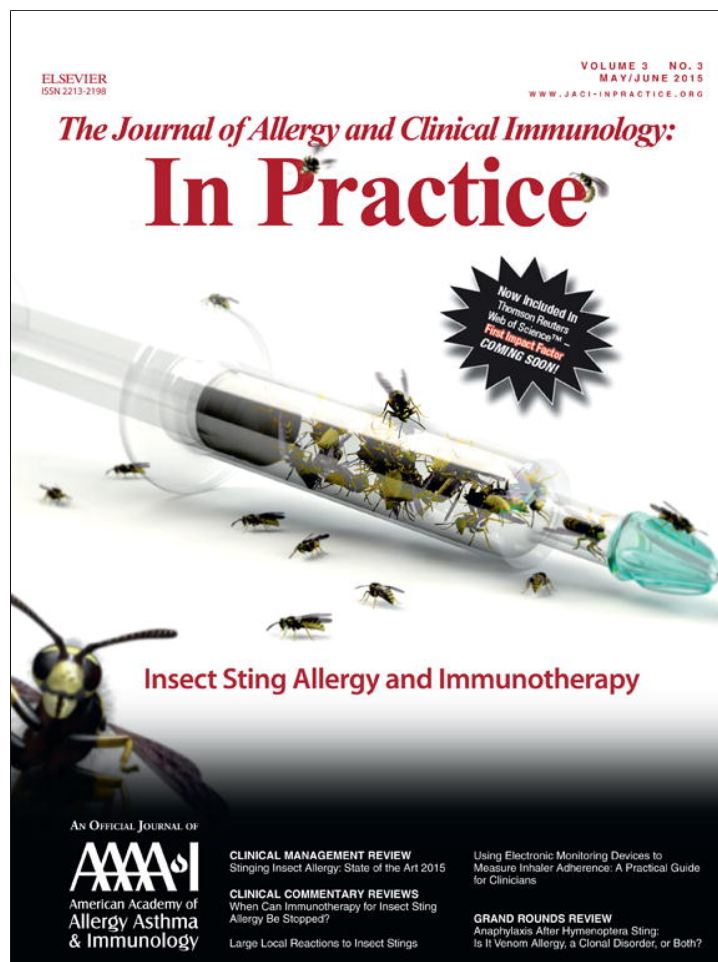




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Clinical Communications

Mobile health applications for asthma

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Clinical Implications

- Many mobile health apps are available for asthma and have great potential to improve care for asthma. Nevertheless, measurements of quality and effectiveness and explanations of privacy risks are needed to help individuals choose the most appropriate apps.

TO THE EDITOR:

Asthma affects 300 million people in the world,¹ and individuals with asthma are increasingly turning to mobile health to help with asthma management. Mobile health, or mHealth, refers to mobile computing, medical sensor, and communications technologies that can enhance chronic disease care.²

The number of medical apps has greatly increased over the past decade. As of 2012, there were more than 13,000 health care-related apps available to Apple iPhone users and more than 6,000 available in the Android store.³ It is becoming common for patients to ask their physicians to help them choose apps, but many physicians do not feel confident in recommending apps to patients.⁴ In this letter, we provide an overview of the types of apps that are currently available to aid patients with asthma. The apps reviewed are not endorsements of app quality.

We focused our review on the 2 most popular smartphone brands, the Apple iPhone and Google Android, which, as of February 2014, comprised more than 90% of the U.S. smartphone market.⁵ To identify asthma-related mobile apps, we used the general search bar in the iTunes store (for the iPhone) and Google Play (for the Android). We conducted our searches in April 2014 and separately entered the following search terms to identify apps that were related to asthma: "asthma," "pulmonary," and "inhaler." We used the descriptions provided by app creators to confirm app relevance to asthma management and categorize apps. If an app served multiple functions, we grouped the app according to its primary category. In Table I, we present the number of apps in each category and subcategory. We did not include non-English apps and apps that were not specific to asthma in our results. In Table II, we provide examples of asthma-related apps and their functions, available devices, and prices. A complete, categorized list of all apps can be found in the Online Repository of this article at www.jaci-inpractice.org. Of 209 total distinct asthma-related apps, 50% (n = 105) were available for Android, 34% (n = 71) for iPhone, and 16% (n = 33) for both devices. The apps available for iPhone are also available for iPad. We did not include an assessment of the Galaxy app store as there is currently only one available app for asthma. Over half (58%, n = 122) of apps were free and 39% (n = 81) were paid. The paid apps ranged in cost from \$0.99 to \$29.99, and some (3%, n = 7) had free but less comprehensive versions available. The remaining 2% of apps (n = 6) were free

TABLE I. Categories of asthma-related apps, grouped according to specific functions (N = 209)

Categories	No. of apps	Percent of total
Teaching/training	109	52%
Alternative treatments	42	
General information	24	
Treatment information	18	
Child-directed	9	
Food additives	9	
Parent-directed	7	
Tracking and visualization of health information	47	22%
Symptom tracking	22	
Medication use	18	
Tools/calculators	7	
Medical provider-directed apps	37	18%
Reference	18	
Trainee-directed	10	
Tools/calculators	6	
Journals	3	
Air quality information	12	6%
General	8	
Location-specific	4	
Social forums	4	2%
Emergency	3	
Community support	1	

to download, but required a paid subscription to access all features, required the purchase of an external device, or were demo versions of paid apps or software applications.

The largest proportion of asthma-related apps (52%, n = 109) focus on teaching and training in techniques related to managing asthma. Most of these apps (39%, n = 42) teach users alternative methods for treating asthma, such as yoga postures, acupressure, and breathing exercises. Many apps (22%, n = 24) provide general information about asthma through text, video, and/or audio formats. Other apps (17%, n = 18) provide treatment information; for example, some demonstrate an inhaler technique. We identified 8% (n = 9) of apps with child-friendly interfaces designed to improve medication adherence and teach children how to manage their asthma through games or quizzes.

Approximately 22% (n = 47) of asthma apps allow users to track and display health information. Most apps (47%, n = 22) in this category are designed to help users monitor symptoms by logging peak flow and recording details about asthma attacks. Many apps (38%, n = 18) focus on medication use, which allows users to track inhaler use, set medication reminders, and monitor adherence.

Approximately 18% (n = 37) of apps are directed at health care providers rather than patients. Most apps in this category (49%, n = 18) provide medical reference information, whereas some (27%, n = 10) teach medical trainees lung sounds and general information about asthma and allergies. Approximately 6% (n = 12) of apps provide users with air quality information.

