

Healthimo Asthma Modules (DCHP/OAT Year Two)

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Overview

The Problem

Asthma is becoming a growing problem for children. This approach will employ creative technology enhanced methods to improve patient adherence to prescribed treatment. Using readily accessible text messaging and email technology this approach gives a 90 day educational program for anyone diagnosed with asthma.

1 Areas of Focus

- 1) Helping the patient follow their Action Plan
 1. Daily use of a controller
 2. Symptomatic use of a reliever upon first signs of difficulty in breathing and staged reuse until symptoms clear.
- 2) Use of peak flow for educational purposes and full loop spirometry for measurements

2 Common Barriers to Self-care (Why people don't follow their Action Plan)

- 1) Forgetting to take the controller
- 2) Not identifying difficulty in breathing – lack of spirometry for indication
- 3) Peer pressure – not wanting to be different and skipping treatment
- 4) Need more education in
 1. Symptoms
 2. Environment
 3. Triggers

Asthma Education Summary

This approach will integrate technology into the cycle of care, with data transmission from mobile phones, resulting in a data driven process including remote insight and behavior change. Registration will be via web (hfstx.org) or text message (TEXT healthy asthma to 25827).

This approach is designed for patients previously diagnosed with chronic asthma and already prescribed with a routine of daily controllers and relievers as well as regularly scheduled follow up visits. Baselines will be established for each patient using full loop spirometry where possible. The educational messages as a tool to help the patient understand symptoms, environment and triggers.

ZipIt! Technology will be used to collect patient medication compliance data, provide education and deliver a satisfaction survey to patients. ZipIt! Technology is a secure mobile text messaging based application that makes it possible for the patient to remotely enter data into the system in just a few seconds. Children as young as ten years old are able to use Zip It! Technology with just a few minutes of training.

Key features are:

1. Patient Notifications via SMS or email
2. Compliance data collection using Zip It! Technology and Text Messaging
3. Education using Zip It! Technology and Text Messaging
4. Periodic messages focused on Zone awareness to engage patients
5. Periodic messages focused on Encouragement and Reinforcement

Patient Groups

Open to anyone with asthma or an interest in learning more about asthma

Success Metrics

- 1) Satisfaction
 - Patient
 - Parent
 - School Nurse
 - Medical Staff
 - 2) Sustainability
 1. Patient
 1. Quality of Life survey at beginning and end of pilot
 2. Clinicians
 3. Home Health
 4. Parent
- ZipIt! technology will be used for a three question patient survey (for Patients in Flow 1b that have been provided with the ZipIt! Technology).
 - Metrics
 - Number of one way messages sent
 - Number of two way messages sent
 - Number of responses to two way messages

Methods

Definitions

Zones

- Well controlled – green
- Mild to medium symptoms – yellow
- Severe symptoms – red

If a patient remains in the yellow category for 24 hours then they are automatically reclassified to the red or severe category.

4 uses of a reliever within any 24 hr period is a cause for concern.

Contact Points – The patient/guardian will be asked to provide two cell phone numbers and one email address.

Action Plan

- Template: http://www.nhlbi.nih.gov/health/public/lung/asthma/actionplan_text.htm
- Self care plan customized to each patient's needs
- “Follow your action plan”
 1. Mantra

2. Always end with “If don't improve, call Dr.”

Adjunct Education – Education about symptoms, environment and triggers

1way Notification Message – An outbound notification message where no response is expected

2way Request Message – An outbound message where a response is expected

Participation – the patient is 'participating' if there is response to a 2way Request Message or ZipIt! Request within the last 7 calendar days

Key Features

1 Full loop spirometry data collection

- 1.1 In office

2 Patient Notifications via SMS or email

- Notifications will be sent to all contact points for a patient
 - Patient
 - Caregiver
 - via email and text message (for those who have opted in to receive texts)
- 2.1 Appointment Reminders
 - 2.1.1 For appointments, contact healthimo with the latest schedule
- 2.2 Ozone Alerts
- 2.3 Pollen Alerts

3 Compliance data collection using ZipIt! Technology

- 3.1 Medication logging via ZipIt! Technology
 - 3.1.1 Use of Reliever
 - 3.1.1.1 “Register” use of inhaler; e.g. record first use (for this period) in ZipIt!
 - 3.1.1.2 Patient will be asked to use ZipIt! to log the first use for inhaler.
 - 3.1.1.3 Maximum of two logs per week.

4 Daily controller reminder message combined with data collection and education

- 4.1 Patients commonly set reminder alarms to remember to take their controller each day
- 4.2 We collect the time of day the patient would like to take their controller
- 4.3 A text message will be sent to the patient each day of the week at their preferred time of day.
 - 4.3.1 Messages do not say “take your controller”! Instead, the receipt of the message itself serves as the reminder to take the controller. The message content is used to deliver education and request information.

