

A stylized illustration of a spotlight with a grey handle and a white lens, casting a wide white beam of light across the page. The background is a deep red color with abstract geometric shapes in lighter shades of red and white.

Spotlight on Health Results

Behavioural Insights Short Report



Premier & Cabinet
Behavioural Insights Unit

EXECUTIVE SUMMARY

The NSW Department of Premier and Cabinet's Behavioural Insights Unit (BIU) worked with St Vincent's Hospital (SVH) and the Cancer Institute NSW's Cervical Screening Program to determine whether behavioural interventions could help to improve response rates and health outcomes.

1. Improving hospital efficiency by reducing missed outpatient appointments

The BIU worked with SVH to trial whether different versions of text message reminders could affect the rate of people attending outpatient appointments. The trial's results showed that the most effective message was the one which told patients that their attendance would help the hospital avoid a \$125 loss.

This message led to an almost 20% reduction in missed appointments compared to the control message. The reduction is estimated to save SVH \$67k each year, increasing to \$97k if SVH had all patients' mobile numbers. The BIU is running further versions of this trial with SVH to see whether attendance rates can be further improved.

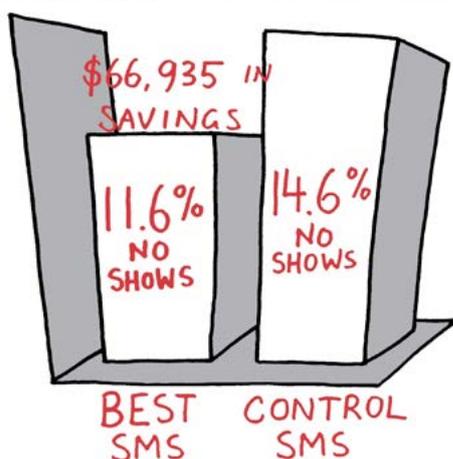
2. Improving health outcomes by increasing cervical screening rates

The BIU ran a trial with the Cancer Institute NSW to test whether cervical screening appointments could be increased by making changes to reminder letters. Four new trial letters (and the control letter) were sent to over 75,000 women in NSW during a three month period.

The trial found that including a tear-off commitment device at the bottom of the letter increases screening rates by 9% compared to the control letter. All intervention letters were statistically significant compared to the control letter.

As a result, Cancer Institute NSW will be using this version of the letter, which it expects will lead to 7,500 more women attending their Pap test appointment within three months.

19% REDUCTION IN "NO SHOWS"



INTRODUCTION

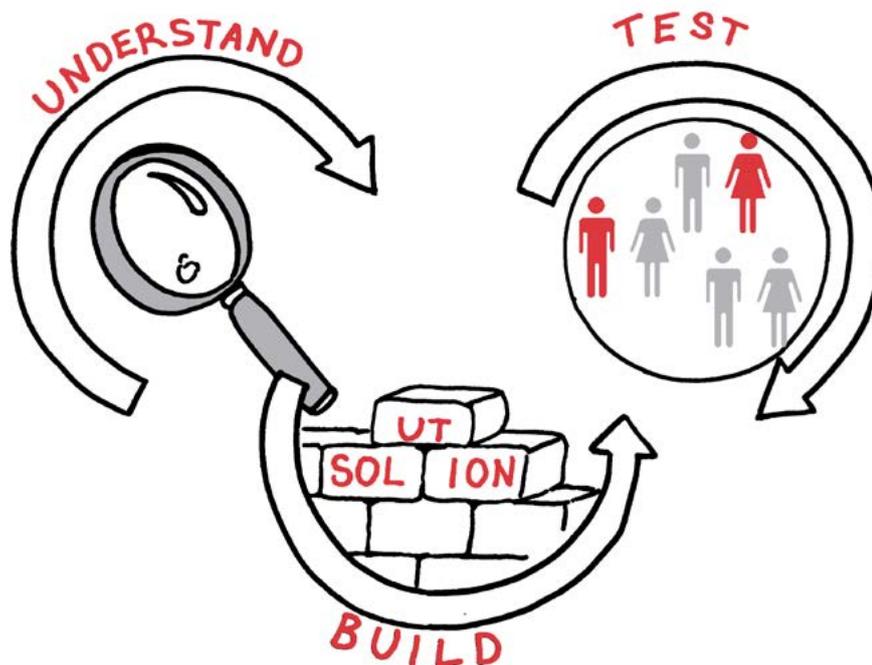
This report details two health trials the BIU recently worked on with SVH and the Cancer Institute NSW. It sets out:

