Reducing Patient Appointment No-Show Rate Using Text Messaging Systems in a Single Provider Ambulatory Care Clinic.

SOUTHWEST VIRAL MED

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Three Problems

Only 1 Full Time Equivalent Provider
Having one provider placed limits on total available appointments.

High No Show Rate
Does not allow us fully utilize provider availability and prevents clients who are able to be seen. Directly impacts measures, such as gaps in care and frequency of visits[1].

Inefficient Automated Text System
Current automatic text message systems in place was not effective and did not contribute to reducing the no-show rate.

Programs Used

ENLI[2]
A workflow management program that integrates with the clinics EMR. This integration provided demographic information including mobile phone number to automatically populate in the program we used to send text messages.

Twilio[3]
Provides solutions by offering communication API's that integrate and allow various means of communication just as email, voice, video and in this case SMS. This allowed us to send a no-reply message to each individual client.

Why ENLI and Twilio?*
We were already using ENLI and their workflow function made sending a text message as easy as clicking a button. Twilio offered $500 in credits free to no-profit organizations. The purpose was to develop a system that would have little to no impact the current workflows in place at the practice.

Note: This method is not limited to any high-tech software or programs but can be as simple having a phone line that can utilize text messages along with a copy and paste function to reduce the impact to clinic/staff workflow.

Figure 1: Graph of Attended Vs No-Show Rate prior to implementation of Human Language Driven SMS communication.

Confirm your 2:20PM appt on 7/20/20 at SUNSET ID CARE with OGECHIKA ALOZIE via [link]. Txt HELP for help. Txt nnnSTOP to end alerts.

Figure 2: EMR automated text message as seen on Messages app on iPhone

Figure 3: Enli Health Intelligence Logo

Figure 4: Twillio Logo

Methodology

Using ENLI and Twilio, the same two messages (shown right) were sent to patients to those not able to be contacted via traditional means such as phone or voicemail.

The messages were sent 2-3 days before their appointment.

Purpose of these messages was to:
♦ Schedule and fill gaps.
• Remind patients of upcoming appointments.
• Notify them there was a person behind the message.

Data

Pulled from the electronic medical record the number of appointments attended and missed appointments which is used to calculate the no show rate ("no labs" and "no show").
Number of appointments attended
Missed appointmnets - patients appointments cancelled due to:
　　　• Labs tests not completed "no labs"
　　　• No show to appointment "no show"

The time frame measured:
• 3 months before leading up to the implementation ("before")
• 3 months after implementation ("after")

Hi, this is Armando from Dr. Alozie's. We haven't seen you in more than 6 months. Can you call us at (915) 555-0123? Thank you. Do not reply to this message.

Figure 5 First Example of Human Driven text message as seen on the Messages app on iPhone

Hi, this is Armando from Dr. Alozie's. I just called regarding an upcoming appointment, labs and referrals. Can you call me back at (915) 555-0123? Thank you. Do not reply to this message.

Figure 6: Second Example of Human Driven text message as seen on the Messages app on iPhone

Results

Appointments	Before	After
Attended	269	264
Missed	134	76
No-Show Rate	33%	22%
Total	403	340

