Early Detection of Lung Cancer

Overview

Doncaster PCT’s Early Detection of Lung Cancer intervention aimed to increase early detection of the disease in the area, by increasing the number of people with potential symptoms (namely a cough that lasts more than three weeks) presenting to their GP.

The project was piloted in six deprived communities in the city and featured two elements:

1. ‘Push’ – A public awareness campaign to raise awareness of the symptoms of lung cancer and the benefits of early detection, and encourage the target population to request an x-ray from their GP
2. ‘Pull’ – Preparing healthcare professionals for the initiative by sharing insights, providing training and supporting capacity management in GP surgeries

2009 results:

- Increased intention to act (visit their GP) if people had a bad cough, from 82 per cent to 87 per cent
- Increase in number of people who would visit their GP and ask for a chest x-ray, from 54 per cent to 67 per cent
- Targeted practices increased their chest x-ray referral rates by 22 per cent
- Percentage of lung cancers diagnosed early (Stage 1 or 2) increased from 21 per cent pre-campaign to 23 per cent post-campaign
Background and policy context

Lung cancer is the most common cancer in the world, with 1.61 million new cases annually. In the UK it is the second most common form of cancer and more than 40,806 new cases were diagnosed in 2008. National statistics show the disease to be strongly associated with social deprivation, with a greater incidence in both males and females from the most disadvantaged areas of the country.

According to the 2007 Indices of Deprivation, Doncaster is ranked 41st (using an average score) amongst the most deprived of the 354 local authorities (LAs) in England. Unemployment is higher in the area than the national average and educational attainment lower.

The people of Doncaster also experience higher death rates and suffer more ill health than people in most other areas of the country. In particular, Doncaster has a high mortality rate from cancer and chronic lung disease.

The impact of lung cancer in the city is a key contributor to significant health inequalities in the area. In response to this, Yorkshire and Humber Strategic Health Authority (SHA) made addressing health inequalities a priority. This was reflected locally by the 2007 Reducing Health Inequalities: Achieving Early Impact Strategy.

The Doncaster Primary Care Trust (PCT) team were charged with the task of improving life expectancy locally. One approach was by facilitating the early detection of lung cancer through improved awareness of symptoms and service modification.

Early presentation and assessment is essential for effective lung cancer treatment, as there is a small window of opportunity where patients can be offered surgery. This is the main curative treatment and 20 to 30 per cent of patients are potentially eligible for the procedure. Unfortunately, less than half of those eligible actually receive this form of treatment in England.

The potential long-term survival rates for individuals with Stage 1 lung cancer who undergo radical surgery can be as high as 80 per cent. This is much higher than the national survival rate of 27 per cent for males and 30 per cent for females, at 1 year, and just 8 per cent at 5 years.

Doncaster PCT therefore built on work conducted by a pilot scheme in the Carcroft area of Doncaster during 2007 to produce a campaign that would encourage people to visit their GP if they had had a cough for longer than three weeks. The intervention ran with the strap-line: ‘We’re waiting, you shouldn’t’.

This project was the first of its size in the Yorkshire and Humberside region to place social marketing at the centre of the behavioural change agenda, with the full backing of high-level policy makers.

1. BEHAVIOUR

The aim of the project was to improve life expectancy and reduce health inequalities in Doncaster, by focusing on the early identification of lung cancer within the most deprived areas of the city.

The project objectives were to:

1. Raise awareness of the early symptoms of lung cancer – Specifically a cough that lasts more than three weeks
2. Significantly increase the number of people with potential symptoms presenting at prioritised GP surgeries
3. Significantly increase the number of chest x-rays undertaken in Doncaster by 20 per cent
2. SEGMENTATION

Primary audience

- Predominantly men over 50 years of age living in the most deprived areas of Doncaster
- Many were smokers, had worked in heavy industry or were unemployed, on incapacity benefit or retired

Secondary audiences

- Families of the primary audience
- Healthcare workers at the 11 practices across the target area

The key variables from the file of lung cancer deaths in the Doncaster area were age and sex. This information showed that 98.6 per cent of all lung cancer deaths came from people aged over 50 years. In addition, there was a male dominance of lung cancer deaths with roughly a 60:40 male/female split. So from this information the team deduced the primary target audience to be males, aged over 50, with a secondary target audience of females aged over 50.

Lung cancer admissions and mortalities were then mapped against deprivation and from this map it was clear that the majority of lung cancer sufferers resided in areas of deprivation, although there were clearly pockets that did not follow this pattern.