- our methodology (Understand, Build and Test)
- key insights gathered from fieldwork and behavioural literature to inform our solutions
- trial results and how to use this evidence to support a more human-centred understanding of public services in NSW.

This report is part of the BIU's objective to regularly publish results, which we plan to do mid-2016 in a more substantial publication.

Find out more about the BIU at bi.dpc.nsw.gov.au

METHODOLOGY



The BIU approach is collaborative and evidence driven.

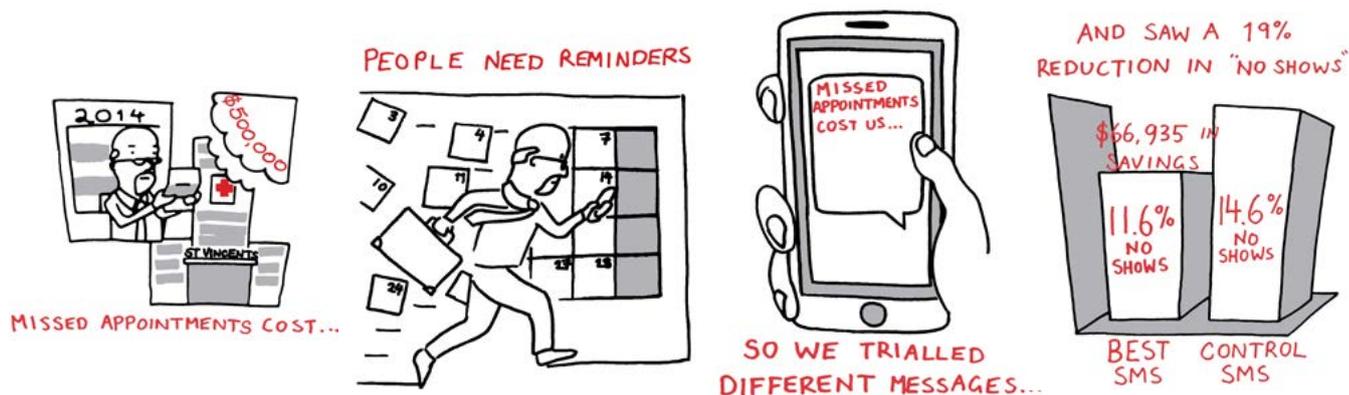
We work with partner agencies to:

- understand the problem and design solutions
- trial interventions to help identify what works
- support implementation and wider roll-out.

Drawing on the UK Behavioural Insights Team's (BIT) methodology, we start by defining the problem and desired outcome, and then work through three iterative phases:

1. **Understand** the issue and context – we identify exactly what behaviours we want to change and try to develop a good understanding of the context from both the users' and providers' perspective.
2. **Build** insights and interventions – the design of our interventions is an iterative and collaborative process. We draw on fieldwork findings, academic research and behavioural frameworks to develop insights about the behavioural bottlenecks and enablers.
3. **Test, learn, adapt** – when we introduce the intervention(s), we want to determine the impact in the most rigorous way possible. Where we can, we use randomised controlled trials (RCTs), which compare the effectiveness of our intervention(s) against what would have happened if nothing had changed.

Reducing missed outpatient hospital appointments



UNDERSTAND PHASE

When a patient misses an appointment it costs SVH around \$125 – a total of \$500,000 a year¹.