TABLE II. Examples of apps in each category. A full list is provided in the [Online Repository](http://www.jaci-inpractice.org) at www.jaci-inpractice.org

Name	Cost	Device (iPhone/Android)	Description
Apps for teaching and training			
Asthma Control Tips	\$10.10	Android	Provides information about yoga and breathing exercises for controlling asthma.
Homeopathy for Asthma	Free	Android	Provides information about homeopathic asthma treatments.
iAsthma in Control	\$0.99	iPhone	Designed to teach children to take their medication and learn the symptoms that may precede an asthma attack. Option to create a personalized asthma “rescue plan” and enter emergency contacts. Allows parents to record peak flow and email forms for school or sports to the child’s doctor.
Apps for tracking and visualizing health information			
AsthmaMD	Free	iPhone	Allows users to log asthma symptoms, visualize asthma in graphical format, track medications, map peak flow to severity zones, and track asthma triggers. Can share asthma diary and graph with health care professionals.
Inhaler Tracker	\$0.99	iPhone	Tracks and records inhaler use. Patients enter data. Displays remaining medication in each inhaler to notify patients of when the inhaler needs replacing.
Asthma Tracker & Log Multiuser	\$1.49	Android	Tracks peak flow, and asthma attack frequency, length, location, trigger, and treatment for multiple users.
Medical provider-directed apps			
MiniAtlas Asthma	\$1.99 (iPhone)/\$2.99 (Android)	Both	Assists health practitioners in communicating with patients to help them understand their asthma. Provides images and explanations of the disease.
iGuidelines	Free	iPhone	Provides medical professionals with point-of-care access to interactive guidance for select pediatric conditions, including asthma.
ERres	\$3.99	Android	Contains calculators, medication lists, algorithms, decision rules, clinical policies, and core content for emergency care providers. Includes information about asthma treatment and predicted peak flow rates.
Apps providing air quality information			
Air Quality Pro	\$0.99	iPhone	Provides Air Quality Index for U.S. locations.
State of the Air	Free	Android	Provides air quality information for users’ location. Includes ozone and particulate pollution counts as well as air quality alerts.
iSmog	Free	iPhone	Displays air quality information for the San Francisco Bay area. Optional push notification alerts indicating when the air contains unhealthy levels of certain contaminants.
Social forums			
OneHealth	Free	Android	Allows users with asthma and other chronic diseases to join health communities and connect with peers.
HelpAround	Free	Android	Allows users to locate nearby users with similar symptoms. Designed for use during emergencies, or to receive help or advice.

Most of these apps (67%, $n = 8$) allow users to enter their location, whereas the rest (33%, $n = 4$) are directed at residents of a specific city. The remaining 2% ($n = 4$) of apps serve as social forums, which connect users with other asthma patients (25%, $n = 1$) and provide advice and emergency assistance (75%, $n = 3$).

The large number of available apps most likely mimic the interest in apps for asthma. Because self-management in assessing symptoms and adhering to medication regimens is especially important, individuals with asthma may be particularly interested

in apps that offer help with symptom monitoring or adherence to medical regimens. Nevertheless, there is no accepted measure of app quality, and most apps are not regulated or approved by the Federal Drug Administration (FDA). Mobile medical apps that the FDA would regulate include apps that transform a mobile platform into a regulated medical device; connect to an existing device for purposes of controlling its operation, function, or energy source; and display, transfer, store, or convert patient-specific medical device data from a connected device.⁶ Thus, it is difficult for patients to know which apps offer legitimate clinical advice, have

demonstrated utility to improve any health care measure, or are ideally suited to help them manage their or their children's asthma. Some independent organizations have noted this knowledge gap and are starting efforts to create formal reviews for medical apps.

In order for providers to recommend apps to their patients, efficacy and effectiveness evaluations are necessary; however, few such evaluations are currently available. A Cochrane review of smartphone and tablet self-management apps for asthma in 2013 found only 2 trials of phone-based asthma self-management interventions that included randomized controlled trials to assess for efficacy.⁷ The authors deemed the utility of apps to be inconclusive and were unable to advise clinicians and the general public on the efficacy on apps for asthma self-management.⁷ Studies that include diverse asthma patients and providers, are designed to randomize interventions, and measure helpful patient-centered, as well as clinically relevant, outcomes are needed to determine which apps are truly helpful and should be recommended to patients.

In addition to requiring demonstrated clinical efficacy and providing scientifically sound advice, apps must also ensure data privacy and security before health care providers feel comfortable recommending them. The health visualization and tracking group of apps, for which individuals can enter personal data to monitor symptoms, log peak flow, and more, is the category most vulnerable for loss of privacy or possible unwanted disclosure of personal health information. A previous study that systematically assessed availability of privacy statements for the most commonly used apps found that only 30% had privacy statements that addressed whether entered information could be shared with third parties.⁸

In conclusion, as the number of apps made available continues to increase and agencies such as the FDA become involved in their regulation, the mHealth landscape will continue to change. Although apps have great potential to improve care for asthma, most are currently limited by their inability to demonstrate quality, effectiveness, and protection of user data.

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REFERENCES

1. FastStats: Asthma. Centers for Disease Control and Prevention/National Center for Health Statistics; 2014. Available from <http://www.cdc.gov/nchs/fastats/asthma.htm>. Accessed April 25, 2014.
2. mHealth—Mobile Health Technologies. National Institutes of Health, Office of Behavioral and Social Sciences Research; 2014. Available from http://obssr.od.nih.gov/scientific_areas/methodology/mhealth. Accessed April 23, 2014.
3. Dolan B. Just launched: Our 2012 Consumer Health Apps Report. MobiHealthNews; 2012. Available from <http://mobihealthnews.com/17925/just-launched-our-2012-consumer-health-apps-report/>. Accessed April 23, 2014.
4. Eng DS, Lee JM. The promise and peril of mobile health applications for diabetes and endocrinology. *Pediatr Diabetes* 2013;14:231-8.
5. Jones C. Apple's U.S. smartphone market share holding steady against every competitor. *Forbes*; 2014. Available from <http://www.forbes.com/sites/chuckjones/2014/04/07/apples-u-s-smartphone-market-share-holding-steady-against-every-competitor/>. Accessed December 10, 2014.
6. Examples of MMAs the FDA Regulates. U.S. Food and Drug Administration; 2014. Available from <http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/ConnectedHealth/MobileMedicalApplications/ucm368743.htm>. Accessed December 16, 2014.
7. Marcano Belisario JS, Huckvale K, Greenfield G, Car J, Gunn LH. Smartphone and tablet self management apps for asthma. *Cochrane Database Syst Rev* 2013; 11:CD010013.
8. Sunyaev A, Dehling T, Taylor PL, Mandl KD. Availability and quality of mobile health app privacy policies. *J Am Med Inform Assoc* [epub August 3, 2014] <http://dx.doi.org/10.1136/amiainl-2013-002605>.