A variety of geo-demographic classifications were applied to the male over-50 data to see if the profile could be enriched. Five classification systems were used:

1. Health Acorn
2. Acorn
3. PersonixGeo
4. P2
5. OAC

These classifications were explored at group, type and sub-type level in an attempt to identify distinct target groups. Of all the classifications, PersonixGeo appeared to provide the most accurate system for locating the target with the largest percentage of lung cancer sufferers, aged over 50, from deprived areas falling into a single grouping – GR5 (Retired – Low Income). In addition, P2: People and Places indicated a strong bias towards ‘Weathered Communities’. The use of geo-demographics did not, in this instance, provide a clear cut enhancement to the core target audience.

3. CUSTOMER ORIENTATION

Extensive local and desk research was conducted to enable programme planners to understand the issue in more detail.

1. Desk review of national research findings and local data

This revealed that when the research was conducted, lung cancer was the second most common cancer in men, with more than 22,000 new cases diagnosed nationally each year. It showed that 4 out of 5 lung cancer cases occur in people aged 60 and over, leading programme managers to identify their target audience as men over 50 years of age.

www.thensmc.com
This desk research also suggested that smoking increases the chances of lung cancer. Routine and manual workers – a demographic group that matched the campaign’s primary audience – are more inclined to smoke and to ignore smoking-related health messages compared to other groups.

2. Audit of x-ray use in the local hospital (Doncaster Royal Infirmary)

This showed that most individuals diagnosed with lung cancer had not had chest x-rays for a substantial period of time before diagnosis. In fact, 65 per cent of patients had not had a single chest x-ray in the 6 to 10 years prior to diagnosis.

3. Qualitative research

Prior to this pilot, researchers from Sheffield Hallam University spoke to people who had been diagnosed with lung cancer, asking why they had not come forward earlier and how they found the diagnosis and treatment process. This highlighted a number of barriers that people experienced or perceived in their cancer journeys.

Key insights

- The most fundamental issue that needed to be addressed was the general lack of awareness around the symptoms
- The second key issue was the lack of understanding about the benefits of getting an early diagnosis and how this improves the prognosis

Other insights

- The role of raising awareness would be relevant to a broader audience than just the at-risk group. The community and family proximity in these neighbourhoods suggested that broader awareness raising would provide leverage to encourage other family members to present earlier at GPs
- There were considerable fatalistic attitudes and fear around lung cancer, as it is not a disease associated with a positive outcome or linked to positive role models
- The idea of a persistent cough was found to be too vague to prompt action. Many respondents smoked or had worked in heavy industries, such as mining, and were therefore accustomed to living with a persistent cough
- Messages highlighting issues with lung cancer could often be subsumed in a ‘stop smoking’ message, or be misconstrued as being ‘stop smoking’ messages. Smokers are highly adept at ‘screening out’ stop smoking advertising
- At-risk groups could perceive there to be a considerable social and educational differential between themselves and healthcare professionals, which meant that they did not feel able to challenge professionals when they were not getting chest x-rays and other appropriate medical responses
- Older males in particular tended to be more stoical about their health and reticent about presenting at GPs
- The small geographical area for the pilot phase meant that delivering a broad and impactful communication approach was limited. A wider roll-out would have permitted more media analysis and sophistication in communication strategy (creative solutions that could translate across different media routes relevant to the audience)
Service insights

- To ensure no ‘bottlenecks’ in capacity, radiology departments needed to forecast and anticipate an uplift in ‘demand’ for chest x-rays. GPs also needed to be made aware of this additional capacity so that they did not have concerns about overloading radiologists with new referrals.
- There may be an increase in demand for GPs’ time, as more people may present themselves based on the campaign. GPs needed to be prepared for this potential increase in caseload.

5. EXCHANGE

A range of barriers to behaviour were identified, allowing programme managers to design appropriate responses.

Men had a fatalistic attitude to lung cancer
The programme materials made the audience aware about the links between early diagnosis of cancer and higher survival rates. Local case studies were used to enable the audience to relate to ‘real life’ examples.

Patients felt unable to challenge health care professionals
The programme re-positioned the process of arranging a check-up as an easy, fuss-free way to ensure that a persistent cough was nothing serious. The following message was used on the programme’s microsite (www.3weekcough.org):

‘A chest X-ray is a quick and easy way to find out if everything is OK. It is simple to do and does not require an overnight stay in hospital. It is as straightforward as having your picture taken. And please don’t be afraid to ask about a follow-up if a chest X-ray has been done before.’