The BIU partnered with SVH to test whether low cost text messages could improve outpatient attendance rates.

Initially, we reviewed the behavioural science literature and evidence to build a better understanding of what may cause people to miss their appointments and to identify where our work could fit into the development of a more nuanced understanding of what works in this space.

The literature suggested that the main reason for patients not attending appointments was that they forget^{2,3}. This fits with our broader understanding of behaviour where there is often a gap between people’s intentions and actions. To overcome this reason, many hospital clinics use text messages to remind patients of their appointment. This has been shown to be effective in systematic reviews and is more cost-effective than telephone reminders^{4,5,6}.

While text messages are effective as reminders, trials undertaken by the UK BIT found that the content of the messages really matters when trying to change short term behaviour⁷. As a result, BIT’s study found that people cared about the specific costs of their ‘no show’, however, it was not clear from this work if it matters who bears the costs or how those costs are framed. This was a clear gap in the evidence, and something we wanted to test as part of our study.

BUILD PHASE

When entering the ‘Build’ phase, we wanted to know what we could do to highlight the importance of attending appointments (to patients, the hospital and others) and provide salient prompts.

We used insights gained from the ‘Understand’ phase to work with staff to design seven new messages that were sent out with the original message, which acted as the control message

NAME	MESSAGE
Control	You have an appointment with Dr [XXXXX] in [Clinic XXXXXX] on [Date] at [Time]. For enquiries, call 8382-3150. Do not reply.
Aggregate loss to hospital	Last year the hospital lost \$500,000 due to lost appointments.
Loss to hospital	If you do not attend the hospital loses \$125.
Loss to patients	If you do not attend the hospital loses \$125 that can be used to treat other patients.
Avoided loss to hospital	If you attend the hospital will not lose the \$125 we lose when a patient does not turn up.
Avoided loss to patients	By attending the hospital will not lose the \$125 that we lose when a patient does not turn up. This money will be used to treat other patients.
Free not to attend	You are free not to attend but please call us on 8382-3150 if you need to cancel or rearrange.
Recording	Please attend or call 8382-3150 to cancel/rearrange, or we will record as a missed appt.