ONLINE REPOSITORY. Comprehensive list of asthma-related mobile apps on the Apple and Android marketplaces (as of April 2014)

	Cost	Category	Subcategory	iPhone/Android	Description
Air Quality Forecast	Free	Air Quality Information	General	iPhone	Provides Air Quality Index for U.S. locations
Air Quality Pro	\$0.99	Air Quality Information	General	iPhone	Provides Air Quality Index for U.S. locations
AsthMaster	Free	Air Quality Information	General	iPhone	Provides air quality for current location
Breathe	Free	Air Quality Information	General	iPhone	Shows users the current air quality in their area
MyAQI	Free	Air Quality Information	General	Both	Provides real-time air quality information based on the closest monitoring site. Allows for personalization of Air Quality Index reported to users' particular health concerns, including asthma
Pollen.com's Allergy Alert	Free	Air Quality Information	General	Both	Tracks pollen and allergy forecast, asthma index, and UV index for U.S. locations
Smog Report	Free	Air Quality Information	General	iPhone	Provides real-time air quality information from the Environmental Protection Agency
State of the Air	Free	Air Quality Information	General	Android	Provides air quality information for users' location. Includes ozone and particulate pollution counts as well as air quality alerts
Alberta Air Quality Health Index	Free	Air Quality Information	Location-Specific	iPhone	Provides air quality information for residents of Alberta
AQMD	Free	Air Quality Information	Location-Specific	Both	Provides air quality data for residents of southern California. Lists air quality events and provides information on air quality news
Good Days San Diego	Free	Air Quality Information	Location-Specific	Android	Designed for residents of San Diego, Calif, with allergies, asthma, and autoimmune diseases to track their symptoms and track air quality in San Diego
iSmog	Free	Air Quality Information	Location-Specific	iPhone	Displays air quality information for the San Francisco Bay area. Optional push notification alerts indicating when the air contains unhealthy levels of certain contaminants
American Thoracic Society Journals App	Free w/subscription	Physician-Directed Apps	Journals	iPhone	Contains abstracts and articles from the official journals of the American Thoracic Society. Includes hyperlinks to additional information and resources
ERS Publications	Free	Physician-Directed Apps	Journals	iPhone	Contains articles from the <i>European Respiratory Journal</i>

(continued)

ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
PulmCCM.org	Free	Physician-Directed Apps	Journals	Both	Reviews and summarizes articles from more than 30 medical journals related to pulmonary and critical care medicine. Provides access to most recent guidelines from major medical societies and professional organizations. Provides regular practice updates for respiratory conditions and critical illnesses
Asthma	Free	Physician-Directed Apps	Reference	Android	Helps clinicians, researchers, and patients stay informed about the latest news, publications, and research in the field of asthma
Asthma @Point of Care	Free	Physician-Directed Apps	Reference	iPhone	Provides medical professionals with information on the diagnosis, treatment, and management of asthma. Program chapters are supplemented by links to external multimedia resources such as illustrations, videos, journal articles, and other resources
Breathefree (iPhone), Breathefree App (Android)	Free	Physician-Directed Apps	Reference	Both	Provides medical professionals with information about peak expiratory flow rate, chronic obstructive pulmonary disease severity, inhalation device use and selection, as well as medical news
Breathefree App for Doctors	Free	Physician-Directed Apps	Reference	Both	Provides medical professionals with information about peak expiratory flow rate, chronic obstructive pulmonary disease, and inhalation devices through videos and interactive tools. Provides medical news and a product index of all Cipla drugs
Bronchiolitis	\$1.99	Physician-Directed Apps	Reference	iPhone	Determines the severity of an asthma attack using the Downes rating, or bronchiolitis grade using the Wood-Downes rating
ERres	\$3.99	Physician-Directed Apps	Reference	Android	Contains calculators, medication lists, algorithms, decision rules, clinical policies, and core content for emergency care providers. Includes information about asthma treatment and predicted peak flow rates
iGuidelines	Free	Physician-Directed Apps	Reference	iPhone	Provides medical professionals with point-of-care access to interactive guidance for select pediatric conditions, including asthma
Lungs & Breathing	\$2.99	Physician-Directed Apps	Reference	iPhone	Provides information about topics related to lungs and breathing, including asthma

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
MD Spiro-Flash	Free	Physician-Directed Apps	Reference	Both	Reviews elements of spirometry for health care professionals
MedGuide Emergency	\$6.40	Physician-Directed Apps	Reference	Android	Guide to algorithms and drugs used in the case of emergency, including asthma attacks
MERIT	Free	Physician-Directed Apps	Reference	Android	Interactive template for patients with asthma, chronic obstructive pulmonary disease, and allergic rhinitis that provides instant validated clinical feedback
Miniatlas Asthma	\$1.99 (iPhone)/\$2.99 (Android)	Physician-Directed Apps	Reference	Both	Assists health practitioners in communicating with patients to help them understand their asthma. Provides images and explanations of the disease
palmEM: Emergency Medicine	\$15.99	Physician-Directed Apps	Reference	Android	Quick reference for emergency medicine that provides information about conditions including asthma
palmPEDI: Pediatric Tape	\$2.99	Physician-Directed Apps	Reference	Android	Pediatric resuscitation reference that includes information about asthma and airway maintenance medications
PFT a-pocketcards LITE	Free	Physician-Directed Apps	Reference	Android	Displays all parameters necessary for performing and interpreting pulmonary function tests. Contains tables, illustrations, and formulas. Describes different tests
PFT eval	Free	Physician-Directed Apps	Reference	iPhone	Walks clinicians through stepwise approach to analyze pulmonary function tests (PFTs)
Pulmonology pocket	\$9.99	Physician-Directed Apps	Reference	Both	Provides information about assessment, monitoring, and treatment for all major pulmonary disorders. Includes latest guidelines from the Genetic Information Nondiscrimination Act, the Genomes OnLine Database, and the American Thoracic Society. Provides interactive calculators, index search, full text search, and treatment guidelines
RT: For Decision Makers in Respiratory Care	Free	Physician-Directed Apps	Reference	iPhone	Provides information for respiratory care practitioners about clinical information, trends, business tips, and news on the latest products and services
Nurse's Toolbox	\$29.99	Physician-Directed Apps	Tools/Calculators	Android	Allows users to perform instant weight-based calculations for drug dosages, emergency drugs, and other calculations for pediatric and adult patients. Includes emergency medications and peak flow calculator

