Do teachable moments change the lifestyle behaviours of patients after they received their investigation results having been referred to secondary care with suspected cancer?

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What is the evidence for teachable moments changing the lifestyle behaviours of patients after they received their investigation results having been referred to secondary care with suspected cancer?

Question
This briefing summarises the evidence about teachable moments following cancer diagnosis, and whether they can be used to change the lifestyle behaviours of patients after they have received their investigation results?

Key messages
Forty-nine papers were included in this briefing, and these are the key messages that emerged:

- The optimum times for teachable moments are at the time of screening, and after a positive diagnosis.
- People are most receptive to information about lifestyle changes after receiving a positive diagnosis.
- In the majority of papers, the teachable moments were potentially viable for patients, but in some cases, the relatives were also suitable targets.
- The majority of the behaviour change interventions discussed are related to smoking cessation programmes.

Evidence briefings are a summary of the best available evidence that has been selected from research using a systematic and transparent method.

What doesn't this briefing do?
The findings from research papers summarised here have not been quality assessed or critically appraised.

Information about this evidence briefing
This briefing draws upon the evidence identified via a literature search of 5 databases: CINAHL, Embase, Emcare, Medline, and PsycInfo, limited to the last ten years and English language. The search strategy is available on request.

49 highly relevant citations were used to produce this evidence briefing. A further 37 citations were identified as partially relevant, and these are available on request.

You may request any publications referred to in this briefing from libraries@phe.gov.uk

Disclaimer
The information in this report summarises evidence from a literature search - it may not be representative of the whole body of evidence available. Although every effort is made to ensure that the information presented is accurate, articles and internet resources may contain errors or out of date information. No critical appraisal or quality assessment of individual articles has been performed. No responsibility can be accepted for any action taken on the basis of this information.
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**Background**

A teachable moment is a brief period in which motivation to change health behaviours is enhanced (1). "The term "teachable moment" (TM) has been used to describe a life transition or event which motivates an individual to change a behavior or presents an opportunity to intervene to prompt behavior change" (2).

A literature search was carried out on 5 clinical databases: CINAHL, Embase, Emcare, Medline, and PsycInfo, limited to the last ten years, and only papers published in English. A total of 88 papers were retrieved, of which 49 were found to be highly relevant to this topic, and therefore included in this briefing. The remaining 37 papers were less relevant, but are available on request, along with the search strategy.

**Optimum time for delivering health information**

An analysis of the papers included in this briefing showed that opportunities for teachable moments arise at the time of screening (22%) and after a positive diagnosis (39%). People were most receptive to information about lifestyle changes after they had received a positive diagnosis (60%). Research shows that the time after a cancer diagnosis is effective as a teachable moment for encouraging people to make their lifestyles healthier (3). Other opportunities suggested for teachable moments include during visits to the emergency department (4), at different stages of the treatment process, including post-surgery, and prior to screening. One paper suggested using smoking cessation programmes to educate people about the risks of skin cancer, as smokers are less likely to apply sun-screen or check themselves for moles, a sign of melanoma (5).

Cancer diagnoses could be used as a teachable moment to promote smoking cessation interventions and other lifestyle changes, as a diagnosis of cancer is associated with higher levels of quitting smoking and health improvement (6-8).

Another opportunity is when patients are undergoing surgery as this is an easy and effective way to reach suitable candidates for smoking cessation counselling (9).

**Lung cancer**

Screening for lung cancer presents an important opportunity to change smoking behaviour, and encourage people to give up smoking (10) as people have increased motivation to stop smoking at that time (11). People who are screened for lung cancer are more likely to consider giving up smoking after screening, particularly when the diagnosis is positive, so health professionals could consider promoting smoking cessation techniques as part of the screening process (12). Studies show that promoting smoking cessation interventions, both counselling and pharmacological, in lung cancer screening settings is effective in encouraging people to stop smoking (13).

People who smoke and receive a positive diagnosis for lung cancer, may feel guilty or stigmatised, and would benefit from clear advice from health professionals about the negative consequences should they continue smoking. Again, the screening
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setting provides a teachable moment for this information to be provided (14), as people are more receptive to information about smoking cessation, when being screened for lung cancer (15).

