

## Background & Methods

- Cancer outcomes are poorer in the most deprived UK communities - partly due to prolonged symptom presentation and later stage diagnosis.
- The health check was developed and tested in a phase 2 feasibility study.<sup>1,2</sup>

### ABACus Health Check

- Interactive online touchscreen application, originated by Tenovus Cancer Care.
- 29 questions (cancer symptoms, screening and risk factors).
- Underpinned by the behaviour change wheel.<sup>3</sup>
- Tailored advice delivered by a trained lay advisor to increase cancer awareness and encourage change.
- Personalised results presented on an A4 printout using a traffic light system (**Green** no signposting; **Amber** action to be considered; **Red** action to be taken).

### Aim: To improve cancer symptom awareness and help-seeking behaviour among adults living in socioeconomically deprived communities.

- 246 participants recruited in;
  - community settings (e.g. community centres, job clubs)
  - healthcare settings (GP practice, pharmacies).
- Recruitment methods:
  - pre-booked appointment slots
  - opportunistically approached on the day
- 2/3<sup>rd</sup> recruited in North England, 1/3<sup>rd</sup> in South Wales, UK
- Randomised 1:1 (intervention : control)

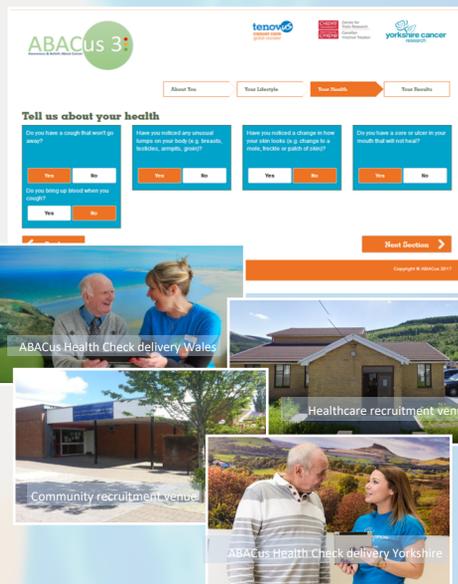
### Inclusion criteria:

- Over age 40
- Recruited from socioeconomically deprived areas in Yorkshire or South Wales
- English speaking
- Able to provide informed consent
- Did not take part in the phase 2 study

### Data collection:

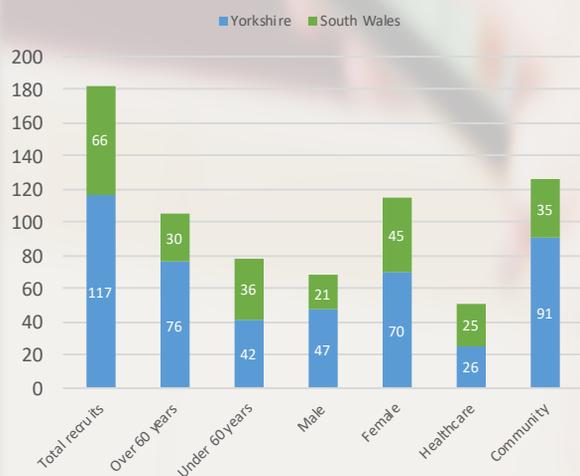
- **Quantitative:** @ baseline, 2 weeks, 6 months.
- **Qualitative:** Participant interviews n=45 (2 weeks & 6 months), session observations/audio recordings (n=24), lay advisor interviews n=3+3 (pre & post).

### ABACus 3 Health Check Screenshot



**Potential impact:**  
Early symptom presentation & improved cancer outcomes in areas of deprivation.

## Recruitment Data & Planned Analysis



Current ABACus recruitment

### Data collection:

- Data collection is ongoing (Dec 2017 – Jan 2019).
- 12 months data collection complete, 2 months to go.
- 183 participants randomised.
- 14 participant interviews completed.
- 5 session observations completed.

### 2 week follow-up rates:

- 91% (n=166) followed up so far
- 3.5% (n=7) awaiting follow-up
- 5% (n=9) lost to follow-up
- 0.5% (n=1) withdrawn

### 6 month follow-up rates:

- 47% (n=86) followed up so far
- 48.5% (n=89) awaiting follow-up
- 4% (n=7) lost to follow-up
- 0.5% (n=1) withdrawn