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Pediatric Support	\$4.88	Physician-Directed Apps	Tools/Calculators	Android	App designed to help medical professionals respond to pediatric emergency situations. Allows users to enter the child's age and weight and obtain information on clearing airways and dosage for enteral and inhaled drugs
SpiroID	Free	Physician-Directed Apps	Tools/Calculators	Android	Pulmonary diagnostic software that works with a SpiroTube Mobile Edition wireless ultrasonic spirometer to measure and evaluate lung functions
SpiroIDemo	Free w/subscription	Physician-Directed Apps	Tools/Calculators	Android	Demo version of SpiroID pulmonary diagnostic software. Works with a mobile wireless ultrasonic spirometer to measure and evaluate the lung functions, in order to screen for chronic obstructive pulmonary disease and asthma
STAT Asthma NHLBI Guidelines	Free	Physician-Directed Apps	Tools/Calculators	iPhone	Provides health care professionals with tools to track patient symptoms, classify asthma severity, and initiate treatment for children and adults
ThorSoft ME	Free	Physician-Directed Apps	Tools/Calculators	Android	Pulmonary diagnostic software that works with a wireless ultrasonic spirometer to measure and evaluate lung functions
Allergies 101 by WAGmob	Free	Physician-Directed Apps	Trainee-Directed	Both	Provides information in chapter and flash card format summarizing concepts in allergy and asthma
Asthma 101 by WAGmob	0.99 (iPhone)/\$1.13 (Android)	Physician-Directed Apps	Trainee-Directed	Android	Provides information about asthma in chapter and flashcard formats
Asthma and Cold & Flu by WAGmob	\$0.99	Physician-Directed Apps	Trainee-Directed	iPhone	Provides information about asthma in chapter and flashcard formats
Clinical Immunology and Allergy 2013	\$19.99	Physician-Directed Apps	Trainee-Directed	iPhone	Helps medical trainees, residents, and fellows learn about asthma, allergies, and other topics relevant to clinical immunology and allergy
HEART + LUNG SOUNDS	Free	Physician-Directed Apps	Trainee-Directed	Android	Contains 10 heart sounds and 10 lung sounds
HeartSounds: Stethoscope Lite	Free	Physician-Directed Apps	Trainee-Directed	Android	Provides audio files of the most important heart and lung sounds. Contains 10 heart sounds and 10 lung sounds
Lung Sounds	Free	Physician-Directed Apps	Trainee-Directed	Android	Provides audio lung sounds and written descriptions
NurseWorks Demo Lung Sounds	Free	Physician-Directed Apps	Trainee-Directed	Android	Allows users to chart lung sounds
Prognosis: Respiratory	Free	Physician-Directed Apps	Trainee-Directed	Both	Educational app that contains 20 cases covering the spectrum of clinical pulmonology

(continued)

ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Pulmonary Auscultation	\$0.99	Physician-Directed Apps	Trainee-Directed	Android	Teaches lung sounds, accompanied by graphics and text descriptions
OneHealth	Free	Social Forums	Community Support	Android	Allows users with asthma and other chronic diseases to join health communities and connect with peers
CareMonkey	Free	Social Forums	Emergency	Both	Allows users to share care instructions and emergency information with others. Users create care profiles containing a person's emergency contacts, medications, asthma plan, etc. Allows direct calls, SMS, and email to people and their carers
HelpAround	Free	Social Forums	Emergency	Android	Allows users to locate nearby users with similar symptoms. Designed for use during emergencies, or to receive help or advice
SOSlocation can save your life	\$1.95	Social Forums	Emergency	Android	Designed for users with asthma and other conditions to send email or SMS alerts to contacts to notify them of emergency situation
Abdominal Breathing	\$1.99	Teaching/Training	Alternative Treatments	iPhone	Teaches users abdominal breathing techniques
Acupuncture for Asthma	\$10.10	Teaching/Training	Alternative Treatments	Android	Teaches users acupuncture techniques for relieving asthma symptoms
Advanced Vibrational Healing	Free	Teaching/Training	Alternative Treatments	Android	Teaches the Pranic Healing technique to help users relieve symptoms of asthma and other conditions
Asthma and Yoga	\$1.84	Teaching/Training	Alternative Treatments	Android	Explains benefits of yoga for treating asthma
Asthma Control Tips	\$10.10	Teaching/Training	Alternative Treatments	Android	Provides information about yoga and breathing exercises for controlling asthma
Asthma Management Guide	\$1.36	Teaching/Training	Alternative Treatments	Android	Explains several physiotherapy methods, such as acupuncture, for managing asthma
Asthma Medications	Free	Teaching/Training	Alternative Treatments	Android	Provides information about asthma medications and natural asthma treatments
Asthma Treatment Now	Free	Teaching/Training	Alternative Treatments	Android	N/A
Auriculo	\$29.99	Teaching/Training	Alternative Treatments	iPhone	Auriculotherapy point reference application that contains charts and treatment protocols for conditions including asthma
Breathe Easy Asthma Timer	\$5.99	Teaching/Training	Alternative Treatments	iPhone	Designed to help users of the Buteyko breathing method manage their asthma and reduce reliance on medication. Explains breathing exercises with audio cues and voiceovers
Breathing GYM	\$1.35	Teaching/Training	Alternative Treatments	Android	Teaches breathing exercises to relieve symptoms of asthma and other conditions

(continued)

ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Breathing Problems Gone!	Free	Teaching/Training	Alternative Treatments	Android	Describes breathing techniques to alleviate asthma symptoms
Bronchial Asthma	Free	Teaching/Training	Alternative Treatments	Android	Provides information about bronchial asthma, including treatment and alternative approaches
ButeykoClinic Self Help Program	\$4.99	Teaching/Training	Alternative Treatments	iPhone	Explains Buteyko method breathing exercises through video. Suggests daily programs and includes alarm reminder. Measures, records, and monitors progress. Option to email stats report
Dealing With Asthma	Free	Teaching/Training	Alternative Treatments	Android	Provides information about natural treatments for asthma
Dealing with Asthma Naturally	Free	Teaching/Training	Alternative Treatments	Android	Discusses natural asthma treatments
FREE Asthma Guidelines	Free	Teaching/Training	Alternative Treatments	Android	Provides information about asthma and alternative treatments. Contains videos related to asthma
FREE Home Remedies for Asthma	Free	Teaching/Training	Alternative Treatments	Android	Provides information about home remedies for asthma
Glossary of Stimulant Herbs	\$0.99	Teaching/Training	Alternative Treatments	iPhone	Glossary of stimulant herbs used to treat asthma and other respiratory problems
Healing Chants and Mantras	Free	Teaching/Training	Alternative Treatments	iPhone	Teaches healing chants and mantras to relieve symptoms of asthma and other conditions
Health Guide	Free	Teaching/Training	Alternative Treatments	Android	Provides information about natural remedies for asthma and other conditions. Allows users to enter physician and medication details
Home Remedies	Free	Teaching/Training	Alternative Treatments	Android	Provides over 500 recipes for natural treatments for asthma and other conditions
Homeopathy for Asthma	Free	Teaching/Training	Alternative Treatments	Android	Provides information about homeopathic asthma treatments
Hypnosis Asthma	\$1.99	Teaching/Training	Alternative Treatments	iPhone	Teaches users how to treat asthma with hypnosis. Monitors user progress
iHerbal	\$9.99	Teaching/Training	Alternative Treatments	iPhone	Database of herbal remedies for conditions including asthma
iQiGongOne	\$5.99	Teaching/Training	Alternative Treatments	iPhone	Teaches users exercises of the Xiang Gong to help with conditions such as asthma
Kyusho Healing	Free	Teaching/Training	Alternative Treatments	Android	Program that teaches the Kyusho Healing method through pictures, graphics, videos, and written instructions. Provides graphics of pressure points and instructions for relieving symptoms of asthma and other conditions
Lemon Cures	\$0.99	Teaching/Training	Alternative Treatments	iPhone	Teaches users how to treat asthma and other conditions using lemons

(continued)

ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Natural Asthma Remedies	Free	Teaching/Training	Alternative Treatments	Android	Provides information about asthma causes, symptoms, medications, and natural remedies
NO ALLERGY - Instant Acupressure Self-Treatment With Chinese Massage Points - Basic Trainer	\$2.99; free version available	Teaching/Training	Alternative Treatments	iPhone	Teaches acupressure techniques for relief of allergy and asthma symptoms
Pure Healing Yoga	Free	Teaching/Training	Alternative Treatments	Android	Provides various yoga postures for beginners, including poses to relieve health conditions such as asthma
Ramdev Yoga Practices	Free	Teaching/Training	Alternative Treatments	Android	Provides over 160 videos of yoga poses. Includes poses aimed specifically at relieving symptoms of asthma and other conditions
Remedies At Home	Free	Teaching/Training	Alternative Treatments	Android	Provides information about natural home remedies for treatment of asthma and other medical conditions
SelfHeal51	\$1.99; free version available	Teaching/Training	Alternative Treatments	Android	Teaches users dietary guidelines, herbal remedies, yoga postures, and aromatherapy and mantra therapy guidelines for relieving symptoms of asthma and other conditions
Stress Away Breathing	Free	Teaching/Training	Alternative Treatments	iPhone	Guides users who suffer from asthma attacks through breathing exercises using audio and visual instructions. Sets reminders for preventive breathing exercises
TBDeluxe	\$0.99	Teaching/Training	Alternative Treatments	Android	App designed to improve and monitor breathing to relieve symptoms for allergies, asthma, and other ailments
Universal - Yoga for Asthma	Free	Teaching/Training	Alternative Treatments	Both	Teaches users yoga poses to improve asthma symptoms with a virtual 3D instructor, musical cues, and voice instruction. Tracks progress with built-in log
Yoga for Asthma	\$4.99	Teaching/Training	Alternative Treatments	Both	Teaches users yoga poses to improve asthma symptoms
Yoga for Asthma Guide	\$10.15	Teaching/Training	Alternative Treatments	Android	Teaches users yoga poses to improve asthma symptoms
Yoga for Health	Free	Teaching/Training	Alternative Treatments	Android	Teaches yoga moves and cites yoga as a complementary intervention for asthma and other medical conditions
Yoga For Your Health - FREE	Free	Teaching/Training	Alternative Treatments	Android	Teaches yoga moves to help users relieve symptoms of asthma and other conditions
Yoga Made Easy	Free	Teaching/Training	Alternative Treatments	Android	Teaches users yoga postures to relieve symptoms of conditions such as asthma

(continued)

ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Breathe Easy Asthma Steps	\$5.99	Teaching/Training	Child-Directed	iPhone	Uses Butekko breathing method. Graphs steps, shows progress, stores all readings, and displays trend. Child-friendly interface
Breathing improvement games	Free	Teaching/Training	Child-Directed	Android	Games designed to teach children how to control asthma attacks and how to breathe correctly when they occur
Catch Your Breath	\$2.99	Teaching/Training	Child-Directed	iPhone	Educational game designed to improve medication compliance in children with asthma. Provides a description of asthma, lessons in proper storage and use of medication, and examples of objects that can provoke attacks. Child-friendly interface
Huff & Puff SD	\$3.99 (iPhone)/\$0.99 (Android); free version available	Teaching/Training	Child-Directed	Both	Series of educational videos and quizzes, plus 2 trivia games for asthma patients. Child-friendly interface
iAsthma in Control	\$0.99	Teaching/Training	Child-Directed	iPhone	Designed to teach children to take their medication and learn the symptoms that may precede an asthma attack. Option to create a personalized asthma “rescue plan” and enter emergency contacts. Allows parents to record peak flow and email forms for school or sports to child’s doctor
Kids Beating Asthma	Free	Teaching/Training	Child-Directed	Both	Series of 8 games designed to teach children and adolescents about living with asthma
medWAYS	Free	Teaching/Training	Child-Directed	Both	Helps children manage and track their asthma
My Asthma Log	Free	Teaching/Training	Child-Directed	Android	Designed to help children and adolescents understand and manage their asthma. Allows users to set up individual action plan and log appointments and asthma attacks. Provides pictures and explanations of medication. Links to Asthma UK’s Facebook and Twitter forums and links to YouTube video channel with the inhaler technique and information
Wellapets - Asthma Education Pets for Kids	Free	Teaching/Training	Child-Directed	Both	Educational game designed to teach children to manage asthma. Teaches users when and how to use inhalers, recognize and understand asthma triggers, and identify and correctly act on asthma symptoms. Child-friendly interface