Screening results can either be used as a teaching moment or, if the result is negative, they might inadvertently reassure smokers that they can continue to smoke (16).

Breast cancer
Women who have completed their first treatment for breast cancer are more open to receiving information about increasing physical activity, but this advice is not automatically given (17).

One paper showed that women did not improve their health behaviours on breast cancer diagnosis. More guidance delivered at that time may help them see the benefits of healthy diet and lifestyle (18).

Breast cancer patients are often treated with aromatase inhibitors (Als), which cause side effects, such as joint pain. Physical activity (PA) can relieve these symptoms, and therefore, when prescribing Als, oncologists could recommend PA, along with the treatment (19).

Prostate and colorectal cancers
Obesity is related to prostate cancer, and therefore advising on lifestyle changes and physical activity after diagnosis can help improve outcomes (20). In one study, 50% of men who received prostate cancer screening (PCS), were also eligible for colorectal cancer screening (CRCS), but did not attend the latter. Health professionals could use the PCS setting as a teachable moment to raise awareness of CRCS and with a potential outcome of preventing colorectal cancer (21).

Colorectal adenoma is a risk factor for colon cancer, and lifestyle changes can prevent further disease progression. However, patients are often not given health behaviour advice, and are unaware of the benefits of making lifestyle changes. Unless they are given this advice post-treatment, when they are given the all clear, they may continue their current lifestyle, putting them at greater risk of colon cancer. Therefore, post-treatment is a teachable moment which could prevent further illness (22).

Head and neck cancers
People who have been referred because they may have head and neck cancer are receptive to information about how to make changes to their health behaviours (23).

Ovarian cancer
Women who were falsely diagnosed with ovarian cancer, were less receptive to health-related information (2).

Oral cancers
In India, there is a high prevalence of the use of tobacco in various forms, and it has been found that dentist appointments provide a teachable moment, but only when the patient is receptive to advice about lifestyle changes. This learning could also be
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applied in the UK, as dentists are trained to recognise symptoms associated with serious oral health conditions (24).

Co-morbidities

The majority of cancer survivors will die of cardiovascular disease (CVD) rather than cancer, and therefore, a diagnosis of cancer offers a teachable moment to encourage people to change their lifestyle in order to prevent CVD (25).

In another study, it was found that smokers are less likely to wear sunscreen or carry out skin self-examinations, and therefore they are at greater risk of skin cancer. This study looked at the provision of skin cancer education during smoking cessation counselling and found that the counselling was not compromised, but the knowledge and self-efficacy of skin cancer increased (5).

Patients and relatives

A personal diagnosis of cancer or diagnosis in a family member or friend can prompt people to seek advice on changing their health behaviours (26, 27), particularly when they perceive a higher risk for themselves (28). In 37 papers, where there was potential for a teachable moment, patients were the target, whereas in 9 papers, it was the relatives of the diagnosed patient that were seen to be receptive to information about lifestyle changes.

In one study, relatives of cancer patients were asked to complete the Fagerstrom test of nicotine dependence (29, 30) to determine who would most benefit from a smoking cessation program (31).

While relatives of cancer patients did sign up to smoking cessation programs, they showed signs of anxiety and depression and did not continue using the nicotine patches (32).

One paper looked at an intervention for mothers and daughters (33), following the mother's positive diagnosis, and another paper investigated family-based programmes to reach all family members at risk (27).

Appropriate person for presenting information about lifestyle change

Many of the papers did not specify who should be the person presenting health education, but the twenty that did, suggested medical staff, dentists, cancer nurses, cancer specialists, urologists, surgeons, radiologists, public health nurses, and primary care providers.

According to one study, most urologists do not provide smoking cessation counselling because they do not feel it will make a difference. However, other studies showed that urologists are more influential than primary care physicians, when it comes to changing the smoking behaviour of their patients (34).
When discussing abnormal lung findings with their patients, radiologists could take the opportunity to encourage smokers to give up smoking (35).

The emergency department is another setting which may provide teachable moments to smokers who are suffering from smoking-related illness (4).