Stoicism of the target audience
The target audience was unlikely to visit the doctor with ‘just a cough’. The team tackled this in two ways:

First, information was provided about when a persistent cough should receive attention, by setting the three-week time span and listing other possible signs and symptoms:

- A cough that lasts more than three weeks
- When a cough changes over time
- Complaints that their chest feels different or becomes painful
- Coughing up spots of blood

Second, the primary audience’s families were also targeted and prompted to act by encouraging a loved-one to seek professional guidance. If someone they knew had a cough for three weeks or more, they were advised to:

- Make them go to their doctor
- Not take any excuses
- Make sure they ask about a chest x-ray, even if they have had one before

Perception that the intervention would lead to a rise in unnecessary appointments from the worried-well
The team engaged with healthcare professionals through a series of training events that were supported and delivered by people from within the SHA, including Deputy Director of Public Health Dr Rupert Suckling and local GP Dr Mark Boon. In this way, the team were able to win the support of GP staff.
Training for healthcare practitioners was structured around the need to trigger an open conversation with patients and to interpret their body language and possible barriers to voicing their concerns or asking for a chest x-ray.

A limited competition analysis was undertaken. A number of health competitors were identified, including smoking cessation messages, invitations for vascular health checks and the responsiveness of primary care services. Many people believed lung cancer to be specific to those who smoke.

Many of these competing health messages serve to make individuals less likely to respond to a call to action. Smokers said they would ‘screen out’ any health message that they associated with smoking. Similarly, non-smokers might interpret a lung cancer intervention as being aimed at increasing smoking cessation and therefore ignore it.

To address these issues, the team planned the launch of the intervention for the week after No Smoking Day (12 March 2008). This was to avoid any confusion between or association with the national no-smoking event.

The choice to use symptoms – such as a three-week cough – as the basic call to action, rather than focusing on risk behaviours such as smoking, also ensured that the programme did not alienate smokers or non-smokers.

While the PCT team used what they called a ‘service push/service pull’ model to generate behaviour change, it also featured elements of the Health Belief Model (Rosenstock, 1974).

This model seeks to explain why individuals do or do not carry out certain health-related behaviours, such as attending for screening, exercising regularly or using smoking cessation services.

It suggests that a person’s willingness to change their health behaviour is based on the following factors:

- **Perceived susceptibility** – How likely an individual thinks they are to develop a certain condition. Unless they believe they are at risk, an individual is unlikely to change their health behaviours
- **Perceived severity** – How serious the individual thinks the condition and its consequences are
- **Perceived benefits** – What benefits the individual sees in adopting the behaviour – what is in it for them?
- **Perceived barriers** – How hard the individual thinks it will be to change their behaviour and the costs involved – money, but also effort, time, inconvenience and disruption to regular routines

Two further factors were added to the model in the 1980s:

- **Perceived efficacy** – A person’s belief in his or her actual ability to make a health-related change (belief in your own ability to achieve something is key – thinking you will fail means you often will)
- **Cues to action** – External influences that might prompt an individual to adopt the
desired behaviour, such as seeing a poster, walking past a service, losing a relative to a certain condition, or being persuaded by a partner.

8. METHODS MIX

Phase One (implemented March to April 2008)

Engagement and training with health professionals

The intervention involved an initial process of preparing healthcare professionals for increased patient attendances through training, as well as preparation work for increased referral capacity within GP practices and radiology departments.

GP s in ‘hot spot’ areas received specific additional training through workshops, while NHS staff were issued a campaign pack detailing the main components and aims of the programme, the best way to assess patient body language and ways for communicating with the target audience. This engagement work was integral to the programme’s success, as without GP and healthcare staff support the necessary referrals would not have been made and an increase in early diagnosis and treatment would not have been achieved.

Frontline staff were also prepared for an increased influx of new patients and encouraged to ask patients why they had come in for a check-up and where they had seen campaign materials. This information was then used for evaluation purposes.

All other GPs in Doncaster were made aware of the programme to prepare them for anticipated increased demand. Radiology departments were also supported to forecast and anticipate extra demand for chest x-rays.

Public relations

In addition to this service preparation work, a strong PR and press element was delivered to attract the attention of the target audience. This included:

- Media launch event
- BBC and ITV local news coverage
- Local radio and press
- Features focusing on real people
- Bus sides and adshels for the bus routes through the target areas
- Beer mats for working men’s clubs and pubs
- Prescription bags handed out by pharmacists
- 48 sheet posters (billboards)
- Posters for placement in surgeries and other shared spaces
- Training packs for healthcare workers

These channels were augmented by a unique feature in the form of ‘coughing’ bus shelters.
Sound chips coughed repeatedly to draw people’s attention to the creative message.

Doncaster Rovers football club and Doncaster rugby league club also publicly endorsed the programme, while Cough Patrol hit-squads were sent out on match days to engage spectators and encourage them to present any symptoms to their GP.

**Phase Two (implemented March to April 2009)**
Alongside the interventions used for Phase One, Phase Two recruited and trained Community Champions, who were from the target audience and had ideally benefited from the intervention. These Community Champions had informed conversations about symptoms and early detection with the target audience, using word-of-mouth to reach those people who do not traditionally engage with other forms of media. This was coupled with stalls at fetes, markets and other events to further spread the message on a one-to-one basis.