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Asthma Maze - Find out which Food Additives or Cosmetic Ingredients can trigger an Asthma attack	\$0.99	Teaching/Training	Food Additives	iPhone	Contains list of food additives and cosmetic ingredients, as well as search feature and option to filter by symptoms and ailments, including asthma
Chemical Maze - Complete Edition - The ultimate shopping guide to decode the Food Additives and Cosmetic Ingredients Maze	\$6.99	Teaching/Training	Food Additives	Both	Guide to food additives and cosmetic ingredients that allows users to search by symptoms, such as asthma and allergies, or by the effects on the body, such as respiratory effects
Dangerous Food Additives	Free	Teaching/Training	Food Additives	Android	Lists food additives and their potential links to asthma and other medical conditions
E Chemistry	Free	Teaching/Training	Food Additives	Android	Guide to food additives and their potential links to asthma and other conditions. Requires users to enter E-numbers from product descriptions
Eat Informed - Food Additives	Free	Teaching/Training	Food Additives	Android	Database of food additives and their potential side effects
EmulG	Free	Teaching/Training	Food Additives	Android	Database of food additives and their potential side effects. Allows users to search by code, name, or any term found in the description of the compound
Food Additives 2	\$3.99; free version available	Teaching/Training	Food Additives	iPhone	Database of over 450 food additives and their potential effects. Searchable by symptom type
Food Killer	\$0.99	Teaching/Training	Food Additives	iPhone	Provides information about 32 common foods and the additives they contain
HealthyKid	Free	Teaching/Training	Food Additives	iPhone	Guide to food additives and their potential side effects
1,000 Allergy, Asthma, and Immunology Dictionary Terms with Glossary of Procedures and Treatments	\$2.99	Teaching/Training	General Information	iPhone	Provides explanations, photos and definitions of symptoms, procedures, and treatments for allergies, asthma, and immunology conditions. Includes fast-search index and ability to share and export information
All About Asthma	\$7.99	Teaching/Training	General Information	Android	Provides information about asthma in chapter format
Asthama [sic] Terminology	\$0.99	Teaching/Training	General Information	Android	List of asthma-related terms and their definitions
Asthma	Free	Teaching/Training	General Information	Android	Provides information about a variety of asthma-related topics
Asthma	Free	Teaching/Training	General Information	Android	Provides information about asthma symptoms, causes, treatment, and prevention
Asthma ! [sic]	\$0.99	Teaching/Training	General Information	Both	Teaches users about asthma using videos and text. Links users to products available online
Asthma and Bronchitis	Free	Teaching/Training	General Information	Android	Contains articles, images, audio, and videos related to asthma and bronchitis

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Asthma Disease	\$0.99	Teaching/Training	General Information	iPhone	Contains interactive, 3D model of asthma mechanisms
Asthma Glossary	\$0.99 (iPhone)/Free (Android)	Teaching/Training	General Information	iPhone	Lists over 100 definitions of asthma-related terms
Asthma Guide	\$0.99	Teaching/Training	General Information	Android	Provides information about asthma symptoms, types, prevention, and treatment
Asthma Info	Free	Teaching/Training	General Information	Android	Provides information about asthma symptoms, treatment, and prevalence
Asthma Knowledge (iPhone), Asthma (Android)	\$2.99	Teaching/Training	General Information	Both	Teaches users about asthma using virtual flash cards
Asthma Terminology	\$0.99	Teaching/Training	General Information	iPhone	Teaches users asthma terminology. Sharing feature allows users to share term via email, Facebook, Twitter, or SMS
Asthma Treatment	Free	Teaching/Training	General Information	Android	Contains news, information, videos, and photos related to asthma treatment
Asthma What It Is? [sic]	Free	Teaching/Training	General Information	Android	Provides information about asthma triggers and symptoms
BronchitisGuide	\$1.99	Teaching/Training	General Information	iPhone	Guide to respiratory diseases including asthma and chronic obstructive pulmonary disease
Chronic Asthma	Free	Teaching/Training	General Information	Android	Contains 3D animations and audio explaining chronic asthma mechanisms
Dealing With Asthma	Free	Teaching/Training	General Information	Android	E-book providing information about asthma
Hay Fever, Allergy and Asthma	\$1.90	Teaching/Training	General Information	Android	Provides information about hay fever and asthma diagnosis and therapy
How To Recognize Asthma	Free	Teaching/Training	General Information	Android	Explains how to recognize asthma
Living Well With Asthma	\$0.99	Teaching/Training	General Information	iPhone	Guide that teaches patients about living with asthma, treatment, diagnosis, asthma in children. Sharing features allows users to share information on social media (Facebook, Twitter, email)
Looking For Asthma Info?	Free	Teaching/Training	General Information	Android	Provides information about asthma causes, symptoms, and treatment
Talking Asthma	Free	Teaching/Training	General Information	Android	Provides information about asthma types, causes, education, treatment, and triggers
The Allergy, Asthma and Sinus Center	Free	Teaching/Training	General Information	iPhone	Tracks East Tennessee's pollen count. Provides updates on most recent news in allergy. Contains videos covering a range of allergy, asthma, and sinus topics

