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The App as Health Aide

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Travelers with chronic ailments like <u>diabetes</u> or <u>high blood pressure</u> have long struggled to remember when to take their pills as they cross time zones. Or they may have had a hard time finding emergency care in a foreign country or communicating about complicated health conditions.

But there are now a rapidly growing number of mobile health and medical apps that aim to deal with those types of situations.

Travelers can tap into technology before the trip begins, by storing information that can help ensure the right care is delivered if health issues crop up. Some put their medical history, latest EKG, chest X-ray or list of allergies and medications on a flash drive marked with a red cross, and attach it to a necklace, bracelet or keychain. Those who have had cardiac or other surgery may create a simple image using the free app drawMD for



Brandon Thibodeaux for The New York Times Mellanie True Hills, founder of StopAfib.org, travels with a machine she uses for her sleep apnea.

<u>iPad</u> devices that shows the exact location of a <u>stent</u>, for example, or an implant or bypass. For travelers who prefer a traditional method of communicating, a laminated card lists important information and physician contacts.

The Transportation Security Administration has a <u>printable card</u> available on its Web site for those who want to make their medical condition known discreetly to a security agent and discuss or undergo any screenings in private.

Medical devices contained in their own bags do not count toward carry-on bag limitations, though not all airport employees know this. Mellanie True Hills, founder of StopAfib.org, a nonprofit group dedicated to helping those living with atrial fibrillation, says she is often stopped by check-in, security or gate agents and told that the machine that helps with her sleep apnea puts her over the carry-on bag limit and that she will have to check one of her pieces of luggage. The agents relent, Ms. Hills said, when she produces a laminated copy of the applicable T.S.A. regulation she has printed from the agency's Web site.



Brandon Thibodeaux for The New York Times Ms. Hills carries a copy of the federal rules on medical carry-on bags.

Dr. Robert Glatter, attending physician at Lenox Hill Hospital's department of emergency medicine in Manhattan, suggested that travelers with chronic ailments look for specialists and hospitals at their destinations before they leave home. For those who have not planned ahead but need urgent care, phone apps can help locate nearby medical help. The Emergency Medical Center Locator, a free iPhone app, uses the phone's GPS to find nearby centers. The app lists nearly 2,400 medical centers in 101 countries, and users can select from six specialty areas, including trauma, eye and cardiac care. While not every medical center is listed, the ones that are have been approved by credentialing societies like the American College of Cardiology.

Time zone changes can be extra challenging for patients, like those with diabetes, with a 24-hour monitoring schedule. Phone apps like <u>Glucose Buddy</u> and <u>GluCoMo</u> remind users to track and record their blood sugar levels.

WellDoc's DiabetesManager, available on a variety of mobile and Web-based platforms, provides feedback based on glucose, medication, food and exercise information that patients enter, advising them on the actions they should take to adhere to their treatment plan. Anand K. Iyer, president of WellDoc, is a diabetes patient who travels frequently himself. He contrasts the feedback to a radio's traffic report. "It's nice to know if there's a backup, but what I really want to know is the best route home," he said. "If I'm told my glucose is too high or low, I want to know what actions I can take."

The app RxmindMe Prescription/Medicine Reminder and Pill Tracker for iPods and iPhones does what its name says and reminds travelers when to take their medicine. Users put in their medication names or search the database, and then specify when they want to be reminded to take them. The app can notify the user when medications need to be reordered, and the device's camera can add a photograph of the pill.

For travelers who put all their pills in a plastic bag instead of taking separate pill bottles (this is not recommended) the free <u>app Epocrates</u> can help identify them by taking the user through a list of questions about the pill's color, shape and markings. The app can also be used to double-check the identification of any pills received on the road or review possible side effects or drug interactions.

Dr. Myles Druckman, vice president of medical services for <u>International SOS</u>, which assists multinational organizations with customized health plans for their global travelers, said travelers needed to plan what they would do if their trip was extended. He suggested bringing an extra week's supply of medicine. "No one knows when an overnight trip will turn into a multiday volcano ash delay," he said.

Because of language barriers or differences in equipment or supplies, travel to other countries, especially developing nations, can bring an extra set of challenges in a health crisis. Some companies contract with travel assistance providers like International SOS, which has offices in more than 70 countries, to help employees who fall ill or need medical advice. Local offices can deal with issues by phone, give health advice or refer the employee to the appropriate hospital, clinic or doctor. International SOS also offers a phone app that sends general health and security information pertinent to the traveler's itinerary, noting, for instance, if there is an outbreak of a particular disease in the area.

Apps are also available for doctors in case they are called upon to provide curbside or in-plane assistance. EyeChart can help evaluate patients who complain about their vision and uHear about their hearing. NeuroMind can take physicians through a series of questions to help diagnose a patient who has had a head trauma or is unresponsive.

New apps are appearing every week, and they vary in quality. Paul Cerrato, who reviews medical apps as the editor of InformationWeek Healthcare, said, "Some apps have major research behind them and others don't seem to have done their homework." Mr. Cerrato recommended that patients consult with their health care provider to choose the best app for their situation.

While most of the medical apps today record, remind and refer, the future holds more diagnostic uses like the iBGStar Blood Glucose Monitoring System, which features a small meter that plugs directly into the iPhone or iPod Touch. Patients insert a test strip into the meter to take a blood sugar reading, and the information is automatically synced with the app. Another is a blood pressure cuff that can attach to a

smartphone. Both can send results to a home physician from a hotel room or business meeting across the world. "These apps are really game changers," Mr. Cerrato said, "for everyone."