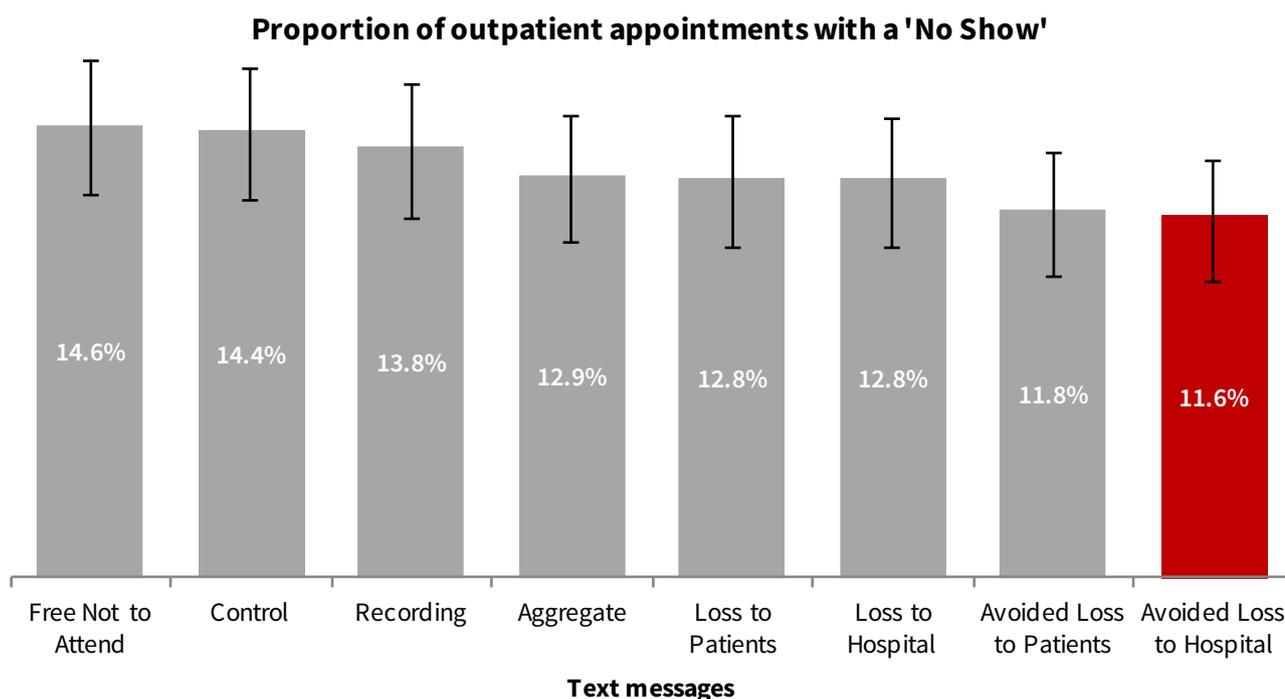
TEST PHASE

We ran an RCT to test which messages were most effective at reducing missed appointments or 'no shows'. Text messages were sent 8,143 times to 5,188 different patients. The graph below shows that there was a trend for the 'avoided loss to hospital' message in reducing no shows. Once we adjusted for demographics and the frequency of peoples' appointments, we found that patients who received this message were almost 20% more likely to attend their appointment than patients who received the control message ($p = .03$).

These results imply that people care about the specific cost of their no show, especially when they know they are preventing a loss to the hospital and other patients. It may be that people care about who bears the cost of their no show but are more motivated by being able to play a part in preventing the loss.

We estimate that if this message is sent out in all clinics there is likely to be a cost saving of \$67,000 each year in SVH alone. If SVH had the phone numbers of all patients, this would increase to \$97,000. This would lead to significant cost savings if scaled up across the NSW health system.

In line with a 'Test, Learn, Adapt' methodology, we are continuing to test the highest performing messages against new messages that have been co-designed with staff.



¹Initial appointments are known to consume more administrative and clinical resources than follow-up appointments. Non-attendance means patients wait longer for specialist treatment and hospital resources are not used efficiently. Under Activity Based Funding, patient level costing allocates costs directly to individual patient episodes. As the cost of no shows cannot be attributed to a patient episode, it has to be spread across those patients that actually attended, making the episode more expensive.

²Neal RD, Hussain-Gambles M, Allgar VL, Lawlor DA, Dempsey O. Reasons for and consequences of missed appointments in general practice in the UK: questionnaire survey and prospective review of medical records. *BMC Fam Pract* 2005;6:47-52.

³Murdock A, Rodgers C, Lindsay H, Tham TCK. Why do patients not keep their appointments? Prospective study in a gastroenterology outpatient clinic. *J R Soc Med* 2002;95:284-6.