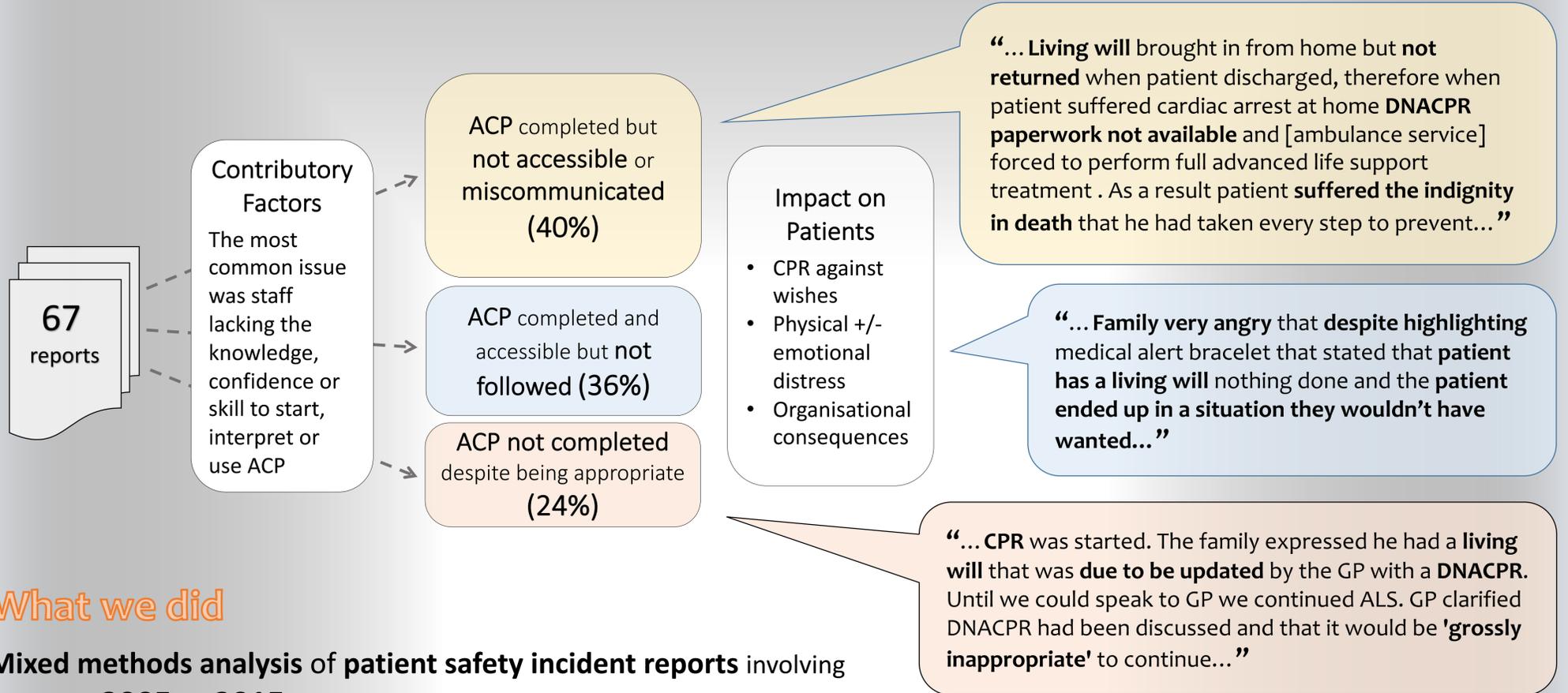
### Planned analysis:

- **Primary:** Cancer symptom recognition
- **Secondary:** Cancer beliefs, barriers and time to presentation, screening and lifestyle behaviours, anxiety, intervention implementation costs
- **Process evaluation:** Intervention dose & contamination

1 Smits S, McCutchan G, Wood F, Edwards A, Lewis I, Robling M, et al. Development of a Behavior Change Intervention to Encourage Timely Cancer Symptom Presentation Among People Living in Deprived Communities Using the Behavior Change Wheel. *Annals of Behavioral Medicine*. 2016  
 2 Smith P, Smits S, Owen S, Wood F, McCutchan G, Carter B, et al. Feasibility and acceptability of a cancer symptom awareness intervention for adults living in socioeconomically deprived communities. *BMC Public Health*. 2018;18:12889–18.  
 3 Michie S, Atkins L, West R. *The Behaviour Change Wheel: A Guide to Designing Interventions*. Sutton: Silverback Publishing; 2014.