The insights that came from the research carried out by Sheffield Hallam University were also vital in shaping the programme of activity.

**Evaluation and results**
The evaluation focused on responses to the core call to action: ‘If you’ve had a cough for over three weeks, ask your doctor for a chest x-ray.’

**Evaluation methods**

*Pre- and post-campaign telephone interviews with the target population*

One-hundred interviews were conducted with people in the target audience in each of the target communities. Two-hundred interviews were also conducted in a control community in Doncaster, selected for its similarities to the pilot communities. The control community did have some exposure to the broader aspects of the intervention, although not the full mix.

The surveys were designed to reveal how effective the campaign was at increasing the likelihood of the target audience to:

- Present to their doctor if they had a cough for three weeks or more
- Present to their doctor and ask for an x-ray if they had a cough for three weeks or more

*Depth interviews with patients from the target areas’ GP practices*

- **Planned methodology** – The PCT would recruit respondents from the target GP practices. These would be patients who had presented with symptoms during or since the campaign. Depth interviews were planned to explore their experiences prior to presenting, through to their visit to the doctor and beyond.
- **Actual methodology** – Of the patients recruited from the target areas, 150 respondents were called and only 2 fitted
the description of the target audience (i.e. had visited their GP with a cough since the campaign began). Unfortunately, neither were registered with the practices in the target area. Due to the change in methodology the findings from the depth interviews were limited.

**Analysis of hard data from GP practices**

Data was requested from the GP surgeries involved, as well as from a surgery in the control area. The time period specified was designed to enable the team to look at month-on-month trends and make comparisons between 2007, 2008 and 2009. The data requested was:

- Numbers presenting with potential symptoms of lung cancer
- Numbers of the above receiving a chest x-ray
- Number of lung cancer diagnoses

**Phase One results**

- Post-campaign results showed an increased intention to act (visit their GP) if people had a bad cough, rising from 93 per cent to 97 per cent
- The number of people who would ask for a chest x-ray when visiting the GP with a ‘bad’ cough increased from 64 per cent to 76 per cent
- The intervention had a greater impact on smokers and ex-smokers than non-smokers
- Comparing the 6 weeks before and during the campaign, chest x-ray referrals increased by 9 per cent in non-targeted practices and by 27 per cent in targeted practices
- A comparison of the 6 weeks during the campaign with the same 6 weeks of the previous year showed an increase in chest x-ray referrals of 40 per cent across Doncaster
- Those who were interviewed described positive experiences in that appointments were easy to make and happened on the same day, and chest x-rays were arranged by the GP without the patient having to ask
- The number of lung cancer cases diagnosed as a result of the intervention increased from 32 in April 2007 to 54 in April 2008. This increase was not sustained in the following months
- Before the intervention, 11 per cent of new diagnoses of lung cancer were early (Stage 1 or 2). Following the intervention this number increased to 19 per cent

**Phase Two results**

- Post-campaign results showed an increased intention to act (visit their GP) if people had a bad cough, rising from 82 per cent to 87 per cent (an increase similar to 2008, but with a lower starting point – indicating a drop between the two phases)
- The number of people who would visit their GP and ask for a chest x-ray increased from 54 per cent to 67 per cent (an increase similar to 2008, but with a lower starting point – indicating a drop between the two phases)
- The intervention had a slightly greater impact on smokers and ex-smokers than non-smokers
- Targeted practices increased their chest x-ray referral rates by 22 per cent
- The percentage of lung cancers diagnosed early (Stage 1 or 2) increased from 21 per cent pre-campaign to 23 per cent post-campaign

**Lessons learned**

**What worked well**

- Using a robust planning framework, in this case social marketing, allowed the team to maintain focus and discipline
- The development and ownership of the key insights was crucial in providing both
inspiration and a touchstone for the project team

The integrated approach of customer ‘push’ and consumer ‘pull’ worked particularly well, ensuring that raised awareness translated into maximum impact by having health services primed to respond

Use of Community Champions
For Phase Two, the recruited Community Champions reported back directly to the commissioned PR company, which was problematic. In future phases, this would be done in-house to ensure that the PCT had more understanding of and control over the work of the Community Champions.

Adequate time is needed for planning and training
Initially there was an underestimation of the amount of time required to visit and train all the relevant GP practices, and for internal communication. Both ‘push’ and ‘pull’ strategies needed adequate lead-in time (at least three months).

Improving the ‘push’ element
Plans for 2010 and beyond include widening the approach to include bowel and breast cancers, but complementing the ‘pull’ approaches with more face-to-face and co-production ‘push’ approaches (rather than relying heavily on creative-led media campaigns), which are likely to be more sustainable than creative-led ‘push’ approaches.