DICKSON

insights

July 2016 ▪ CD302

SPECIAL INDUSTRY EDITION

★ THE MEDICAL ISSUE ★

PLUS: Zika Virus ▪ Big Data Benefits for Hospitals ▪ Diabetes Treatment Breakthroughs

Recycled News.

Sometimes A Story Can **Grow Stale.**

JEFF RENOE ▪ **DICKSON INSIGHTS** EDITOR-IN-CHIEF

Living in a time where the news cycle is 24 hours long, some stories can quickly become over saturated. This year, a story that has appeared in the news over and over again has been related to the Zika virus.

While it may be a story that's grown tired, it continues to be one that's necessary to have. Since the conversation first began early in the year, contamination has spread beyond what the Center for Disease Control had estimated and its potential effects are worse than initially believed.

The rapid expansion of Zika has driven a heavy demand for a vaccine to keep the population safe. While many outlets are reporting that a vaccine could be ready soon, what most fail to mention is that the vaccine would only be ready for testing. The process of **developing a vaccine** is an arduous one and **can take years, if it even works out at all.**

In the pages that follows you'll learn more about the vaccination process as well as a variety of stories as we work to keep your assets safe and your auditors happy.

Thanks for reading, and I hope you enjoy the July issue of **Dickson Insights.**

TABLE OF CONTENTS

Trend Spotting:

The Sweet Taste Of Diabetic Success

Diabetics may soon find themselves within arms reach of the sugars they've been missing.

Thanks to the work of a group of researchers from South Korea, a wearable patch has been developed that provides the wearer with two major benefits. It monitors the glucose level of the blood, and, thanks to a number of microneedles built into the patch, it can even deliver important insulin to the wearer as needed.

This isn't the first patch that's been created for such a purpose, however it seems to be the most efficient. This version uses a similar base material, graphene. It's a strong and flexible material made of carbon atoms and has often been used in wearable devices such as this. However, properties of the graphene material have made it hard for similar patches to actually detect changes in a wearers sugar levels. In order to counteract this flaw, the developers added gold particles and a surrounding gold mesh to the graphene.

While applied to the skin, the patch itself captures sweat from its wearer. Sensors within it identify the sweat's pH and temperature changes in order to detect elevated glucose levels. If an abnormal reading is taken, heaters in the patch dissolve a layer of its coating in order to expose the microneedles that then release the needed drugs. This medicine, metformin, is then able to regulate sugar levels in the blood. As it's been explained by Popular Science, you would either feel nothing from a microneedle or, at the most, a slight tingle. Blood sugar readings are also wirelessly transmitted to a mobile device for the person to read and monitor.