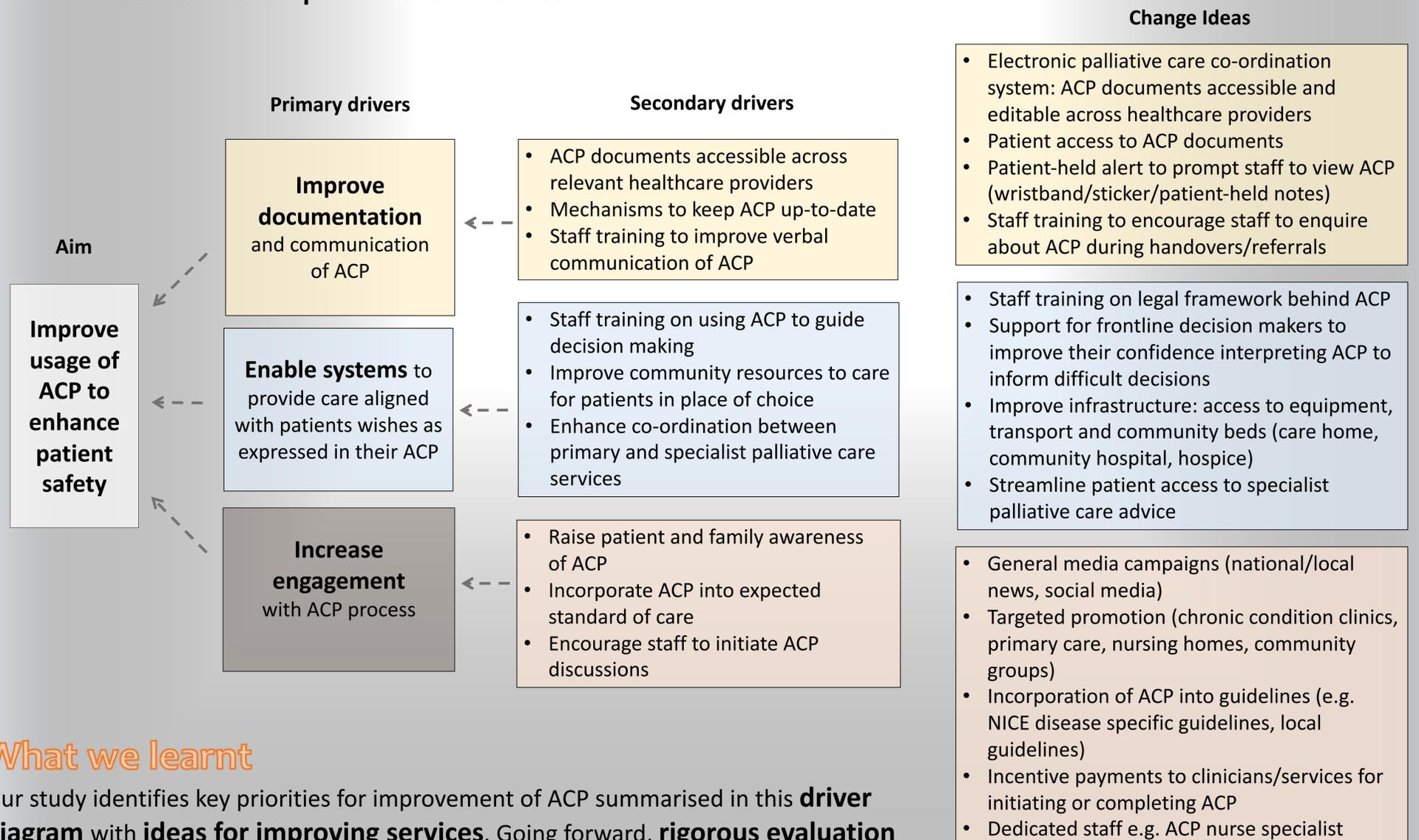
## What's the problem?

Advance care planning (ACP) is an important component of patient-centred end of life care. However there is limited evidence on how it impacts patient safety.



## What we did

Mixed methods analysis of patient safety incident reports involving ACP from 2005 to 2015 from a national database (England and Wales). We described incidents, contributory factors and outcomes and identified areas to focus improvement initiatives.



## What we learnt

Our study identifies key priorities for improvement of ACP summarised in this driver diagram with ideas for improving services. Going forward, rigorous evaluation of ACP initiatives is needed, with dissemination of results to ensure the safest, most effective models can be replicated and adapted to local contexts.

# CARer-ADministration of as-needed sub-cutaneous medication for breakthrough symptoms in homebased dying patients: a UK study protocol (CARIAD)

Clare Wilkinson<sup>1</sup>, Marlise Poolman<sup>1</sup>, Jessica Roberts<sup>1</sup>, Bee Wee<sup>2</sup>, Julia Hiscock<sup>1</sup>, Dyfrig Hughes<sup>1</sup>, Annmarie Nelson<sup>3</sup>, Paul Perkins<sup>4</sup>, Rosalynde Johnstone<sup>5</sup>, Liz Reymond<sup>6</sup>, Betty Foster<sup>7</sup>, Julie O'Connor<sup>8</sup>, Sian Jones<sup>5</sup>, Zoe Hoare<sup>1</sup>, Rossela Roberts<sup>5</sup>, Anthony Byrne<sup>9</sup>, Sue Healy<sup>6</sup>, Penney Lewis<sup>10</sup>

<sup>1</sup> Bangor University, UK; <sup>2</sup> University of Oxford, UK; <sup>3</sup> Cardiff University, UK; <sup>4</sup> Gloucestershire Hospitals NHS Foundation Trust, UK; <sup>5</sup> Betsi Cadwaladr University Health Board, UK; <sup>6</sup> Queensland Health Metro South Hospital Health Service, Australia; <sup>7</sup> North Wales Cancer Network Patient Forum, UK; <sup>8</sup> Leckhampton Court Hospice, UK; <sup>9</sup> Cardiff and Vale University Local Health Board, UK; <sup>10</sup> The Dickson Poon School