Missed	Before	After
No Show	73	41
No Labs	61	35

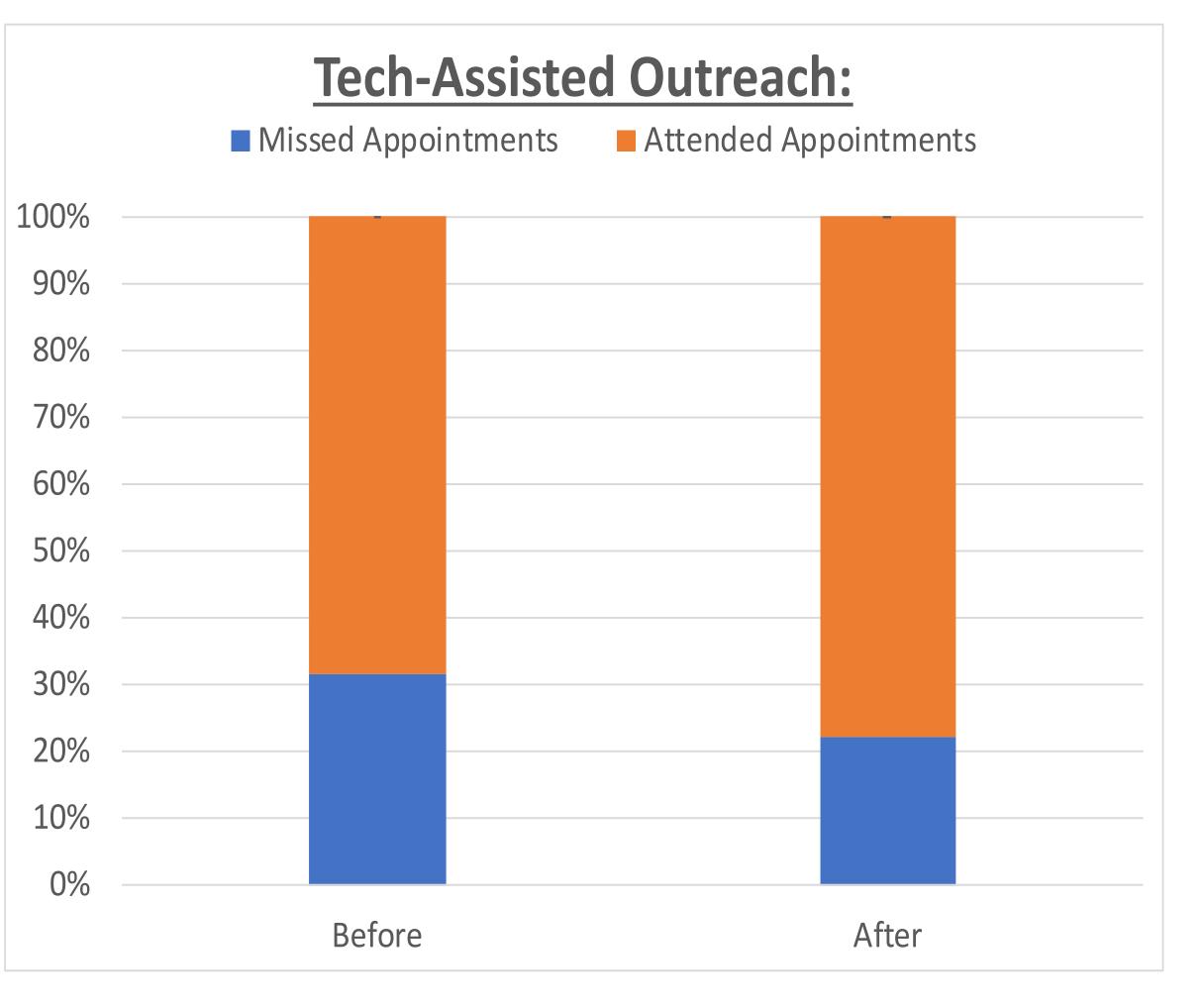Table 1: Shows appointment results from before and after implementation

Figure 7: Graph shows attended and missed appointments rate as a percentage before and after implementation.

Discussion

Expected
• "No Labs" number expected to decrease while "No shows" was expected to increase.
• More clients completing labs meant more clients able to no show to thier appointment.
• Only a 5% difference between before and after.

Actual
• Both "no labs" and "no shows" decreased more than expected over the time frame.
• Overall difference was 11% between before and after dropping our no show rate by a third.

Difficulties Experienced and Recommendations

Incorrect phone numbers
The system did not notify if the message was delivered in the event the patient had an different number.

Broadcast Limitation
One way messaging limited the workflow to rely on the patient calling back for confirmation. If messaging was 2-way, data could have been collected on how many clients recieved the text.

Second Method of Contact
If patients were unable to be reached by phone, the message would be sent. An item to improve would be testing this to be the primary method of communication. Placing SMS as the primary method of contact will allow us to measure direct impact.

Conclusion

Bottom Line
• Text Messages work to reduce no-show/missed appointments rates and are better when they are backed by human driven language where provider availability is already limited.

• While a program and API were used in this scenario, this is not limited to using any high-tech processes.

• Anything that can utilize SMS can be used.

References
1. Follow-Up Visits. Texas DSHS HIV/STD Program. https://www.dshs.texas.gov/hivstd/taxonomy/outpatient.shtm
2. ENLI Central Worklist. https://www.enli.net/about/
3. Twilio. https://www.twilio.com/messaging