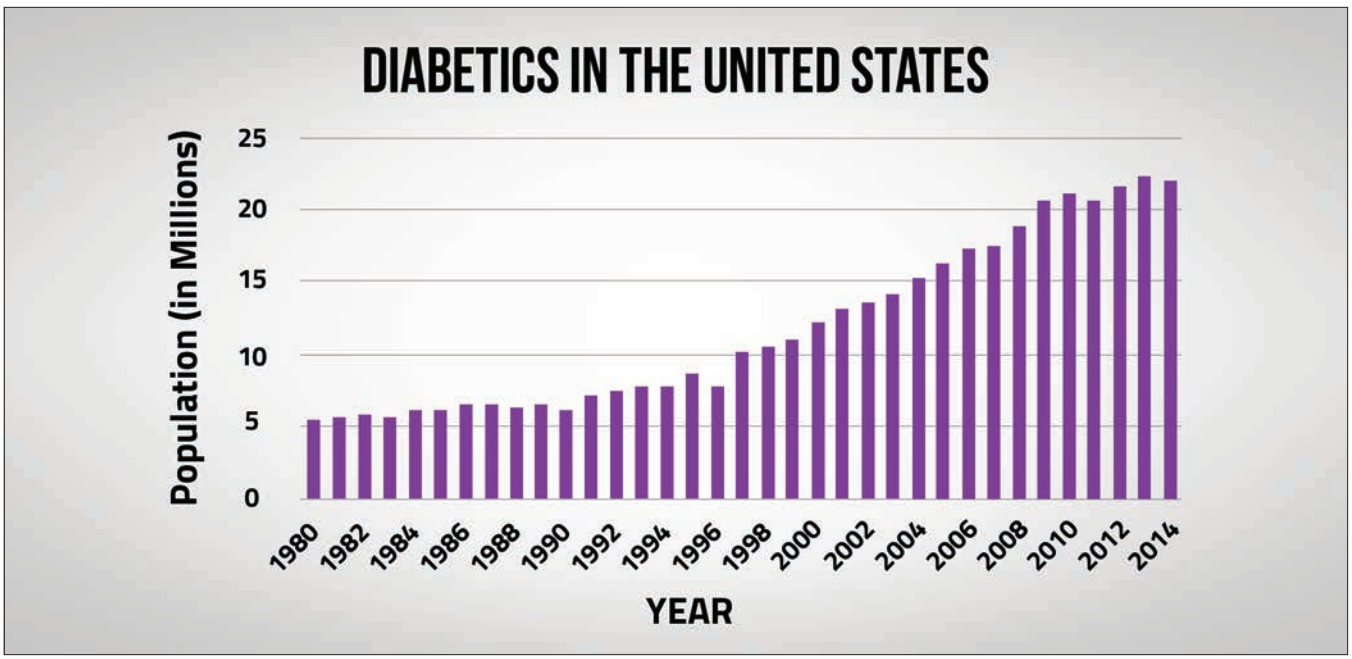
This kind of improved care would be huge for an American society that's seen a major increase in diabetic patients over the last 35 years. On average, we've seen a 4% increase each year since 1980. Below is a chart showing the disease's growth over time.

Of the more than 22 million who suffer from the disease the majority are diagnosed with Type 2 diabetes. While the cause of Type 1 isn't yet clear, data has suggested that there are a number of things we can do, and often times don't do, to prevent Type 2. It's been linked to obesity, genetics and a sedentary lifestyle. To date, no cure has been produced for either type.

While the American lifestyle has negatively affected the health of more than 20 million Americans, it has provided a boon to pharmaceutical companies. In the US alone, more than $132 billion dollars is spent annually by patients on the medicine and medical devices required to manage the condition. Changes to technology and treatment could certainly put a dent in such revenue.

The cost of this new patch is still to be determined, and, with the tremendous number of tests that still need to be done and approvals that still need to be had, it'll be some time before we know how such a new technology could affect the state of the industry. Until then, we'll have to see if our national health continues along a similar trend. If it does we could have a country with 30 million diabetics in six years. It's a trend that is sure to leave a sour taste in your mouth.

D



Big Data:
Saving Hospitals Time And Money

As we evaluate our work processes, we often look for ways we can cut out down time or eliminate wasted operations that drive up costs and complicate the matters at hand. That's why when you talk about Big Data and its benefits, it's often easy to put efficiency high on the list.

This is true across a number of industries. While the sales and tech industries generate press clippings, healthcare often gets overlooked. Now, thanks to the creation of a mandatory statewide database in Washington, the conversation may expand to include it more often in the future.

The data that's been collected in Washington has allowed hospitals and doctors to cut ER visits by ten percent and even improved follow up patient care. Think about it. If you visit an emergency room because of tightness in the chest, you have no idea what's going on. Neither do doctors who are seeing you for the first time. They have to take time to diagnose you and often times that involves ruling out all other possible scenarios. Once they do diagnose you, say with asthma, they'll often request you follow up with your family doctor.

Unfortunately, many patients don't consider that option. According to Mark Reiter, president of the American Academy of Emergency Medicine, nearly all ERs "have a few patients who have the potential to abuse the system." He then went on to recall one patient he'd had that visited the ER more than 300 times in a single year.

Why does this happen?

There are a number of people who show up at the ER repeatedly with minor ailments like stomach problems and headaches. Many of the patients like this in Washington are low-income and covered by the state medicaid programs. This means that it's the burden of the taxpayer to pick up the bill. Patients who went to the ER more than four times a year made up a fifth of all ER visits paid for by Medicaid in the state.

