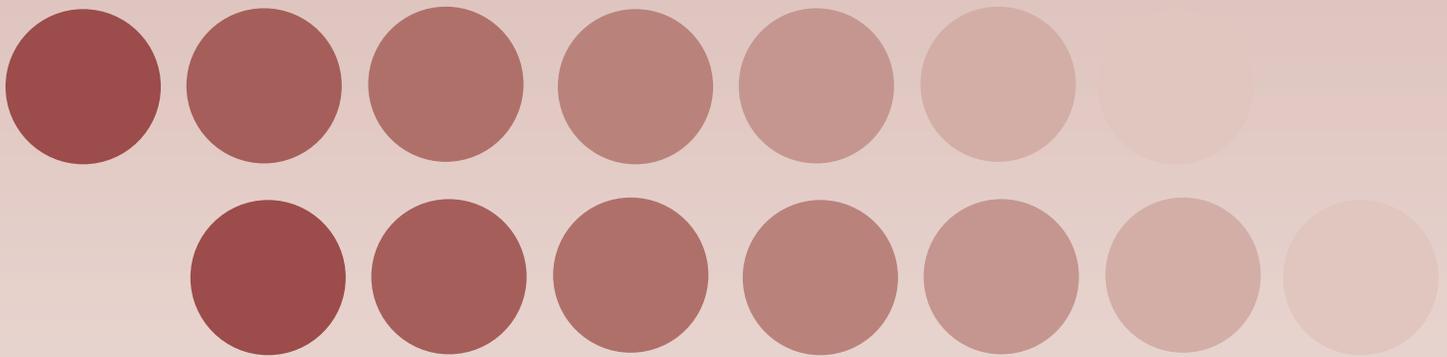


*Final ACTION Contract Report*

# Secure Messaging in a Pediatric Respiratory Medicine Setting Implementation Handbook



Agency for Healthcare Research and Quality  
Advancing Excellence in Health Care • [www.ahrq.gov](http://www.ahrq.gov)

This page intentionally left blank.

# Secure Messaging in a Pediatric Respiratory Medicine Setting

---

## Implementation Handbook

**Prepared for:**

Agency for Healthcare Research and Quality  
U.S. Department of Health and Human Services  
540 Gaither Road  
Rockville, MD 20850  
[www.ahrq.gov](http://www.ahrq.gov)

**Contract Number:** HHSA290200600015, TO #2

**Prepared by:** Yale New Haven Health System Center for Healthcare Solutions

**Project Team/Contributing Authors:**

Allen Hsaio, M.D. (Principal Investigator)  
Alia Bazy-Assad, M.D.  
Andrea Benin, M.D.  
Concettina Tolomeo, DNP, APRN, FNP-BC, AE-C  
Beverly M. Belton, R.N., M.S.N., NE-BC  
Diana Edmonds, A.A.S.

**AHRQ Publication No. 12-0012-1-EF**  
**January 2012**

This document is in the public domain and may be used and reprinted with permission except those copyrighted materials that are clearly noted in the document. Further reproduction of those copyrighted materials is prohibited without the specific permission of copyright holders.

**Suggested Citation:**

Hsaio A, Bazy-Assad A, Benin A, Tolomeo C, Belton BM, Edmonds D. Secure Messaging in a Pediatric Respiratory Medicine Setting—Implementation Handbook. (Prepared by the Yale New Haven Health System Center for Healthcare Solutions under Contract No. HHS A290200600015, TO #2.) AHRQ Publication No. 12-0012-1-EF. Rockville, MD: Agency for Healthcare Research and Quality. January 2012.

None of the investigators has any affiliations or financial involvement that conflicts with the material presented in this report.

The study was performed in the Pediatric Pulmonary Medicine Clinic at Yale New Haven Children’s Hospital in New Haven, Connecticut, from September 2007—September 2009. The Kryptiq Secure-Messaging System™ referenced herein was the secure messaging system used by the clinic at that time. The authors do not endorse or support the use of any specific brand of secure messaging system. The study was undertaken for the sole purpose of evaluating the impact of a secure messaging system on care delivery.