**Background:** Caring for the dying, in a place of their preference, is an essential part of health and social care. The majority express a wish to die at home (79%), however only half of those achieve this.<sup>(1)</sup> The likelihood of patients remaining at home often depends on availability of able and willing informal carers.<sup>(2,3)</sup> These carers take on numerous care tasks, often including the responsibility of assisting patients to have their oral as-needed medications. In the last days or weeks of life, patients are usually unable to take oral medication. Regular (background) medication, is often given via syringe driver, and guidelines suggest using additional ('as -needed') medication for symptoms that 'break through'.<sup>(4)</sup> In the UK, these subcutaneous (SC) medications for breakthrough symptoms are given by a healthcare professional (HCP), usually a District Nurse (DN). The role of carers administering SC injections is not widespread practice in the UK, but has proven to be key in achieving home death in other countries.

## Objectives:

- To tailor a successful Australian intervention as a standardised, manualised intervention for UK carer-administration of as-needed SC medication for breakthrough symptoms in homebased dying patients.
- To establish the feasibility of this standardised manualised package and carer role extension by conducting an external randomised pilot trial with embedded qualitative component.
- To identify attributes pertinent to carers' preferences for HCP versus own administration of as-needed SC medications for home-based dying patients

## Methods:

Two hundred patient-carer dyads will be identified across three sites (North Wales, South Wales and Gloucestershire).

### Inclusion criteria

Dyads of

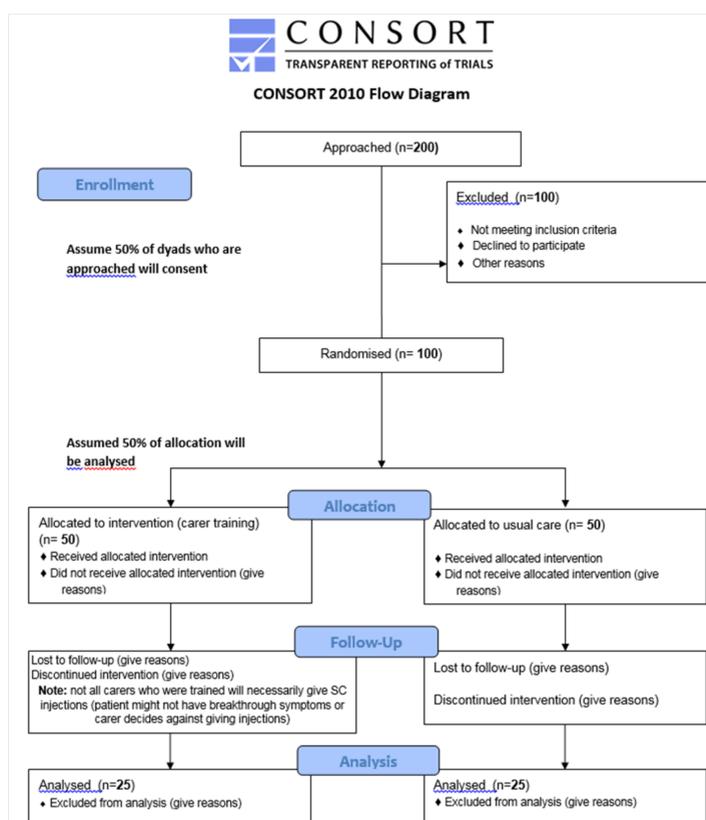
A patient in the last weeks of life who:

- is likely to lose the oral route for medication
- has expressed a preference to die at home
- Is over 18 years old

And their informal carer who:

- Is over 18
- Is willing to have this extended role
- Is willing to have SC injection training.

The direct healthcare team will complete a study-specific risk assessment prior to approaching dyads. This aims to minimise risks of medication misuse or errors.



## Results:

The main outcomes of interest will be those appropriate to an external pilot trial including

- Feasibility
- Acceptability
- recruitment rates
- Attrition
- Selection of the most appropriate outcomes measures (Table 1).

Outcomes will be measured for patients, their informal carers and health care professionals. These measurements will be made at baseline, every 48 hours during the time in the study, at initial bereavement visits, and at 4-6 weeks post bereavement. Symptom control and lay carer confidence will be recorded on a daily basis using the carer diary.

Face-to-face qualitative interviews with carers who declined to take part and who were in both arms of the trial will detail carer experiences of the trial and reasons for consent or decline. Telephone interviews with HCPs will explore their experiences and acceptability of the trial.

Identification and ranking of factors important to carers in guiding their choice between HCP and own administration of SC medications will inform a future discrete choice experiment.

Outcome measure	Completed by	Frequency
Family Memorial Symptom Assessment Scale – General Distress Index	Carer with research nurse	Baseline and follow-up
Carer Experience Scale	Carer with research nurse	Baseline and follow-up
Quality of Life During Serious Illness	Carer	Every 48 h

**Table 1.** Validated outcome measures to be used in CARIAD feasibility trial

## Conclusions:

- Findings will inform the feasibility and outcome measures for a definitive Phase III randomised controlled trial.