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
7 keys to manage Childhood Asthma	\$2.99	Teaching/Training	Parent-Directed	iPhone	Teaches parents of children with asthma about asthma care and management. Allows parents to track child's symptoms. Option to share report with medical professional via mail
Kid's Health	Free	Teaching/Training	Parent-Directed	Android	Provides guidance on 13 health threats to children, including asthma. Includes news, videos, and general information about asthma
Pre-Teen Assessments	\$0.99	Teaching/Training	Parent-Directed	Android	Contains common pre-teen survey assessments for issues including asthma and allergies
Primary School Assessments	\$0.99	Teaching/Training	Parent-Directed	Android	Contains common preschool survey assessments for issues including asthma and allergies
Sick Child Advisor Pro	\$3.99; free version available	Teaching/Training	Parent-Directed	iPhone	Designed to teach parents how children look during different stages of illness, including asthma. Contains videos and symptom checker
SIGN Asthma Patient Guide	Free	Teaching/Training	Parent-Directed	Android	Provides information for patients with asthma about diagnosis, medication, controlling asthma, and other resources. Contains section with information for parents of children with asthma
Truth About Asthma	\$1.37	Teaching/Training	Parent-Directed	Android	Provides information about asthma diagnosis and treatment. Section with information for parents with asthmatic children
Assist Me with Inhalers	Free	Teaching/Training	Treatment Information	iPhone	Teaches users the inhaler technique through audio assistance. Reminds users to take medications
Asthma Attack	Free	Teaching/Training	Treatment Information	Android	Provides information on handling asthma attacks
Asthma FAQ (iPhone), FAQs in Asthma (Android)	Free	Teaching/Training	Treatment Information	Both	Provides information about asthma and the respiratory system, using and maintaining inhalers, and guidelines to prevent and manage asthma, through text, videos, and images
Asthma Guide	Free	Teaching/Training	Treatment Information	Android	Explains asthma-related topics including cures, controlling asthma, and natural asthma relief
Asthma Guide	Free	Teaching/Training	Treatment Information	Android	Provides information about types of asthma and treatment options
Asthma Symptoms	Free	Teaching/Training	Treatment Information	Android	Provides information about asthma symptoms through content articles, images, audio, and video

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Asthma Symptoms & Treatment	Free	Teaching/Training	Treatment Information	Android	Provides information about asthma symptoms and management
Asthma Treatment	Free	Teaching/Training	Treatment Information	Android	Provides information about asthma treatment
ASTHMA+++	Free	Teaching/Training	Treatment Information	Android	Provides information about asthma treatment
Coping With Asthma Eguide	Free	Teaching/Training	Treatment Information	Android	Provides information about asthma triggers and guidance for self-management of asthma
Exercise & Asthma Guide	\$10.15	Teaching/Training	Treatment Information	Android	Provides information about asthma prevention and exercise-induced asthma
Exercise Induced Asthma	Free	Teaching/Training	Treatment Information	Android	Provides information about prevention and treatment for exercise-induced asthma
Gary C. Steven, MD, PhD	Free	Teaching/Training	Treatment Information	iPhone	Provides 5 educational videos explaining proper use of nasal sprays and asthma inhalers, and the importance of regular asthma treatment. Option to set medication reminders. Patients of Dr. Steven can request medication refills through the app
How To Control Asthma	Free	Teaching/Training	Treatment Information	Android	Provides guidelines for patients to control their asthma
How to Use Inhalers	\$2.99	Teaching/Training	Treatment Information	iPhone	Interactive audio-visual tutorial demonstrating correct inhaler techniques
PharmaGuide	Free	Teaching/Training	Treatment Information	Android	Contains a description of 166 drugs used to treat asthma and four other chronic diseases
Scripps Asthma Coach	Free	Teaching/Training	Treatment Information	Android	Program developed for Scripps Clinic asthma patients to help them manage their asthma
Use Inhalers App	Free	Teaching/Training	Treatment Information	iPhone	Teaches users proper inhaler technique with real-time audio assistance and personalized reminders
Lung Function Test Lite	Free	Tracking & Visualization of Health Information	Tools/Calculators	iPhone	Spirometer app designed to measure lung strength. Social network integration feature allows users to share results with friends. Designed for entertainment purposes
Abriiz	Free	Tracking and Visualization of Health Information	Medication Use	Both	Tracks peak flow, triggers, and symptoms. Allows users to define medication schedule and track adherence, create incentive goals, and receive notifications via text or email. Option to print or download trend reports

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
Asthma Buddy	Free	Tracking and Visualization of Health Information	Medication Use	iPhone	Allows patients to record preventer and reliever medication plan and reference peak flow values. Option to email the PDF copy of the action plan to the doctor or the user. Records contact details for the doctor or the emergency contact person. Provides access to the National Asthma Council website and library of instructional videos for using asthma and chronic obstructive pulmonary disease inhalers
Asthma Logger	Free	Tracking and Visualization of Health Information	Medication Use	Android	Logs user condition and medication use
Asthma Tracker by healthycloud.com	Free	Tracking and Visualization of Health Information	Medication Use	iPhone	Logs Peak Flow, Inhaler Puffs, Forced Expiratory Volume, and Zone. Graphs data to display progress. Allows users to set custom targets. Can export data in Comma Separated Values or text format
AsthmaCare Buddy	Free	Tracking and Visualization of Health Information	Medication Use	iPhone	Allows patients with asthma to assess and manage their asthma control through monitoring tools, action plans, instructional videos for inhalers, and vaccination reminders
Asthma-Charter	\$0.99	Tracking and Visualization of Health Information	Medication Use	iPhone	Logs peak flow measurements and medication dosages. Includes a doctor reporting feature
Asthma-Charter MMC	\$0.99	Tracking and Visualization of Health Information	Medication Use	Both	Logs peak flow measurements and medication dosages. Includes a doctor reporting feature
AsthmaCheck	Free	Tracking and Visualization of Health Information	Medication Use	Both	Monitors asthma symptoms such as peak flow. Provides medication planner, notifications of peak flow readings, checks, and medication. Optional email data transfer, or data export as PDF, Comma Separated Values, or text in email
AsthmaMD	Free	Tracking and Visualization of Health Information	Medication Use	iPhone	Allows users to log asthma symptoms, visualize asthma in graphical format, track medications, map peak flow to severity zones, and track asthma triggers. Can share asthma diary and graph with health care professionals

