

Text Messaging - Benefits for Patient and Health Provider

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Abstract

Health service delivery is impacted by patients who fail to attend previously booked appointments. These are called 'Did not Attends' (DNAs) and the negative consequences of DNAs mean wasted or underutilised resources and patients failing to receive care that may improve their health and quality of life. In many cases these patients may present later with significantly worse problems and can need more resources than would have been required previously.

Dialhog, in collaboration with two District Health Boards, conducted text messaging pilots with a goal of reducing DNAs.

Analysis was undertaken of the DNA rates before and after text message reminders were introduced within certain clinics of the two District Health Boards – Counties Manukau & Bay of Plenty. One of the factors analysed was ethnicity because of the disproportionately high rates of Maori and Pacific groups within the DNA statistics.

Results clearly demonstrate that sending text message appointment reminders substantially reduces DNAs. Significantly, the improvements for Maori exceed the overall average, showing benefits in support of health service objectives to reduce inequalities for Maori. .

This paper will describe the pilots, the methodology and the results. It will also comment on the scalability and application of the benefits of this innovative initiative within health settings.

1. Counties Manukau District Health Board – Manukau SuperClinic

1.1. Text Message Sequence and Timing

Counties Manukau District Health Board were the first DHB that Dialhog began working with. Their Manukau SuperClinic were concerned that while previous initiatives such as outbound reminder calling had brought their DNA rate down, it had remained fairly constant at around 12%.

Although no formal research was done, planning was started from the perspective that all previous research into the DNA problem concluded that the number one reason that patients gave for failing to attend was that they had forgotten the appointment.

It was suspected that this was because the other methods of appointment reminder used, letter and phone calls, left a substantial time gap between the reminder and the appointment – perhaps weeks in the case of letters, and three working days for phone calls, which could mean five calendar days if these spanned a weekend.

Other factors considered were how to handle patients who either didn't have a cellphone or for whom no cellphone number existed in their patient record.

The conclusion reached was that for maximum overall benefit there was a need to attempt to send two text messages, the first a day prior to the day that the Outbound Callers would be attempting to contact the patient, and a second text as close as possible to the appointment itself.

Extracts were taken from the patient management system for patients with upcoming appointments within the timeframe, and the data sent to Dialhog. Text messages were generated and the first text message sent. The goal was to eliminate or reduce the need for an Outbound Caller to phone, creating savings in the phone bill - texts being much cheaper than calls to mobiles - as well as FTE savings in the Call Centre.

The second text message was sent in the afternoon of the day before the appointment, for appointments before midday, and on the morning of the appointment itself for appointments after midday.

1.2. Text Message Content

As text messages generally come from family and friends, this created both an opportunity and a potential hazard. If the wording was right then patients might feel more personally connected to their health provider, if not it was possible that they might feel as if their personal space had been invaded.

It was felt important that, rather than a general, non-specific text saying something like “Don’t forget your appointment tomorrow”, the text should be personalised with information relevant to the particular patient. This included greeting them by name and giving the time and location of the appointment. That way the text could also be used as a portable information source should it need to be referred to again later.

The approach also needed to cater for two distinct audiences – those for whom texting was a daily part of their lives and those who perhaps in general were older, who would be perfectly capable of receiving a text message but who may not be comfortable or knowledgeable about replying by text message.

For this reason the text gave patients the options of replying by text or phoning an 0800 number should they need to. Text replies were routed as emails to the relevant booking areas for response and follow up as appropriate.

Text message content can be changed easily as circumstances require. Counties Manukau DHB have changed their usual second reminder text, for the duration of the H1N1 pandemic, to ask patients to phone them if they have flu.

1.3. Results

The rollout started in March 07 in one of the SuperClinic’s booking and treatment areas – Module 5. It quickly became apparent that the results of a small earlier pilot were being confirmed. The DNA rate in Module 5 dropped from 13% to 11% - a 15% reduction. At this stage 40% of patient records in the module contained a cellphone number, meaning that the DNA reduction caused by texting was even more significant once this was factored in – effectively indicating that a patient reminded by text was approximately 40% less likely to DNA than one who wasn’t.

By the middle of June 07 all the Modules at the Manukau & Botany SuperClinics were in the texting program.

The statistical year for CMDHB ends June 30. Total appointment figures for 08/09 are to end March.

Table 1 shows that there was 17% reduction in the overall DNA rate achieved as a result of texting and this result was from the 50% of patients receiving texts. Thus a patient reminded by text is overall 33% less likely to DNA than one who isn’t.

Over the period since texting was introduced, it is extrapolated that almost 6500 patients have attended appointments who otherwise would not have, with all the benefits this will have brought them. This initiative was even more effective for Maori with their DNA rate reduction 10% better than the overall average.

DHB management are also clear that early treatment is always going to be less costly in the long run, and that assisting patients to attend their appointments means that there are also longer term budget benefits as well as the immediate ones.

Table 1 - Manukau SuperClinic DNA statistics by year

	05/06	06/07	07/08	08/09
Overall DNA rate	12%	12%	10%	10%
Maori DNA rate	22%	22%	18%	18%
Patient records with cellphones	n/a	43%	57%	62%
Patients received text	n/a	n/a	49%	52%
Total appointments	177,722	179,585	179,433	143,887

2. Bay of Plenty District Health Board

2.1. Text Message Sequence and Timing

With Bay of Plenty DHB there were two slight changes to the overall strategy first utilised at Counties Manukau DHB. Counties Manukau made the decision to replicate the system already in place for their Call Centre and to send the first text reminder to all their patients, whether they had already confirmed their appointments or not.