## References

- Office for National Statistics. Statistical bulletin: National Survey of Bereaved People (VOICES). [cited 2015 5 1. Available from: <http://www.ons.gov.uk/ons/rel/subnational-health1/national-survey-of-bereaved-people-voices-2013/stb---national-survey-of-bereaved-people-voices-.html?format=print>.
- Thomas C, Morris SM, Harman JC. Companions through cancer: the care given by informal carers in cancer contexts. *Social Science & Medicine*. 2002; 54: p. 529-544
- Gomes B, Higginson IJ. Factors influencing death at home in terminally ill patients with cancer: systematic review. *British Medical Journal*. 2006; 332: p. 515-521.
- palliativecare.com. Palliative Care Formulary. 5th ed. Twycross R, Wilcock A, Howard P, editors. Nottingham: palliativecare.com; 2015.

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## Background

Smoking is the leading cause of lung cancer<sup>1</sup>. The associations between higher smoking prevalence, lower socioeconomic (SE) group and poorer lung cancer outcomes are well established. With the prospect of CT lung screening being implemented in the UK for high risk groups, and evidence that smokers from deprived areas are least likely to attend lung screening<sup>2</sup>, research is needed to understand the most effective smoking cessation interventions (SCIs) for high risk, disadvantaged populations.

## Aim

To identify which SCIs are effective in prompting smoking cessation and improving psychosocial variables (e.g. quit motivation and self-efficacy) among lung screening-eligible adults from low SE groups.

## Methods

Data extraction and quality appraisal, 10% of the studies were double checked for consistency by another member of the team and all discrepancies were resolved through discussion.

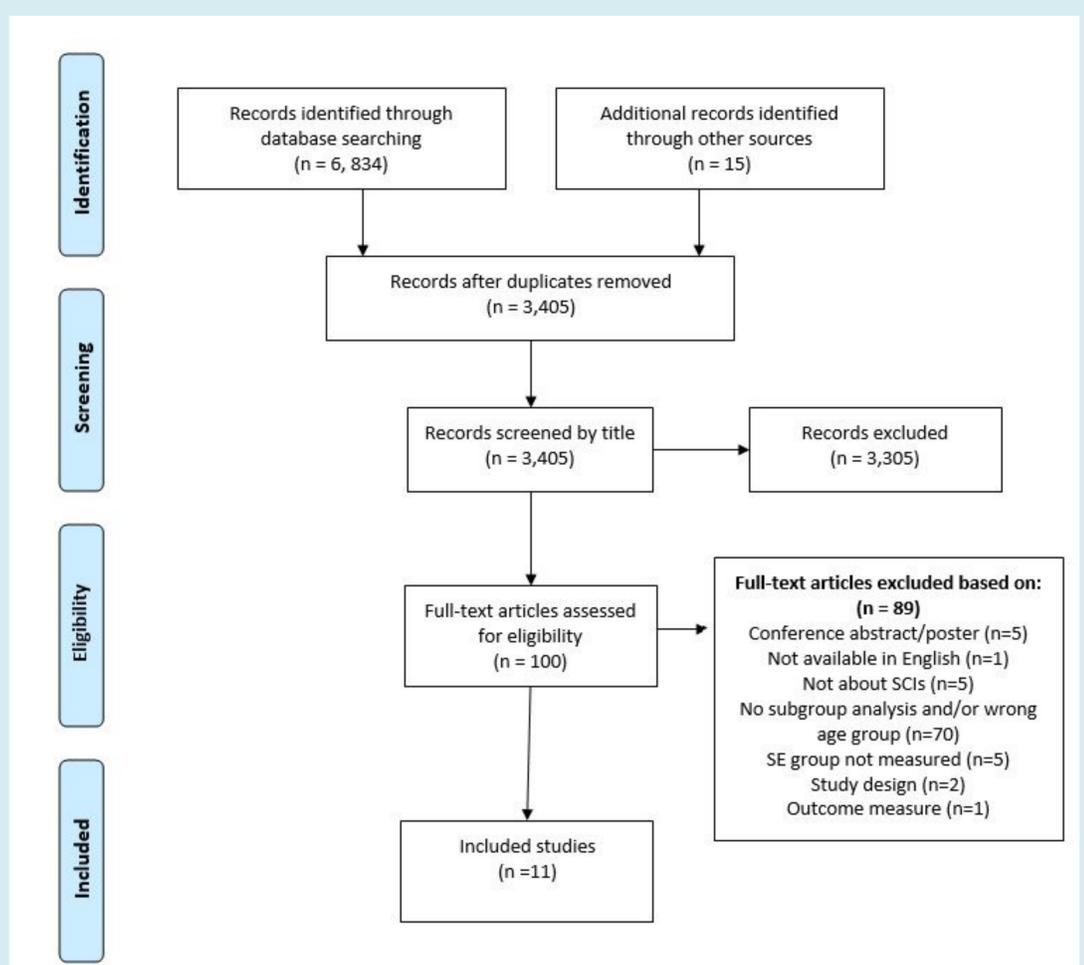
### Key variables of included studies:

- SE deprived groups, defined either through individual or area level indicators
- Adults aged approximately 50 years or more (or when the majority of the sample are 50+)
- Primary outcome: smoking abstinence
- Secondary outcomes: nicotine dependence, self-efficacy, quit motivation, social support and influences

### Critical Appraisal

The methodological quality of all included studies was examined using an adapted version of the Critical Appraisal Skills Programme tool (CASP, 2014).

## PRISMA Flow Chart



## Results

- Methodological quality of the extracted studies was variable, with the majority using self-reported smoking cessation and varying length of follow-up
- Eleven studies were included in the review with the majority of papers being excluded due to the sample not being the correct age or a lack of reporting of sub-group analysis for age
- Theoretically driven interventions using a combination of pharmacotherapy and behavioural counselling were more effective in prompting smoking cessation in the target population than low dose interventions
- Intensive community-based programmes were most effective in improving key psychosocial variables (e.g. determination to quit, perceived self-efficacy and social support) for the target population

## Conclusion

- High intensity SCIs embedded within the community may be required for lung screening eligible populations who lack the resources required to quit effectively
- Future research should aim to improve the reporting of outcomes, such as the inclusion of sub-group analysis for age, in order to gain a better understanding of the effectiveness of intervention type on older smokers
- The current findings will inform recommendations for implementing an integrated lung cancer screening and prevention pathway for high-risk groups who are most likely to benefit from a targeted approach

Contact details: Pamela Smith, Division of Population Medicine, Cardiff University, smithp18@cardiff.ac.uk

### References:

1. Cancer Research UK (2015a) Cancer survival statistics[online] Available at: <http://www.cancerresearchuk.org/healthprofessional/cancerstatistics/survival#heading-Zero> [Accessed November 2017].
2. McRonald FE, Yadegarfar G, Baldwin DR, et al. The UK Lung Screen (UKLS): demographic profile of first 88,897 approaches provides recommendations for population screening. *Cancer Prev Res (Phila)* 2014;7:362–71.

Preliminary findings from qualitative interviews conducted as part of the LUCAS Study, a Health and Care Research Wales funded PhD studentship

Annie Hendry, Richard D Neal, Julia Hiscock

**Background and design**

Almost all cases of lung cancer are attributable to smoking. Previous research has shown smokers are more likely to delay help seeking. This study used qualitative interviews to explore reasons for delayed presentation in lung cancer patients.

**Symptom recognition**

Participants did not recognise that they were experiencing potential cancer symptoms. This was often due to either mistaking the symptoms for ongoing comorbidities, such as asthma and COPD, or to minor conditions such as a cold or chest infection.

***‘That was like flu symptoms. Cold symptoms. It wasn’t anything sinister’***

**Denise, 52 yrs**

**Decreased risk perception**

Despite having a history of smoking, participants reported that they did not think that they would be at risk of lung cancer. This was explained through the belief that the negative effects of smoking were ‘balanced out’ by otherwise healthy behaviours.

***‘I know I’ve been fit. And healthy. Despite my smoking!’***

**Ivor, 75 yrs**

**Downplaying symptoms**

Participants reported that they went to the doctor ‘if they needed to’ but also that they did not do so unnecessarily. Participants worried about ‘wasting doctor’s time’ and felt that some people were guilty of over using primary care.

***‘I don’t like wasting people’s time, you know. ‘Cause there are enough – you get the impression from speaking to certain people they’re there every ten minutes’***

**Mark, 63 yrs**

Bethany Anthony<sup>1</sup>, Dr Julia Hiscock<sup>2</sup>, Dr Jo Charles<sup>3</sup>, Dr Nefyn Williams<sup>4</sup>

<sup>1</sup>School of Healthcare Sciences, Bangor University, Bangor, UK, <sup>2</sup>North Wales Centre for Primary Care Research, Bangor University, Bangor, UK, <sup>3</sup>Centre for Health Economics & Medicines Evaluation, Bangor University, Bangor, UK, <sup>4</sup>North Wales Centre for Primary Care Research, Bangor University.

## INTRODUCTION

- General practice in Wales and the UK faces tremendous challenges due to the ageing population, increased chronic conditions, advances in treatments and technologies and increased public expectations.
- Research by the Chief Medical Officer for Wales has found that 60% of GPs in 10 local health board areas intend to retire or leave practice in the next 10 years.
- The number of specialists are rising, but medical graduates seem less attracted to pursuing and remaining in primary care fields (Salsberg & Grover, 2006).

Can the GP shortage crisis be solved by expanding the roles of non-medical health professionals such as nurses, pharmacists and physiotherapists to provide general medical services in primary care?