This project was funded by the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The opinions expressed in this document are those of the authors and do not reflect the official position of AHRQ or the U.S. Department of Health and Human Services.

## Preface

This project was funded as an Accelerating Change and Transformation in Organizations and Networks (ACTION) task order contract. ACTION is a 5-year implementation model of field-based research that fosters public–private collaboration in rapid-cycle, applied studies. ACTION promotes innovation in health care delivery by accelerating the development, implementation, diffusion, and uptake of demand-driven and evidence-based products, tools, strategies, and findings. ACTION also develops and diffuses scientific evidence about what does and does not work to improve health care delivery systems. It provides an impressive cadre of delivery-affiliated researchers and sites with a means of testing the application and uptake of research knowledge. With a goal of turning research into practice, ACTION links many of the Nation's largest health care systems with its top health services researchers. For more information about this initiative, go to <http://www.ahrq.gov/research/action.htm>.

This project was one of seven task order contracts awarded under the *Improving Quality through Health IT: Testing the Feasibility and Assessing the Impact of Using Existing Health IT Infrastructure for Better Care Delivery* request for task order (RFTO). The goal of this RFTO was to fund projects that used implemented health IT system functionality to improve care delivery. Of particular interest were projects that demonstrated how health IT can be used to improve decision support, automate quality measurement, improve high-risk transitions across care settings, reduce error or harm, and support system and workflow design, new care models, team-based care, or patient-centered care.

# Contents

Parent/Patient Electronic Messaging Defined ..... 1  
Implementation Considerations ..... 1  
Implementation Guidelines ..... 1  
    Phase I: Planning..... 1  
    Phase II: Implementation ..... 4  
    Phase III: Quality Improvement..... 5

## Tables

Table 1. Readiness Checklist ..... 5  
Table 2. Implementation Timeline..... 6

## Appendixes

Appendix A. E-messaging workflow sample ..... A-1  
Appendix B. Staff manual sample ..... B-1  
Appendix C. Patient/family manual sample ..... C-1  
Appendix D. Patient advertisement material samples ..... D-1

# Electronic Messaging Implementation Handbook

## Parent/Patient Electronic Messaging Defined

A computer-based communication between clinicians and patients within a contractual relationship in which the health care provider has taken on an explicit measure of responsibility for the client's care (Kane & Sands, 1998).

## Implementation Considerations

- Technology
- Privacy
- Message content
- Message retrieval
- Response time/Message triage process
- Documentation
- Marketing
- Instructions

## Implementation Guidelines

### Phase I: Planning

1. Convene implementation committee
  - a. IT representative(s) (1-2)
  - b. Clinical expert(s) (1-2 representatives from the practice area that will pilot the system: representatives should be involved in the current patient communication triage system)
  - c. Administrative assistant (1)
2. Determine meeting schedule
  - a. Meet at least every 2 weeks for the first 6 months.
  - b. Meet at least every 4 weeks after the first 6-month period.
3. Select "go-live" date (use implementation timeline as a guide)
4. Determine current patient mix and communication methods of pilot site
  - a. Consider type of information currently being shared by patients with the pilot providers (i.e., refill requests, emergency calls, etc.).
  - b. Consider type of information currently being shared by providers with patients (i.e., appointment reminders, refill reminders, etc.).
  - c. Consider current communication (i.e., telephone, mail, personal e-mail, etc.) methods utilized by patients and providers.
5. Outline current workflow for patient communication utilized by the pilot practice

- a. Include each point of contact (i.e., who patients contact for appointments, who they contact for refills, who they contact when ill, etc.).
6. Choose vendor/application
  - a. Consider whether an electronic medical record is currently being utilized and determine whether there is a vendor/application that will interface with the current electronic medical record.
  - b. Consider vendors/applications that are HIPAA compliant and offer encryption of messages.
  - c. Consider OS and browser compatibility of system; systems compatible with more/different types of systems stand to be better adopted by more patients.
7. Design system to meet pilot site needs
  - a. Consider how patients will access the system (i.e., number of passwords, etc.).
  - b. Consider ability to retrieve messages, including how provider will be notified that a message exists.
  - c. Consider how documentation of messages will occur (i.e., automatic dump into electronic medical record, stored on a common drive, printed and placed in paper chart).
  - d. Consider whether the system will need to be capable of sending e-blast messages or reminders to patients.
  - e. Consider whether system will need to collect patient information before scheduled appointment (i.e., insurance information, interval history, etc.).