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
AsthmaSense (iPhone), AsthmaSense Cloud (Android)	Free	Tracking and Visualization of Health Information	Medication Use	Both	Tracks symptoms, medication use, and breathing data. Allows users to track, review, and share data with medical professionals and family members using Cloud technology. Sets reminders for medication use, peak flow testing. Alerts users when asthma is “not well controlled” or “poorly controlled.”
AsthmaTrack	\$1.99	Tracking and Visualization of Health Information	Medication Use	iPhone	Records asthma data including Peak Expiratory Flow/Forced Expiratory Volume, inhaler puffs, medications, and symptoms. Automatically syncs devices through the iCloud. Creates graphs and shares diaries with physician via email or exported Comma Separated Values files
Dosecast - Medication Reminder	Free	Tracking and Visualization of Health Information	Medication Use	Android	Reminds users to take medications on time and tracks medication adherence
Inhaler Counter	\$0.99	Tracking and Visualization of Health Information	Medication Use	iPhone	Tracks and records inhaler use
Inhaler Tracker	\$0.99	Tracking and Visualization of Health Information	Medication Use	iPhone	Tracks and records inhaler use. Patients enter data. Displays remaining medication in each inhaler to notify patients of when inhaler needs replacing
Propeller Health	Free	Tracking and Visualization of Health Information	Medication Use	Both	Automatically records when and where a user uses inhaler. Option to set reminders to take medication and alerts for family and physicians. Displays trends showing when a user uses inhaler
SmartinhalerLive	Free	Tracking and Visualization of Health Information	Medication Use	Android	Allows users to visualize medication use and peak flow. Option to manually enter data, or to automatically enter data through use of a Smartinhaler
Sterling Apps Health Service	\$4.89	Tracking and Visualization of Health Information	Medication Use	Android	Records peak flow and tracks medication details, procedures, and allergies. Option to set alarm to remind a user when next medication is due. May use application to communicate with doctor
VitalsTRAK	Free w/subscription	Tracking and Visualization of Health Information	Medication Use	Android	Allows users with asthma and other conditions to track symptoms and record medication use
Allergy Tracker	Free	Tracking and Visualization of Health Information	Symptom Tracking	Android	Tracks time and location of allergy or asthma symptoms. Tracks pollen count. Option to participate in local network of friends who alert each other when they have allergies

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
AllergyMonitor	Free	Tracking and Visualization of Health Information	Symptom Tracking	Both	Allows user to record daily hay fever and bronchial asthma symptoms. Presents daily symptoms in graph format. Graphs can be converted to PDF to print or mail to health care professional
Asthma 360	Free	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Logs peak flow. Stores emergency numbers. Plots and graphs asthma stats to share with health care professional
Asthma Ally	Free	Tracking and Visualization of Health Information	Symptom Tracking	Both	Tracks user condition and assigns location, weather, and environmental data. Allows users to connect with available local providers
Asthma Journal Pro	\$4.99; free version available for iPhone	Tracking and Visualization of Health Information	Symptom Tracking	Both	Journal for patients to record asthma symptoms. Allows users to connect phone to Google Health Account, where they can then chart the data and share with family, friends, or medical professionals. Provides news on asthma research, prevention, and treatment, and allows for sharing via social networks
Asthma Tracker & Log	Free	Tracking and Visualization of Health Information	Symptom Tracking	Android	Tracks peak flow, and asthma attack frequency, length, location, trigger, and treatment
Asthma Tracker & Log Multiuser	\$1.49	Tracking and Visualization of Health Information	Symptom Tracking	Android	Tracks peak flow, and asthma attack frequency, length, location, trigger, and treatment for multiple users
Asthma USA	Free	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Logs peak flow. Stores emergency numbers. Plots and graphs asthma stats to share with health care professional
AsthmaPulse	\$3.99	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Tracks symptoms, triggers, and medications. Allows users to share data with medical professionals. Provides latest asthma news
AsthmaTracker Pro	\$2.99	Tracking and Visualization of Health Information	Symptom Tracking	Android	Tracks asthma triggers. Provides export/email of data
Cause and Effect	Free	Tracking and Visualization of Health Information	Symptom Tracking	Android	Allows users to track symptoms of conditions such as asthma to look for correlations between symptoms and possible causes
Diary of Asthma	\$1.99	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Logs symptoms, general mood, weather, sleep, medications
e-symptoms	Free	Tracking and Visualization of Health Information	Symptom Tracking	Both	Logs symptoms, medication intake, lifestyle habits. Advice section contains basic information and tips for users. Provides regional pollen forecast

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ONLINE REPOSITORY. (Continued)

	Cost	Category	Subcategory	iPhone/Android	Description
iAsthma GPS Tracker HD	\$0.99; free version available	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Allows user to record information about asthma attacks, including temperature, date, and location
iPollenCount	\$1.99	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Helps users understand and correlate allergies and asthma with local pollen count. Graphically displays symptom scores with pollen count. Report can be emailed to health care provider
m.Carat	Free	Tracking and Visualization of Health Information	Symptom Tracking	Both	Logs asthma and allergy symptoms. Allows users to synchronize with caratnetwork.org
mCarat Monitoring	Free	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Logs asthma and allergy symptoms, records lung function values
MyBreath Lite	Free	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Tracks users' breathing. Provides real-time audio and visual feedback, breathing index score, and coaching tools
mySymptoms Food Diary	\$2.99	Tracking and Visualization of Health Information	Symptom Tracking	Android	Food and symptom diary. Can be used to record, track, and analyze symptoms associated with asthma, allergies, and other conditions. Option to generate report of diary to print or share by email
Peak Flow	\$0.99	Tracking and Visualization of Health Information	Symptom Tracking	iPhone	Logs peak flow. Allows users to compare their data with other users' data
Peakflow	Free	Tracking and Visualization of Health Information	Symptom Tracking	Android	Logs peak flow. Option to email or export entire history to a text file on the SD card
RxTrak's Medical Event Tracker	\$0.99	Tracking and Visualization of Health Information	Symptom Tracking	Android	Allows users to log and track medical events, including asthma attacks
Downes Scale	\$1.99	Tracking and Visualization of Health Information	Tools/Calculators	iPhone	Determines the severity of an asthma attack using the Downes rating, or bronchiolitis grade using the Wood-Downes rating
Health Calculators	Free	Tracking and Visualization of Health Information	Tools/Calculators	Android	Allows users to evaluate health status with 24 different calculators and tools, including one for asthma
Peak Flow Calculator	\$0.99	Tracking and Visualization of Health Information	Tools/Calculators	iPhone	Calculates the strength of breathing based on user input from the patient's peak flow meter
Pulse Oximeter	\$3.99	Tracking and Visualization of Health Information	Tools/Calculators	iPhone	Measures heart rate and blood oxygen saturation with the iPhone camera
Spirometer Pro	\$0.99	Tracking and Visualization of Health Information	Tools/Calculators	iPhone	Uses the iPhone microphone as a spirometer. Designed for entertainment purposes and not for use as a medical spirometer