## RATIONALE

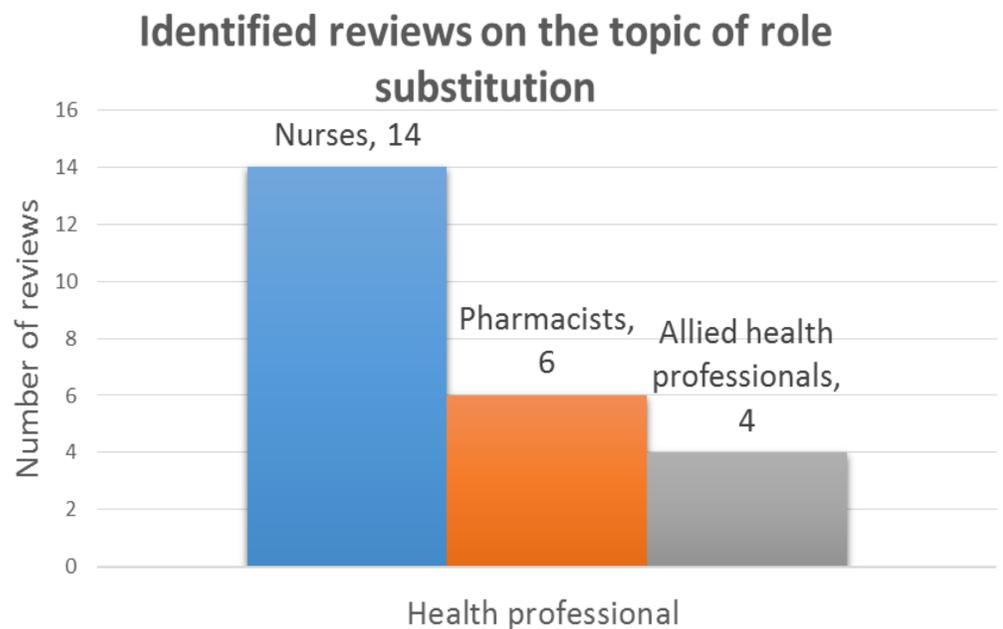
- Role substitution could reduce cost and GP workload while maintaining quality of care.
- The use of nurses and other non-medical health professionals could be a potential solution to compensate the increasing shortage of human resources and to prevent future instability (Laurant et al., 2009).
- Economic factors - Nurses are not only cheaper to employ and train than physicians but also represent a significant proportion of the qualified health care workforce. They also have the ability to handle a fairly large portion of primary care demands (Buchan & Calman., 2006).
- Quality of care - other healthcare professions such as physiotherapist, pharmacists and occupational therapists bring their own unique skills and expertise, which may bring forward additional value to primary healthcare.

## POTENTIAL PROBLEMS

- Fragmentation of care – general medical services provided by several different allied health professionals
- Cherry picking of roles and duties.
- Role substitution is not cost effective e.g. nurses providing longer consultations, more investigations ordered.

## EXISTING EVIDENCE – REVIEW OF REVIEWS

Scoping searches uncovered 24 reviews on the topic of role substitution in a primary care setting.



### Clinical and patient outcomes:

- The majority of the evidence on nurses and pharmacists substituting for physicians.
- Overall, nurses found to provide equivalent or in some cases better care **BUT** only when substituting for some GP roles!!!
- Generally positive results for pharmacists substituting for GPs

### Resource utilisation:

- Overall, nurse-led care negatively impacts resource utilisation
- Positive results for pharmacists

### Costs

- Mixed results for nurses substituting for GPs on costs
- Favourable results for pharmacists (2 reviews) or no significant difference (1 review)

### Qualitative evidence

- 3 reviews provided qualitative evidence in relation to nurses; topics included nurse prescribing, nurse-GP collaboration and nurses taking on the clinical role of physicians in primary care.

### Future research

- More research needed to determine whether nurses and allied health professionals can take on all aspects of GP work e.g. complex cases.
- More research exploring the economic impact of role substitution
- More qualitative evidence needed to explore both patient and staff perspectives.
- medical staff is safe, acceptable and effective.
- Task shifting is a rapidly emerging development in primary care; therefore, an updated review addressing these knowledge gaps is imperative.

### Next step of PhD...

- To conduct a novel systematic review of primary sources to uncover the economic and qualitative evidence of role substitution in primary care.

### REFERENCES

- Buchan, J., & Calman, L. (2006). The global nursing shortage: priority areas for intervention. *The Global Nursing Review Initiative*.
- Laurant, M., Harmsen, M., Wollersheim, H., Grol, R., Faber, M., & Sibbald, B. (2009). The impact of nonphysician clinicians: Do they improve the quality and cost-effectiveness of health care services? *Medical Care Research and Review*, 66, 36S-89S.
- Salsberg, E., & Grover, A. (2006). Physician workforce shortages: Implications and issues for academic health centers and policymakers. *Academic Medicine*, 81, 782-787.