**NOTE 1: A cumbersome system is a barrier to using e-messaging. Consider designing (or selecting) a system that does not require multiple passwords and one that does not include numerous links to view a message.**

**NOTE 2: Using a system to send patients information is a promoter to using e-messaging, adding value for the patient. Consider sending appointment reminders, flu vaccine reminders, etc.**

8. Determine new workflow (See Appendix A for sample)
  - a. Include:
    - i. What type of messages will be appropriate for the system and practice (i.e., refill requests, urgent issues, etc.)?
    - ii. Who will check messages (i.e., central in-box checked by responsible/on-call triage staff member or multiple in-boxes checked by multiple staff members)?
    - iii. How will messages be checked (i.e., computer, mobile PDA or both)?
    - iv. Where will messages be checked (i.e., remotely, in office or both)?
    - v. When will messages be checked (i.e., as they arrive, hourly, weekend/night coverage, etc.)?
    - vi. Set up separate e-mail outside of the system for technical Help requests from users unable to log into the secure messaging system.
    - vii. How will patients respond to e-mail (choose a simple e-mail address that patients can remember and spell).
    - viii. How will messages be saved to the EMR (i.e., what messages will be saved, when will they be saved, who will save them, who will sign them)? Determine need for additional backup of messages.

- ix. Determine plan for charging mobile PDA if one is used.
- x. Determine whether the old system (i.e., telephone calls) will be phased out or remain as an option.



**NOTE 3: Using the system for simple requests is a promoter for using e-messaging. Consider using system for refill requests or appointments.**

**NOTE 4: Loss of a personal component/contact and a system that already functions well are barriers to using e-messaging. Consider giving patients options. Consider making name of person responding to any particular message transparent; this personalizes the system to the patient.**

- 9. Develop training program/tools for staff (See Appendix B for excerpt of staff training manual).
  - a. Include demonstration with time to practice.
  - b. Develop training manual for staff (include pictures) for future reference.
- 10. Develop training program/tools for patients/families (See Appendix C for excerpt of patient training manual).
  - a. Create letter explaining system.
  - b. Include type of messages that are considered appropriate and how they can access the system.



**NOTE 5: Lack of Internet access is a barrier to using e-messaging. Include reminders about alternative Internet access options such as library, work, etc.**

- c. Develop training manual for patients/families so they can refer to it in the future (include previsit information practice needs to collect, i.e., insurance information, interval history, etc.).



**NOTE 6: Lack of knowledge about the system and computers in general is a barrier to using e-messaging. Include specific instructions with pictures.**

- 11. Introduce system to staff
  - a. Start communication process with entire staff early on in the process so that they can contribute to the new workflow.
  - b. Demo the system after trouble shooting it with implementation committee.
- 12. Develop plan to advertise new system to patients (see Appendix D for examples)
  - a. Postcards
  - b. Flyers
  - c. E-mail (if database of patient e-mail addresses already available)



**NOTE 7: Forgetfulness is a barrier to using e-messaging. Include plan for verbally reminding patients at each visit and/or sending e-mail reminders.**

**NOTE 8: Having a written record and having time to formulate thoughts/questions are promoters for using e-messaging. Remember to include benefits of the system when advertising it to patients.**

13. Develop workflow for how patients will sign on to the system and how they will be trained.
  - a. Consider purchasing a computer for the waiting room/office where staff can help patients log on for the first time.
  - b. If signing on in the office, determine who will assist/train patient (i.e., administrative assistant, nursing staff, etc.).
  - c. Determine whether all patients will sign on independently at home; if yes, consider having technical staff dedicated to remotely assisting patients.
14. Determine quality improvement plan.
  - a. Consider quality measures and indicators of success/failure (i.e., inappropriate messages, missed messages, patient/provider satisfaction, etc.).
  - b. Develop database of problems and help requests encountered by patients and users during enrollment or use of system.
  - c. Develop satisfaction surveys.