Bay of Plenty decided that they too would replicate their Outbound Calling system, but that as they only attempted to contact patients with unconfirmed appointments, a first text message would be limited to those with unconfirmed appointments. The second text reminder would be sent out the day before the appointment to all patients.

2.2. Text Message Content

There were no significant changes to the text message content

2.3. Results

A text messaging appointment reminder pilot started in November 08. The pilot was initially scheduled to run for a three month period, but because of the Christmas holiday period, it was decided to extend this to the end of March 09.

During the period clinics were added to the list of those being texted, particularly in March, the final month of the pilot. In doing analysis of this pilot, only the list of clinics in the texting program at the end of March was available to work with as well as all the attendance and non-attendance figures.

For this reason it was decided to do two comparisons – a comparison for the period Jan to Mar 08 with Jan to Mar 09 for the clinics on the texted list, and those not on this list. It was known that some of the clinics on the texted list weren't being texted for the full period and for this reason another comparison was done using the March figures alone.

As Table 2 shows, again the results were very clear cut. There was a small but measurable rise in the DNA rate of the clinics not using texts, and a significant and measureable reduction in the DNA rate of the clinics that did use texts.

The figures for patient records with cellphone numbers was 44% for the period and for texts received 38%

So from these rather more limited figures it could be deduced that a texted patient is between 38% & 69% less likely to DNA than a patient not texted.

In March 09 there were a total of 5764 appointments in the clinics being texted with 510 no-shows. Based on the March 2008 DNA rate, 693 DNAs could have been expected, meaning an extra 183 patients attended, with all the downstream benefits that would be expected to result from this for the patients themselves and the DHB.

The DHB had 21,727 appointments in total that month, meaning that approximately 25% of their clinics by patient numbers were part of the texting program at that date.

The results of the pilot were regarded as being extremely successful and the texting program is now being rolled out throughout the DHB.

Again for DHB management it was regarded as accepted fact that providing early treatment for patients was not only better for the patients themselves, but had longer term financial benefits from a budgeting perspective for the DHB.

Table 2 - Bay of Plenty DHB Comparative DNA statistics

	Clinics using texts at Mar 09	Clinics NOT using texts at Mar 09
Jan 08 - Mar 08	11.19%	5.72%
Jan 09 - Mar 09	9.57%	6.27%
Change	-14.48%	+ 9.62%
Mar 08	12.03%	5.76%
Mar 09	8.85%	6.47%
Change	-26.4%	+ 12.3%

Table 3 - Acceptance Survey Results

	Texts sent	Response rate	Approve	Disapprove
Counties Manukau DHB	361	46%	99%	1%
Bay of Plenty DHB	160	55%	99%	1%

3. Patient Acceptance

As part of the pilot process for both DHBs, a text message was sent to a random group of patients asking whether they liked or didn't like the text reminder they had recently received and inviting them to comment further if they wished.

An average 50% response rate shows that patients felt very engaged with the survey question and the results, which confirm each other, make it clear that there is an extremely high degree of patient approval for text reminders. It is worth examining some of the comments that were made to gain some extra understanding of why this is.

Many of the replies simply offered thanks or said the reminder text was a good idea, but some were more specific saying that they found the text helpful, an excellent service and that they liked to be reminded and .it made life easy for them.

This is probably the most crucial point. It appears that from the patient's perspective being reminded in this way is seen as a valuable self-management tool. Many of the every day text replies that come into both DHBs are simple "Thanks" and "See you then", which makes it clear that the patient sees texting as the friendly, helpful & personal face of the DHB.

4. Information Security

4.1. Information Transfer

All transfer of data to and from the texting application servers and to and from the texting gateways, takes place encrypted under https.

4.2. Data storage

Any data is held is in physically highly secure premises and is in encrypted directories and databases.

4.3. Additional detailed security policies

There are additional and detailed security policies in place to safeguard the privacy and security of all information provided for the provision of the texting services described in this paper. They are available on request.

5. Application and Scalability within Health

5.1. Scalability

Some scalability issues were encountered as the texting service expanded within Counties Manukau DHB. One of these was, as the database of texts sent expands with time, the time taken to perform searches in text message History became less than optimal. The same was true of searches by Patient Name.

This was solved with a user setting that allowed the User to select the time period for searches. Most searches are for very recent information and this returned search performance to acceptable levels.

Other scalability issues were the management of text messaging templates and other individual requirements from various service areas. These were addressed by providing totally separate databases and functional areas for service areas that requested it.

Counties Manukau DHB is one of the largest DHBs in the country. Consequently there can be a high degree of confidence that there are no major remaining issues outstanding in this area.

5.2. Application

The results of these two pilots provide a robust endorsement of text messaging as an effective and successful tool for patients and health providers alike.

It would appear likely that most areas of health provision, from small health providers such as physiotherapists, where text reminders are becoming more common, to large DHBs, will benefit from adopting this technological initiative in some form.