## Introduction

CT screening and smoking cessation have additive effects on reducing lung cancer mortality.

However, it is unclear how to effectively embed smoking cessation into lung cancer screening.



This study aimed to:

- explore **preferences** regarding different **personalised risk information** formats to support **smoking cessation counselling** delivered by trained practitioners during lung cancer screening

## Methods

### 1. Online survey with current smokers (n=8)

Shown examples of formats to present:

- Absolute and relative lung cancer risk information (pictogram vs bar chart)
- Time frame for lung cancer risk (1y vs 2y vs 5y vs 10y)

### 2. Three focus groups with current smokers (n=9) and recent quitters (n=4) over the age of 55, living in areas of deprivation in South Wales and North England

Shown examples of:

- Lung scan images with areas damaged from emphysema vs healthy areas
- Coronary artery calcification (images of heart)
- Time frame and format to present lung cancer risk
- Lung age

### 3. Draft intervention booklet shown to a Smokers' Panel for feedback

**MY SCAN RESULTS:**  
XXXXX XXXXXXXXX

**YOUR LUNGS:**

This is an actual picture of your lung taken from your CT scan. The parts circled in red are areas of your lung that have been damaged by smoking. This is called **emphysema**.

This is another picture of your lung taken from your CT scan. This is a healthy part of your lung that has not been damaged by smoking. You can keep these parts of your lung healthy if you stop smoking today.

This is a drawing of what a lung looks like inside. The darker parts are the areas damaged from smoking (like the first picture). The lighter parts are healthy areas not damaged by smoking (like the middle picture). Quitting smoking will stop the healthy parts of your lungs from getting damaged.

**YOUR HEART:**

This is an actual picture of your heart taken from your CT scan. The white parts in your scan picture are parts of the arteries going to your heart that have become narrow or hard. Smoking is associated with hardening and narrowing of the heart arteries, which can lead to problems including heart attacks.

This is a picture of what your heart looks like inside. The yellow parts show roughly where the arteries going to your heart have become hard or narrow.

These are drawings of what healthy and narrowed arteries look like. By stopping smoking, you can reduce the chances of the arteries to your heart becoming hardened or narrowed and lower your risks of problems like heart attacks.

**YOUR LUNGS:**

**HEALTHY:**  
AFTER 20 MINUTES: Your heart rate goes back to normal.  
AFTER 8 HOURS: Nicotine and carbon monoxide (a poisonous gas produced when smoking) in your blood goes down by half. Your oxygen levels go back to normal.  
AFTER 2 DAYS: You won't have any carbon monoxide left in your body. Your lungs are clearer. You will be able to taste and smell better.  
AFTER 3 DAYS: You will find it easier to breathe. You will have more energy and walking will be easier.

**WEALTH:**  
Based on the number of cigarettes you are currently smoking (XX per day) stopping smoking would save you:  
EXX per week  
EXX per month  
EXX per year  
EXX in 5 years  
IF YOU WOULD LIKE TO SPEAK TO ANYONE FURTHER:  
YES trial manager: E-mail/phone  
YLS teams: E-mail/phone  
One You Leeds: phone

## Results

### ✓ **Format/messaging**

- Simple images and accompanying text to highlight the benefits of smoking cessation.

“Keep the graphs and pictures **as simple as possible**; it will only confuse people drawing attention away from the topic. Short paragraphs with **loads of positives** and benefits” (current smoker, survey)

### ✓ **Scan images**

- Scan images of their own heart and lungs were perceived as more motivating than pictorial representations (bar charts or pictograms) of risk reduction.
- Scan images should be presented alongside artist's impressions of the heart and lungs to facilitate interpretation of scan image

“If it's **more personalised**, you're **more inclined to act on it**” (current smoker, focus group)

### ✗ **Absolute and relative lung cancer risk**

- An honest timeline for health was perceived as important
- Risk reduction over shorter time periods was described as 'negligible' and demotivating.
- Participants perceived very little benefit in presenting absolute lung cancer risk reduction.

“Well I'd like to be that person [who reduced their risk of lung cancer] there's **no guarantee so why bother?**...It's just the luck of the draw then isn't it, basically.” (current smoker, focus group)

### ✗ **Lung age**

- Lung age was considered too threatening when presented as stand alone information.

“It **races your life too far into the future** when you're only 55, it advances you closer to death...and there's **not much you can do about it** really” (current smoker, focus group)

## Conclusion

- **Scan images** of the heart and lungs were perceived as **most impactful** to motivate participants to attempt to **quit smoking** in a lung cancer screening setting.
- Alongside personalised materials, **scripted advice from trained smoking cessation practitioners** should include messages designed to **increase efficacy**.
- This work will inform the intervention materials for a Yorkshire Cancer Research funded trial of a personalised smoking cessation intervention in the UK: the Yorkshire Stop Smoking Study (YESS trial).