## **Phase II: Implementation**

1. Train staff in use of system and new workflow
  - a. Review workflow
  - b. Provide manual explaining use of system
  - c. Provide demonstration of system
  - d. Provide time for 1:1 training
2. Advertise new system to patients
3. Initiate e-messaging—"go-live"
4. Train and enroll patients
5. Monitor clinical messages in secure messaging system
6. Monitor technical help request messages from outside of system
7. Respond to messages
8. Save messages
9. Monitor/log number of inappropriate messages (i.e., medical emergencies)
10. Provide patients/providers with a short survey to assess satisfaction with system

## Phase III. Quality Improvement

1. Review quality measures (i.e., medical emergencies)
2. Review survey results
3. Revise workflow as needed

**Table 1. Readiness checklist**

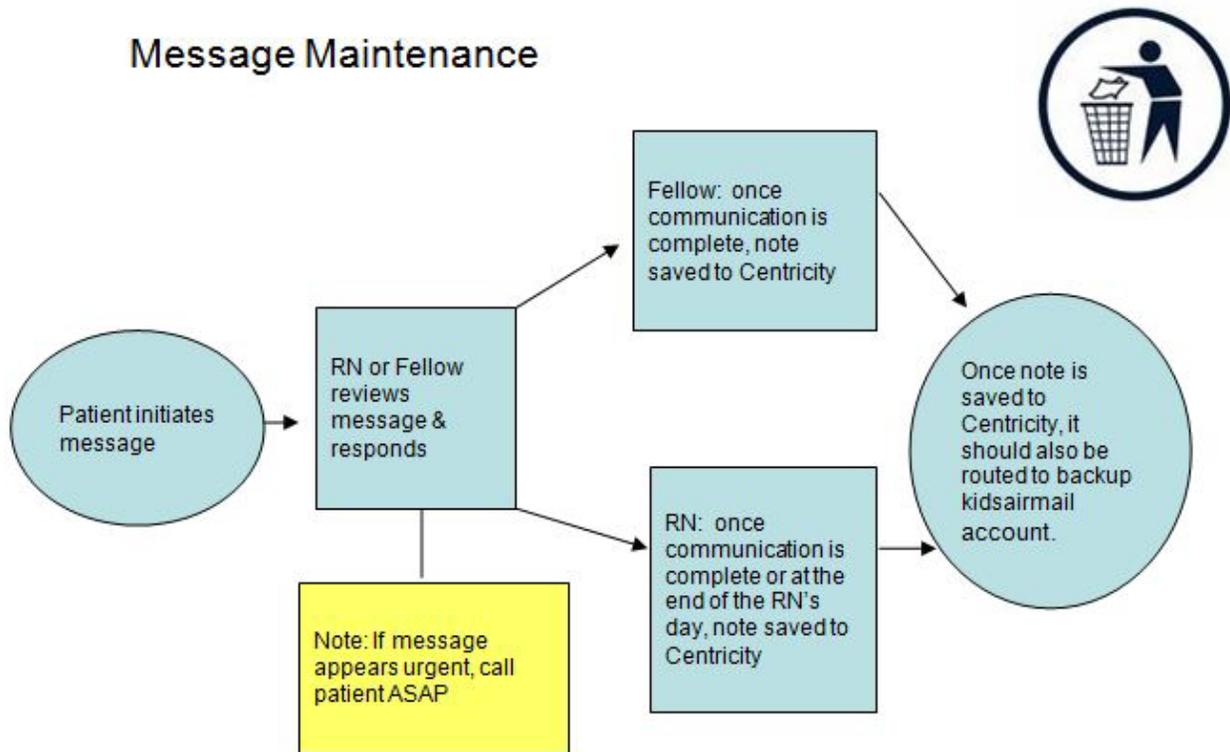
Critical Items	Yes	No	Plan For Securing Resource	Leader	Anticipated Completion Date	Comments
<b>Technical Resources</b>						
Electronic medical record						
HIPAA compliant messaging system						
Staff computers						
Blackberry/Mobile PDA						
Computer for patient use						
<b>Personnel Resources</b>						
Interested clinical providers						
Technical support staff						
Personnel to assist with enrollment/training of patients						
<b>Systems Resources</b>						
Patient instructions						
Staff instructions						
Policy of type of messages deemed appropriate for practice needs						
Workflows						

