQ Professional Participant]*

Finally, even more so than door knocking, taking the campaign to community events and spaces was also seen to offer a more relaxed and less time pressured way of having a conversation about the campaign.

*we have a warm hub that we actually have within the Community centre. So we invited them into here and literally just sat down and explained each stage to them 'This is the device. This is what it does...' [IAQ Professional Participant 3]*

## Installation of monitors

Once a household agreed to have a monitor, the monitor and hub was then installed in the home. At this point, tenants were provided with general information about the campaign and the monitors, but no information or advice was given specifically about IAQ. Instead, tenants were asked to complete a questionnaire to capture baseline data on family and property information, and whether children in the home had recently been off school/ seen a healthcare professional for a respiratory condition.

In practice, the practical installation of monitors and hubs varied between organisations and individuals. This volunteer coordinator decided to do the installations themselves by going into the home.

*Yeah, it's it's lovely. Very welcoming. I help plug it, you know, help set it up for them and then we go through, there's a couple of questionnaires that Torus Foundation have linked us to, so doing the initial questionnaire with them when I first set it up, [IAQ Professional Participant 3]*

More commonly though, the pre-programmed devices and installation instructions were handed over on the tenant's doorstep, or in a local community venue. This was partly linked to Covid-19 restrictions or safeguarding considerations; one evaluation participant also cited not wanting to intrude on tenants' private space.

*I think that's a barrier that some people, obviously don't live in a standard as what other people would live in, and I think some people feel like, 'oh, she I don't want*



*her to come in my home' and there's 'I don't want her snooping around and looking around.'* [IAQ Professional Participant 6]

Those managing the campaign did not report that the variation in installation approaches affected the campaign's success. Support was available in the event someone needed help with installation. The only issue noted was that when tenants self-installed, there was no control as to when the equipment was plugged in and started monitoring the air quality in the home.

## Follow up and advice

At the end of the campaign, around three quarters of households with a monitor (n=148) had received at least one follow up contact. Follow ups involved a combination of face-to-face visits and/or contact by telephone where in-person follow ups could not be arranged. At these follow ups, families received a report of their monitor's data detailing key measurements. Where the monitor data highlighted areas of concern, families received tailored information and advice. This included a tip sheet with accessible information about how to make improvements to IAQ.

Where the reports flagged up alerts, the follow ups were also used to try and pinpoint the causes, with a view to identifying actions and solutions.

*And then it's only when I can go back and go through it with the family and then sort of give them some advice on how do you bring certain, if it's a high level, how do you bring it down. Hints and tips we have and just to relieve any anxieties that the family may have really.* [IAQ Professional Participant 3]

Even if the report did not create any cause for concern with the IAQ in the home seemingly good, the follow up was still conducted. In these situations families had the option of retaining the monitor and were given a QR Code to self-monitor IAQ levels should they wish to.

Those managing the campaign reflected how it had been necessary to adapt the timeframe for follow ups due to the campaign's initial slow start. The original plan had been to conduct a follow up visit two weeks after installation. However, because it took longer than anticipated to recruit tenants, this had had a knock on effect on the time available for follow ups.

*So the initial plan was to have the two week turnaround for follow ups and then ideally going back to see them in person and things like that. But then...what it meant is that the time was focused on installation...we just had to adapt the pathway really along the way to make sure that first of all, we got the monitors out and second that everyone had the opportunity to have at least one follow up.* [IAQ Professional Participant 2]

A further challenge was the amount of time available for a follow up visit when dealing with busy households. This could impact on how much information could realistically be conveyed and discussed, 'so you know it's trying to get through as much as you can to support [tenants].'

## Housing and other support

As detailed earlier, it was recognised that addressing IAQ may require intervention to improve housing conditions, as well as tenants changing their behaviours around the home. Though the installation of monitors, there is evidence that this led to intervention to address housing issues.

*So there's kind of a number of property concerns or repairs that we've identified through the work, going in speak to families, naturally by having conversations around air quality. it's 13 in particular, which were significant cases that we kind of reported through and support was given as a result of that. [IAQ Professional Participant 2]*

Where issues were identified, the aim was to put in place a plan of action, as this coordinator explained, in relation to mould identified in one property:

*we've been able to direct him down the right route of who he needs to go to, who needs to report and he has actually got an assessment coming out this Thursday, actually to speak to him. So I think what's happening on the back of the monitors and those doing those reviews is really starting to highlight areas [IAQ Professional Interview 4]*

## Low temperatures

As the campaign was situated as part of a wider Healthy Neighbours project, this offered the opportunity to take a more holistic approach. Throughout the campaign, a growing concern related to low temperatures in the home linked to the fuel/cost of living crisis. In reality (as briefing 2 outlines), the issue of temperature was in fact more complex, with the evaluation finding issues with over-heating as well as under-heating of homes. Below, we summarise concerns raised in interviews about the effects of low temperatures.