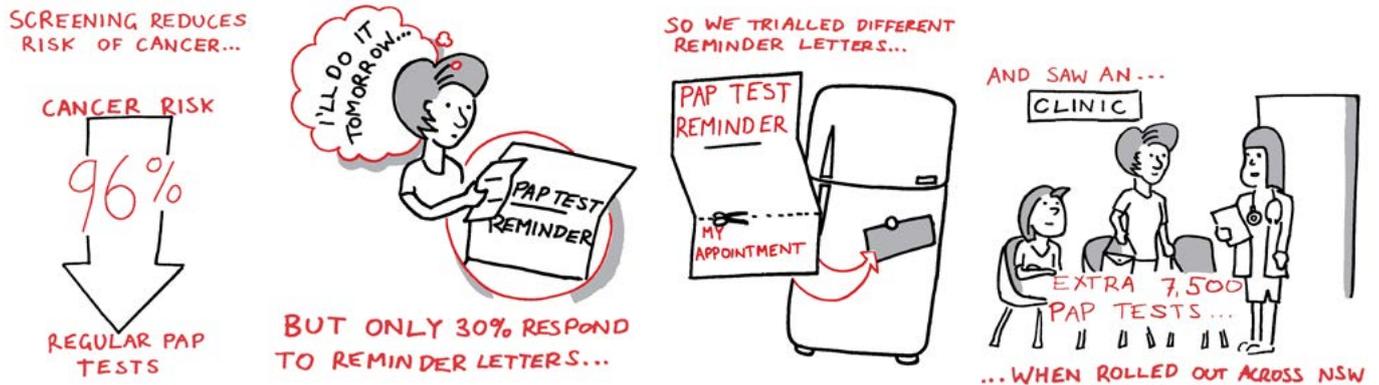
⁴Car, N. J., Christen, E. W., Hornbuckle, J. W., & Moore, G. A. (2012). Using a mobile phone Short Messaging Service (SMS) for irrigation scheduling in Australia-Farmers' participation and utility evaluation. *Computers and Electronics in Agriculture*, 84, 132-143

⁵Fjeldsoe, B. S., Marshall, A. L., & Miller, Y. D. (2009). Behavior change interventions delivered by mobile telephone short-message service. *American journal of preventive medicine*, 36(2), 165-173

⁶Junod Perron N, Dao MD, Righini NC, Humair J-P, Broers B, Narring F, et al. Text-messaging versus telephone reminders to reduce missed appointments in an academic primary care clinic: a randomized controlled trial. *BMC Health Serv Res* 2013; 13: 125131. doi: 10.1186/1472-6963-13-125

⁷Behavioural Insights Team, <http://www.behaviouralinsights.co.uk/trial-results/reducing-missed-appointments/> (2015).

Increasing cervical screening rates



UNDERSTAND PHASE

The BIU partnered with the Cancer Institute NSW's Cervical Screening Program to test whether variations to the framing of the 27 month cervical screening reminder letters could lead to an increase in the number of Pap tests in response (over and above the usual response).

Regular Pap tests can reduce women's risk of being diagnosed with cervical cancer by up to 96%. Each year Cancer Institute NSW sends out around 368,000 reminder letters, however fewer than 30% of women make an appointment after receiving their letter. The BIU wanted to understand more about what was influencing these women's behaviour and how we could improve screening rates.

We met with subject matter experts and looked at the behavioural insights evidence to develop a deeper understanding of what was driving this behaviour. Some insights gained were:

- The reminder letters required women to make an appointment with their health professional, which may have been a barrier to action.
- People may have low perceived susceptibility relating to their risk of developing cervical cancer.
- People intend to make an appointment but these intentions do not always translate into action.
- Some people may be more motivated to change their behaviour if health risks are illustrated by personal stories, rather than by statistics.

BUILD PHASE

We used the insights gathered during the 'Understand' phase to inform a workshop with Cancer Institute NSW staff to co-design new 27 month reminder letters. Some techniques used in the letters were:

- Normalising screening behaviour by informing women of how many others in their area had been screened.
- Highlighting the risks of not screening.
- Simplifying the layout and content of the letters to make the facts and 'call to action' more salient.
- Using a case study of a woman who had cancer but due to screening picked up the abnormalities early and was therefore able to receive effective treatment.
- Inclusion of a cut out commitment device on the bottom of one of the letters so that once a woman had made her appointment it would act as a visible prompt to remind them to attend.

In total four new reminder letters were designed in addition to the control letter. The consistent variable across all of the new letters was the use of 'gain framed' messages in relation to the benefits of screening, which the evidence suggests can be more impactful than loss framed messages.