**Table 2. Implementation timeline**

<b>Critical Action</b>	<b>Time to Implementation</b>	<b>Leader</b>	<b>Anticipated Completion Date</b>	<b>Comments</b>
<b>Phase I: Planning</b>				
Convene implementation committee	9 months			
Determine meeting schedule	9 months			
Select "Go-Live" date	9 months			
Determine current patient mix and communication methods of pilot site	7 months			
Outline current workflow	8 months			
Choose vendor/application	8 months			
Select start date	7 months			
Design system to meet pilot site needs	6 months			
Determine new workflow	6 months			
Develop training program/tools for staff	5 months			
Develop training program/tools for patients/families	4 months			
Introduce system to staff	4 months			
Develop advertisement materials for patients	3 months			
Develop workflow for enrolling and training patients	3 months			
Determine QI Plan				
<b>Phase II: Implementation</b>	3 months			
Train staff in use of system and new workflow				
Advertise new system to patients	1 month			
Initiate e-messaging system—"Go-Live"	1 month			
Train and enroll patients	n/a			
Monitor messages	n/a			
Respond to messages	n/a			
Save messages	n/a			
Monitor QI measures	ongoing during implementation			
Distribute surveys	1 month post implementation			
<b>Phase III: Quality Improvement</b>				
Review quality measures	3 months post implementation			
Review surveys	3 months post implementation			
Revise workflow	3 months post implementation			

# Appendix A: E-messaging Workflow Sample

## Message Maintenance



## E-Messaging: Daily Operations



- RN will check messages Monday—Friday from 8:30 a.m. to 4 p.m.
- Blackberry/Mobile device is carried by fellow Monday - Friday from 4 p.m. to 8:30 a.m., weekends all day and holidays all day
- Blackberry/Mobile device is to be charged by the fellow when the fellow phone is being charged
- Messages are checked as soon as they arrive and are triaged according to level of perceived/actual urgency (**Note:** patients will be notified that e-messaging is for non-urgent issues only)
  - Urgent: Call patient immediately (between hours of 8 a.m.– 8 p.m.)
  - Non-urgent: E-message patient as soon as possible after receiving message but no greater than one hour (between hours of 8 a.m.– 8 p.m.)
  - Messages received between 8 p.m. and 8 a.m. will be retrieved and responded to after 8 a.m.

## Appendix B: Staff Manual Sample

### Checking Messages from KidsAirmail

**Option 1** (this option will not log you out; you can minimize screen while you are working)

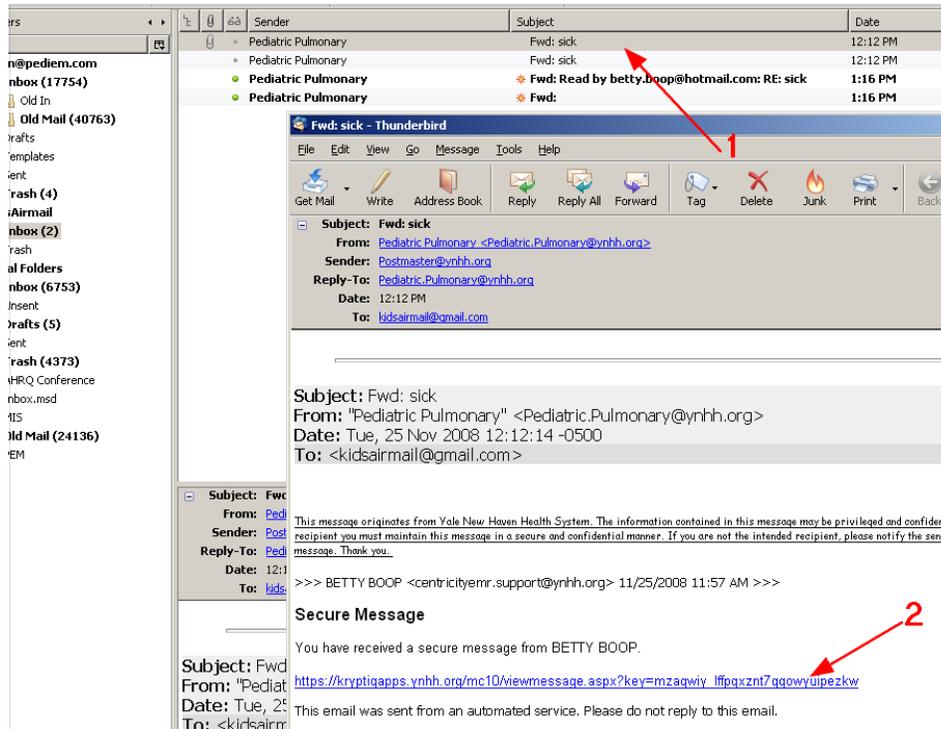
1. Go to kidsairmail.com via Mozilla Thunderbird Icon on your Desktop or via Start button.