While a hospital may be able to recognize a face if it comes through the door repeatedly, they've never been able to track visits to competitive hospitals. Now, thanks to the database that the state has developed, that information is shared and available to local health providers. Facilities are able to direct many of these patients to clinics or other less expensive care centers based on the data. The chief medical officer for the state's Medicaid program, Dan Lessler, credits the database for a substantial amount of the $33.7 million reduction in their medicaid costs following its launch.

According to Bloomberg Business, different hospitals and care professionals have used the database in different ways. Below is an excerpt that describes a few of them as well as some of the ongoing results.

Once a patient leaves an ER, the database helps doctors track their care. One hospital dispatches paramedics to check on high-risk patients within two days of their visit. Others hire care coordinators to ensure patients make appointments with a family doctor or specialist. Rural hospitals found that many of their ER patients needed help with pain, so they set up the region's first pain management clinic. The data has helped reduce the prescription of narcotics in the state's ERs by 24 percent in the first year. And 424 primary care physicians have signed up to receive automatic notifications when one of their patients goes to the ER. Washington is working to sign up more family doctors as well as community and mental health clinics.

The American College of Emergency Physicians see it as a model program for other networks to adopt across the nation. Queries have been made by several states already, California, Florida and Texas to name a few, in order to set up similar programs. As medicaid programs continue to be the a point of major debate in this year's election cycle, it'll be safe to assume that other states will be watching Washington closely to see just how successful, and logistically achievable, such a program can be over the time.

D

DicksonOne

Wireless Temperature and Humidity Monitoring

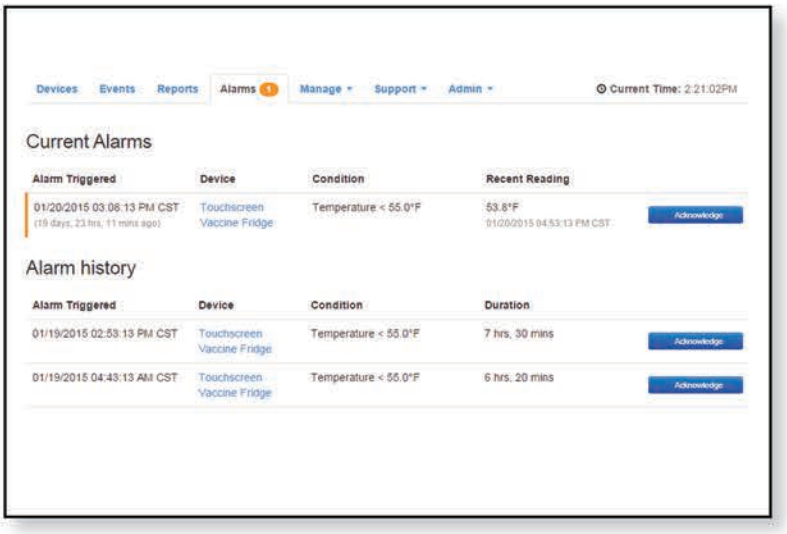
HOW IT **WORKS**

When you log onto **DicksonOne.com**, your environmental data, from every location, appears before your eyes. Charts and pens, get outta here. USB cords and software on a disc, you too. **DicksonOne** Loggers transmit your data wirelessly to the **DicksonOne** Cloud, where you can access it anytime.

Power Over Your Environment

EMAIL, TEXT & PHONE CALL ALARMS

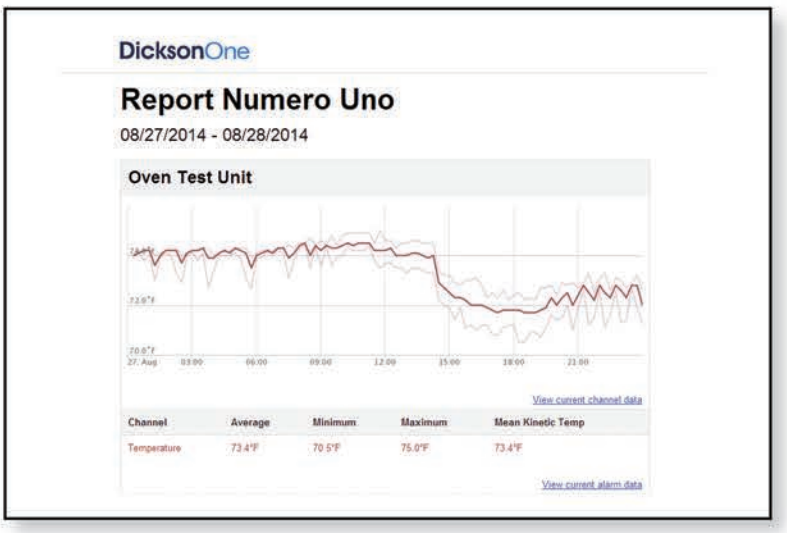
When something bad happens in your facility, **DicksonOne** can send anyone in your organization an email, text, or phone call. Temperature too high? Humidity too low? We've got you covered.