One study found that while tobacco cessation interventions for cancer patients did not significantly affect cessation rates, they were receptive to information about smoking cessation before and after surgery, during the perioperative period (36), and therefore surgeons may be in a strong position to provide cessation advice and/or referrals.

Community nurses are in an ideal position to educate parents about the risk of radon and second-hand smoke to children, and can promote home testing and low-cost resources to reduce the risk (37).

Cancer survivors are receptive to information about improving health behaviours, although it might need cancer nurses to initiate the conversation (38). "Nurses are well placed to offer physical activity advice, however, only 9% of UK nurses involved in cancer care talk to all cancer patients about physical activity." In this study, nurses used the Behaviour Change Wheel to deliver brief advice on physical activity to cancer patients, as being physically active is very important for cancer patients (39).

Another paper found that primary care providers value the importance of providing information about lifestyle changes to all their patients, including cancer survivors, while cancer specialists only provide information about dietary changes where the evidence is strong (40).

Obese cancer patients need gynaecological oncologists and primary care providers to provide guidance on obesity interventions, such as improving their diet post-diagnosis (41).

Evidence briefings for health professionals describing suitable activity levels could help them provide relevant advice to breast cancer survivors (17).

**Types of health education programmes**

The majority of the behaviour change interventions discussed were smoking cessation programmes. Other interventions highlighted, related to behaviour change, diet, weight management, and physical activity.

**Evidence gaps**

More research is needed to determine the best methods for integrating smoking cessation interventions with lung cancer screening (42). Different factors affect the decisions of family members of people diagnosed with cancer to stop smoking, and
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these need to be explored further so that initial motivation to stop smoking can be reinvigorated (43).

More research is also needed about the importance of teachable moments in primary and tertiary prevention of cancer (33).

Summary

This briefing shows that teachable moments can occur at different stages of the patients’ care pathway, and highlights the difficulties in pinpointing the best time for promoting healthy lifestyle changes to cancer patients, e.g. post diagnosis, during treatment, or after treatment has been completed (44). People are most receptive to information about changing their lifestyle at the time of screening, and post-diagnosis. Patients often make lifestyle changes following diagnosis of a chronic condition, but may benefit from quality information to help them make these changes (45).

Therefore, the screening setting provides a valuable opportunity for providing people with advice about making changes to their lifestyle and health behaviour (46). People who are worried about their condition are more likely to respond to guidance on behaviour change interventions (47). However, while potentially effective, there is little evidence to show that lifestyle changes are discussed in cancer screening settings, yet cardiovascular and diabetes prevention programs provide the evidence which could be presented to patients at the time of screening (48).

Providing tailored advice after cancer screening, may help people improve their lifestyles and health behaviours (49).

Providing information about healthy lifestyle and health behaviours at the time of diagnosis can improve health outcomes (50). Health professionals should use the time of diagnosis to provide guidance on increasing physical activity and reducing substance use (i.e. smoking and drinking) (45).

Physical activity is very important, particularly for women who have had breast cancer (17). However, while a person may be receptive to information about interventions, their illness may make it hard for them to make these changes to their lifestyle, e.g. they may feel too weak to exercise (51). Therefore, more research is needed to determine the best methods for integrating health education effectively at these times.
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Endnote database matrix showing the papers identified with key information
What is the evidence for teachable moments changing the lifestyle behaviours of patients after they received their investigation results having been referred to secondary care with suspected cancer?