2. Go to inbox



3. Click on patient message (# 1)



4. Double click on link (# 2) to go to Kryptiq/KidsAirmail Secure Portal to read and reply to message

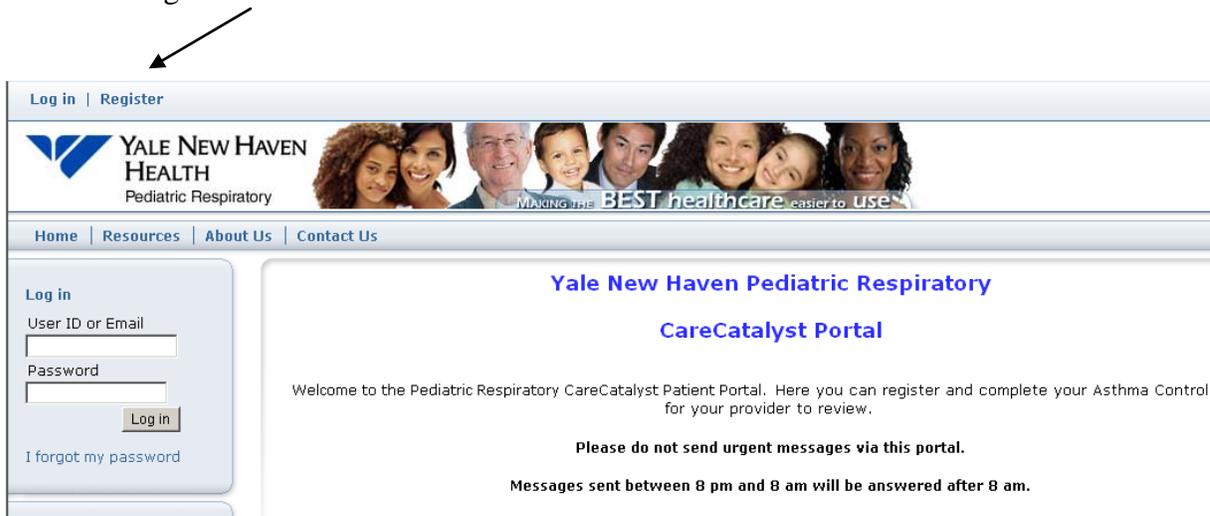
# Appendix C: Patient/Family Manual Sample

## Yale New Haven Hospital (YNHH) Care Catalyst and Secure Messaging

### Instructions for those followed by the Yale School of Medicine Pediatric Respiratory Medicine Service

#### Accessing YNHH Care Catalyst Site for Yale Pediatric Respiratory Medicine Registration

1. Type <http://kidsairmail.com> in your Internet address bar.
2. Click on Register



The screenshot shows the website interface for the Yale New Haven Pediatric Respiratory CareCatalyst Portal. At the top, there is a navigation bar with links for "Log in" and "Register". Below this is a banner featuring the Yale New Haven Health logo and a group of diverse people, with the tagline "MAKING THE BEST healthcare easier to use". A secondary navigation bar includes "Home", "Resources", "About Us", and "Contact Us". On the left side, there is a "Log in" section with input fields for "User ID or Email" and "Password", a "Log in" button, and a link for "I forgot my password". The main content area is titled "Yale New Haven Pediatric Respiratory CareCatalyst Portal" and contains a welcome message: "Welcome to the Pediatric Respiratory CareCatalyst Patient Portal. Here you can register and complete your Asthma Control for your provider to review." Below the welcome message, it states: "Please do not send urgent messages via this portal. Messages sent between 8 pm and 8 am will be answered after 8 am." An arrow from the text above points to the "Register" link in the top navigation bar.