CUSTOMIZABLE REPORTS

The DicksonOne Reporting Suite allows you to:

- Create and customize reports for any and all of your loggers
- Choose who in your organization will receive which reports
- Change and modify the frequency of reports



TEMPERATURE MAPPING SERVICES

KEEPING YOUR PRODUCTS SAFE

HOW IT **WORKS:**

WHAT **YOU GET:**

- Testing or Validation Plans
- Problem Spot Analysis
- Refrigerator, Freezer, Incubator and Warehouse Mapping
- Acceptance Criteria Creation
- Temperature Recovery Studies
- Temperature and Humidity Monitoring Consultation
- Testing Summary Report

WHAT **WE OFFER:**

- 90 Years of Temperature Mapping Experience
- A team of expert Consultants, Engineers, and Mapping Technicians
- High Accuracy, High Reliability Data Loggers
- A2LA Calibrated Temperature Recorders
- Secure Data Recovery, Analysis and Distribution
- Analysis Performed with 21CFR Part II Compliant Software

Meet The New

DicksonOne Logger

THE BEST JUST GOT BETTER

Larger, More Detailed Display ▪ Compatible with New Universal Replaceable Sensors

Over the Air Updates ▪ Smaller Footprint

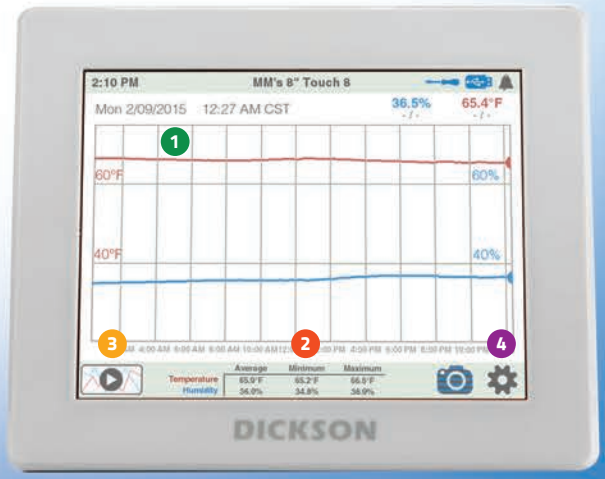
Updated Design

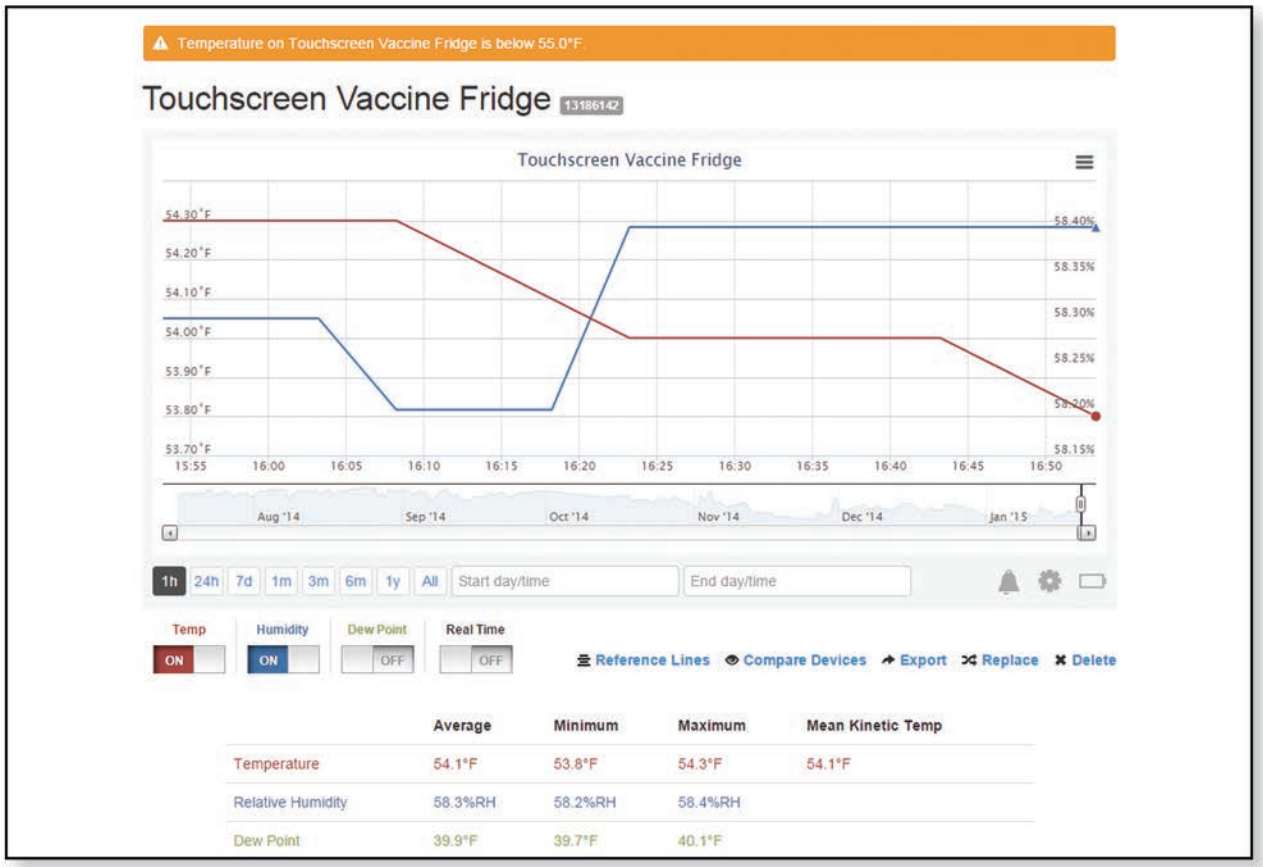