<table>
<thead>
<tr>
<th>Year</th>
<th>Study Title</th>
<th>Diagnosis</th>
<th>Setting</th>
<th>Intervention</th>
<th>Outcome</th>
<th>Setting</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>The impact of computed tomography screening on cancer screening</td>
<td>lung cancer</td>
<td>not specified</td>
<td>not specified screening</td>
<td>not specified</td>
<td>at risk</td>
<td>smoking cessation</td>
</tr>
<tr>
<td>2012</td>
<td>Physical Activity and Breast Cancer Survivorship</td>
<td>breast cancer</td>
<td>health professional</td>
<td>not specified primary treatment completion</td>
<td>positive</td>
<td>patient</td>
<td>counselling for physical activity</td>
</tr>
<tr>
<td>2011</td>
<td>The impact of a lung cancer computed tomography</td>
<td>lung cancer</td>
<td>not specified</td>
<td>not specified screening</td>
<td>not specified</td>
<td>at risk</td>
<td>smoking cessation</td>
</tr>
<tr>
<td>2011</td>
<td>Lifestyle prescriptions for cancer survivors and their friends</td>
<td>cancer and diabetes</td>
<td>not specified</td>
<td>not specified post-diagnosis</td>
<td>positive</td>
<td>patients</td>
<td>patient and cancer care providers</td>
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<tr>
<td>2011</td>
<td>Receipt of a false positive test result during routine screening</td>
<td>ovarian cancer</td>
<td>not specified</td>
<td>not specified post-diagnosis</td>
<td>false positive or incorrect</td>
<td>patients</td>
<td>not specified</td>
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<tr>
<td>2010</td>
<td>Lung cancer screening and smoking advice</td>
<td>lung cancer</td>
<td>not specified</td>
<td>not specified screening</td>
<td>not specified</td>
<td>at risk</td>
<td>smoking cessation</td>
</tr>
<tr>
<td>2010</td>
<td>Underuse of colorectal cancer screening among older patients and their families</td>
<td>colorectal cancer</td>
<td>not specified</td>
<td>not specified screening</td>
<td>negative</td>
<td>at risk</td>
<td>leaflet on bowel screening and advice</td>
</tr>
<tr>
<td>2010</td>
<td>Intention to quit smoking: Role of personal and family members</td>
<td>colorectal cancer</td>
<td>not specified</td>
<td>not specified screening</td>
<td>not specified</td>
<td>at risk</td>
<td>information about quit smoking</td>
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<tr>
<td>2009</td>
<td>Promoting lifestyle change among cancer survivors</td>
<td>breast cancer</td>
<td>not specified</td>
<td>not specified screening</td>
<td>positive</td>
<td>patients and relatives</td>
<td>smoking cessation of patients and relatives</td>
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<tr>
<td>2009</td>
<td>Exercise and dietary change after diagnosis and cancer diagnosis</td>
<td>cancer</td>
<td>not specified</td>
<td>not specified screening</td>
<td>positive</td>
<td>patients</td>
<td>lifestyle changes</td>
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<td>2008</td>
<td>Smoking cessation counselling as a teachable moment for cancer patients</td>
<td>skin cancer</td>
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<td>skin cancer education</td>
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<td>Understanding the role of cancer worry in creating a lifestyle change</td>
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<td>pre-cancerous</td>
<td>patients</td>
<td>behaviour change</td>
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<tr>
<td>2008</td>
<td>Nicotine dependence, motivation to quit and illness</td>
<td>smoking-related</td>
<td>not specified</td>
<td>not specified emergency visits</td>
<td>pre-cancerous</td>
<td>patients</td>
<td>behaviour change</td>
</tr>
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<td>2007</td>
<td>Lung cancer screening as a teachable moment for cancer patients</td>
<td>lung cancer</td>
<td>not specified</td>
<td>not specified clinical trial screening</td>
<td>positive</td>
<td>patients and relatives</td>
<td>health behaviour change</td>
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<td>2007</td>
<td>The impact of a cancer diagnosis on the health of cancer patients</td>
<td>cancer</td>
<td>not specified</td>
<td>not specified cancer fund raiser screening</td>
<td>positive and at risk</td>
<td>patients and relatives</td>
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<td>2007</td>
<td>Treating tobacco dependence review of the best practice</td>
<td>lung cancer</td>
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<td>positive</td>
<td>patients</td>
<td>pharmacology time of diagnosis</td>
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<tr>
<td>2007</td>
<td>Tobacco control in India</td>
<td>oral cancer</td>
<td>dentist</td>
<td>dental clinic during appointments</td>
<td>not specified</td>
<td>at risk</td>
<td>interventions time of diagnosis</td>
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</tbody>
</table>

This database can be obtained on request.
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References

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