4.4 Data Collection

- 4.4.1 There are two data collection requests per week
 - 4.4.1.1 Once per week a message asking how many times the patient missed/forgot controller
 - 4.4.1.2 Once per week a message asking the patient what zone they are in
 - 4.4.1.3 How are you feeling, what zone are you in (green, yellow or red)?
 - If they reply with 'green', they will get the following response:
 - Follow your action plan. In case of medical emergency, call 911.
 - If they reply with 'yellow', they will get the following response:
 - Follow your action plan, and if you don't improve, call your Dr. In case of medical emergency, call 911.
 - If they reply with 'red', they will get the following response:

- Follow your action plan, and if you don't improve, call your Dr. or go to the ER. In case of medical emergency, call 911.
 - If they reply with anything else, they will get the following response:
 - Please reply with green, yellow or red for zone. In case of medical emergency, call 911.
 - 4.4.1.4 The following default message will be sent for any unexpected or uninterpretable inbound message:
 - In case of medical emergency, call 911.
 - 4.5 **Education**

Get patients engaged in identifying how these concepts apply to them personally by asking them questions in the Zip It! Application, and reporting this information back to CMC staff

 - 4.5.1 Symptoms
 - Concept: What are *your* symptoms? They are very patient specific. Get them to think in terms of *their* asthma symptoms, triggers, etc.
 - Symptom checklist display incl use of Peak Flow (use std checklist)
 - 4.5.2 Environment. Where are you? What is around you?
 - Second hand smoke,
 - Ozone,
 - Weather,
 - etc.
 - 4.5.3 Triggers. What are *your* triggers?
 - 4.5.3.1 List from meds was discussed
- 4.6 **Periodic messages focused on Encouragement and Reinforcement**- 4.6.1 Every message should encourage and reinforce
- 4.6.2 Additional messages each week with encouragement/reinforcement regardless of zone, participation etc.

Patient Enrollment Process

1. Patients will be enrolled using a data feed provided by Driscoll Children's Health Plan
 1. The data feed will be updated monthly so new patients can be contacted
 2. The data feed will include anyone who has been previously diagnosed w/ asthma (either persistent or non-persistent)
2. The patients will be asking if they want to opt-out of asthma education messages
 1. If they opt-out, all messaging to them will stop
 2. If they do not opt out, they will receive the text messages described in this specification

Messages

Message Frequency

1 Notification and Reminder Messages

Message Type	Schedule	Total	Note
Patient Setup	At Patient Enrollment	1	Confirm phone numbers and email addresses are correct
Appointment Reminder	24 hours before each appointment	2	Sent at same time appointment is scheduled for on the following day
Pollen Notification	Ad-hoc	0-17	1. Sent 1x per week, at 8am or 10 minutes after AM controller reminder 2. For mold, grass, trees and weeds. 3. Sent if level is 'HIGH' or higher.
Ozone Notification	Ad-hoc	0-17	1. Sent 1x per week, at 8am or 10 minutes after AM controller reminder 2. If level is 'red' or higher, sent daily. 3. If level is 'orange', sent on first successive occurrence per week. O O R P Y O Ozone Level (O=Orange,R=Red) Y N Y Y N Y Sent? (Y = sent, N = not sent)

2 Weekly Messages

- There may be more messages in the library than the total here because there can be multiple messages for each message type (e.g. more than one way to ask how you are feeling and what zone you are in).

Number of weeks patient is enrolled	17
Number of messages with replies	2

Message Type	Reply?	AM	PM	Note
1. Controller compliance	Patient replies with the number of times missed controller this week	17	17	
2. Zone Question	Patient replies with current zone they are in	17	17	System replies to patient response per Flow 1b
3. Encouragement	-	17	17	
4. Symptoms	-	17	17	

Message Type	Reply?	AM	PM	Note
5. Environment/Triggers	-	17	17	
6. Medications	-	17	17	
7. Health/Body	-	17	17	
Totals	34	119	119	272
Total Scheduled Outbound		119	119	238

Example Messages

- Message (+Subject) can be up to a max of 130 characters.
- A two line message in this format is 130 characters.
- To wrap to second line, add a space (e.g. the second example message, the word max has a space after the a (ma x)).

1 Example Message

```

1      2      3      4      5      6
12345678901234567890123456789012345678901234567890123456789012345
This is a message example and this message is 65 characters long.
```

2 Example Message

```

1      2      3      4      5      6
12345678901234567890123456789012345678901234567890123456789012345
This is an example of a 130 character text message that is the ma
x length supported by standard text messaging by all phones in US
```

Patient Setup Message

1 Phone Number Confirmation Message

```

1      2      3      4      5      6
12345678901234567890123456789012345678901234567890123456789012345
Thank you for enrolling in the healthimo asthma management
program. Please reply to confirm this phone on your profile.
```


One Way Reminder and Notification Messages

1 Appointment Reminder

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

Marie has a home visit tomorrow 9:30 AM at your home. Thanks,
your home health nurse.

2 Pollen Notification

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

Fungus, Juniper, Grass are High. Follow your Action Plan!

Source: <http://www.pollencount.com/>

3 Ozone Notification

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

Ozone alert - air pollution watch level Orange. Follow your
Action Plan!

Source: http://www.tceq.state.tx.us/cgi-bin/compliance/monops/ozone_actionday.pl

Data Collection Messages

1 Controller

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

Everyone misses controller. How many times did you miss this
week?

2 Zone

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

How are you feeling.. what zone are you in?

Education Messages

1 Symptoms

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

Asthma is a condition. That means that sometimes you notice it, and sometimes you do not. But it is always there.

2 Environment

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

You might be allergic to pets. Every breath you take at a home with pets is filled with allergens.

3 Triggers

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

Smoke is a big asthma trigger, so cigarette smoke avoidance should be a #1 rule.

4 Encouragement

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

Great job. This new program is here for you because a lot of people care about you and your health.

5 Medications

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

Asthma medicines are NOT addictive. Take them as your doctor recommends.

6 Health/Body

1	2	3	4	5	6
1234567890	1234567890	1234567890	1234567890	1234567890	1234567890

The # of breaths you take every minute is your respiratory rate. You take over 20 thousand breaths every day, over 7 million/yr