TEST PHASE

We ran an RCT to test which letters were more effective at prompting women to have a Pap test. A total of 75,000 letters were sent to women in NSW over a three month period. All letters were more effective at encouraging women to have a Pap test in comparison to the control letter (29.7% response rate). The most effective letter contained the commitment device, or appointment reminder prompt, at the bottom of the letter. This performed significantly better than the control letter ($p < .05$), with 32.2% of recipients having a Pap test within three months.

The four trial letters are included below:

Gain Framed

Your Pap test is 3 months overdue

Book a Pap test appointment with your doctor or nurse within the next two weeks.

Join the 50,000 women in Northern NSW who had their Pap test in the past two years. Regular Pap tests can reduce your risk of cervical cancer by 96%. It takes less than 15 minutes and may save your life.

Your last Pap test was performed on <Cytology_Request_Date>, which means you are now three months overdue for your next two-yearly Pap test.

For more information, call us, visit our website or speak to your doctor or nurse.

Anna Burnham
Program Manager
NSW Cervical Screening Program and NSW Pap Test Register

Gain Framed + Salient messages

Your Pap test is 3 months overdue

Book a Pap test appointment with your doctor or nurse within the next two weeks.

Join the 50,000 women in Northern NSW who had their Pap test in the past two years.

Regular Pap tests can reduce your risk of cervical cancer by 96%.
They take less than 15 minutes and may save your life.

Your last Pap test was performed on <Cytology_Request_Date>, which means you are now three months overdue for your next two-yearly Pap test.

Anna Burnham
Program Manager
NSW Cervical Screening Program and NSW Pap Test Register

Gain Framed + Case Study

Your Pap test is 3 months overdue

Book a Pap test appointment with your doctor or nurse within the next two weeks.

Join the 50,000 women in Northern NSW who had their Pap test in the past two years.

"Having my regular Pap test saved my life by picking up the signs of cancer early" – Pamela Hardy

Regular Pap tests can reduce your risk of cervical cancer by 96%. It takes less than 15 minutes and may save your life.

Your last Pap test was performed on <Cytology_Request_Date>, which means you are now three months overdue for your next two-yearly Pap test.

Anna Burnham
Program Manager
NSW Cervical Screening Program and NSW Pap Test Register

Gain Framed + Commitment device

My next Pap test appointment:

Date: _____ Time: _____

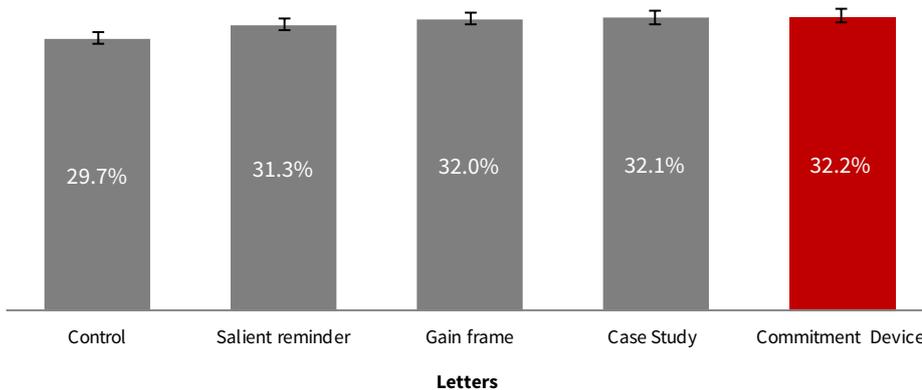
Doctor/Nurse: _____

Location: _____

My next Pap test appointment:
Date: _____ Time: _____
Doctor/Nurse: _____
Location: _____

Our analysis indicates that over a 12 month period the commitment device letter could lead to an additional 7,500 women attending their Pap test appointment within three months of receiving their reminder letter. Based on the outcomes of the RCT, the Cervical Screening Program will be rolling out this letter state-wide. We are in the process of working with the Cancer Institute NSW to conduct a sub-group analysis, which may inform future strategies for further increasing screening rates.

Response rate for 27 month Pap test reminder letter



ISBN 978-0-7313-5432-0

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