Several professionals interviewed drew attention to low temperatures in some homes, perceived to reflect the cost-of-living crisis that many tenants were facing.

*when I then spoke to one family, for example, he basically had said that because the children are out at school, he doesn't have it have the heating on in the daytime. He just puts it on in the morning for an hour and then a couple of hours at night when the children are home. [IAQ Professional Interview 6]*

*I think the dampness that's showing throughout the households because people are being very, very cautious obviously with energy at the moment... they're seeing the condensations on the windows because they are finding that it's a lot, lot colder indoors ...one of the families, actually over the real cold period... she actually had ice on the inside of the windows [IAQ Professional Interview 4]*

In responding to this, the follow ups were described as means of having a 'conversation starter' about people's situations and what support may be available.

*You know, unless that tenant was to tell us that they were struggling ... generally a conversation around temperature could be quite a difficult conversation generally, but I think because of the monitors and it's measuring temperature and its got it on the reports...it's an easier conversation starter ...So as a result of that again, you know we can with that kind of financial support, whether that's through referrals to internal finance teams ..., or you know, ... the [community] hubs [IAQ Professional Interview 2]*

## Support and training

For those involved in delivering the campaign, IAQ was reported to be 'as new as it was for tenants was as new as it was for ourselves and the delivery guys'. The initial training offered by the company providing the monitors was therefore appreciated.

*Air things have been brilliant. The training on the online training that we got...because for me if I'm gonna give something to somebody else, I need to understand it 100% myself. I'm that sort of person. I can't just give it to somebody and not really know what I'm doing. [IAQ professional interview 2]*

On an ongoing basis, the support received from Torus Foundation's programme managers was also highly valued throughout the campaign. As well as offering training (described below) this included hand-on support, shadowing opportunities or conducting follow up visits jointly.

*When Jordan was going through it with me, and obviously all the different terminology and things like that, I was just like 'oh wow like I don't want to go out here and say something wrong or incorrect', so I did feel a little bit out of my depth with that, so ... me and [the] Programme Manager went together because I just thought I don't want to get something wrong and then somebody then be worried because I told them the wrong information.(IAQ Professional Interview 6]*

*Air things did some very initial training... but ... as we were going into that follow up stage in terms of giving reports explaining what it's all about, explaining measurements, that was the point for me where felt we needed kind of additional training and refresher training [IAQ Professional Interview 2]*

As a result, the programme manager had developed 'basic follow up training', which involved sessions to revisit the process 'to make sure they [Healthy Neighbour partner organisations] were happy with it'. The programme manager also produced a step-by-step guide for individuals to refer back to. Other resources focused on how to make IAQ 'relatable' when discussing this with tenants:

*...so this is what PM [particulate matter] is but in a household, it relates to things like dust and smoke or, you know, this is what VOC [Volatile Organic Compounds] is. But you know, as an example, it's things like cleaning products, and things like that. So lots of different resources and ongoing training and support really [IAQ Professional Interview 2]*

## Legacy of the campaign

From an organisational perspective, the campaign has also enabled learning both within and outside the organisation. In one town the campaign is said to have directly influenced a successful bid for funding for a similar project. Within Torus, the campaign is reported to have drawn attention to the potential of technology as well as increasing awareness about the relationship between housing and health.

*So that both sort of raised awareness of the project, but also really opened people's eyes to the possibility of using technology, but also looking at the issue of damp and mould through the 'lens of the customer' and its impact on respiratory health.  
[IAQ Professional Interview 1]*

Those interviewed also reported a growing interest in the campaign from public health teams and housing providers in other local authority areas.

*So I've recently had conversations with and another organisation in London who are rolling out indoor monitors, but with a specific I think more than adult cohort.  
[IAQ Professional Interview 1]*

Finally by the campaign's end, there remained a strong commitment among those involved to 'spread the word' with the hope that 'more housing associations ... take this on.'

## Conclusion

This briefing summarises key findings about the delivery of an IAQ campaign in social housing, reporting that the campaign was largely able to deliver its aspirations, through the rollout of monitors in 200 homes. Widening the criteria for inclusion and taking a community-based approach was important in encouraging uptake. Providing support and training at both the initial stages of delivery and follow up helped build staff confidence and knowledge. The input of Torus Foundation staff and commitment of Healthy Neighbour partners has been central to the campaign's successful delivery. However, this had resource implications because the campaign's delivery was found to require more time and staff input than originally anticipated. Finally, learning from the campaign has led to better awareness of housing and health issues within the housing provider, and has attracted interest from social housing providers and public health teams in other parts of the UK.

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