## Completing the Asthma Control Test before your visit with the Yale Pediatric Respiratory Medicine Service

1. The Asthma Control Test (ACT) can be filled out at the clinic before your visit or up to 24 hours before your appointment. To complete the ACT, type <http://kidsairmail.com> in your Internet address bar.
2. Log in

Log in | Register

**YALE NEW HAVEN HEALTH**  
Pediatric Respiratory

Home | Resources | About Us | Contact Us

Log in

User ID or Email

Password

Log in

[I forgot my password](#)

**Yale New Haven Pediatric Respiratory**  
**CareCatalyst Portal**

Welcome to the Pediatric Respiratory CareCatalyst Patient Portal. Here you can register and complete your Asthma Control for your provider to review.

**Please do not send urgent messages via this portal.**  
**Messages sent between 8 pm and 8 am will be answered after 8 am.**

3. Click on Forms to access the Asthma Control Test.

**YALE NEW HAVEN HEALTH**  
Pediatric Respiratory

Home | Forms | Resources | About Us | Contact Us

Links  
[Back to Main](#)

**Yale New Haven Pediatric Respiratory**  
**CareCatalyst Portal**

Welcome to the Pediatric Respiratory CareCatalyst Patient Portal. Here you can register and complete your Asthma Control Test for your provider to review.

**Please do not send urgent messages via this portal.**  
**Messages sent between 8 pm and 8 am will be answered after 8 am.**

New Secure Message  
RE: testing 10/3/2010 9:45:29 AM  
[View My Inbox](#)

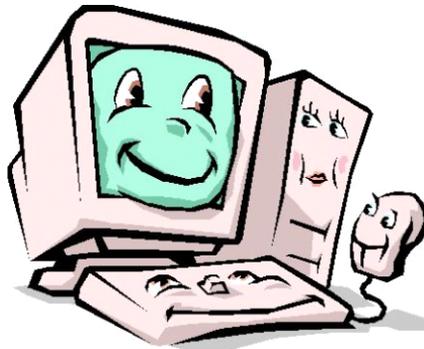
## Appendix D: Patient Advertisement Material Samples

### Flyer

# ***Electronic Messaging Is Here!***

Electronic messaging is a way for you to send us *confidential* messages (such as e-mails) for **non-urgent** questions, requests, refills, etc.!

You can send us *confidential messages* from home, school, work, library, or the new clinic waiting room computer. To learn more, ask a member of the Pediatric Respiratory Medicine Group.



#### **Yale Pediatric Respiratory Medicine**

Phone: 203-785-2480  
Fax: 203-785-6337  
Website: [www.kidsairmail.com](http://www.kidsairmail.com)



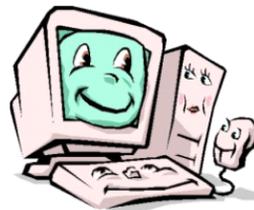
## Postcard

### ***Electronic Messaging Is Here!***

---

Electronic messaging is a way for you to send us *confidential* messages (like e-mail) for *non-urgent* questions, refill requests, etc.. You can send them from any home, school, work, or library computer. Even the new computer in the clinic waiting room!

To learn more, ask us about electronic messaging at your next visit or sign-up online ([www.kidsairmail.com](http://www.kidsairmail.com)) if you have your child's medical record number available.



#### **Yale Pediatric Respiratory Medicine**

333 Cedar Street FMP 520  
New Haven, CT 06520-8064

Phone: 203-785-2480

Fax: 203-785-6337

Website: [www.kidsairmail.com](http://www.kidsairmail.com)