DicksonOne **Touchscreen Loggers**

Our goal when designing the new line of **Touchscreen Data Loggers** was to create a feature-heavy and easy-to-use device that allowed users access to their entire data history, anywhere. We pushed the limits of connectivity, user-interface, and functionality, to deliver the most robust data logger on the market.

Data At The Source

1. **The Graph** Your environmental history just got a whole lot easier to navigate through. We overhauled the user-interface, and made it easy to view and manage your data.
2. **Your Channels** Every touchscreen will automatically calculate the minimum, maximum, and average temperatures of your selected view.
3. **Real-time Monitoring** Push the play button, and your device will update back to the most recent set of readings.
4. **Device Settings** Your Touchscreen is robust. When you navigate your devices settings, you can adjust sample rates, set alarms, and connect to DicksonOne.



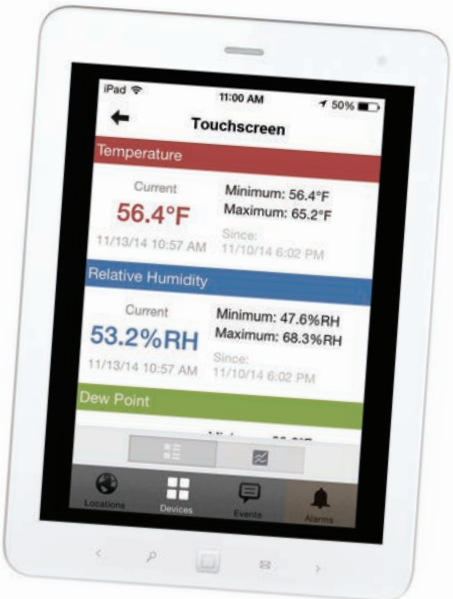


NOW WITH **DicksonOne**

The **Touchscreen** now gives you the option to connect directly to **DicksonOne.** You get all of your data at your fingertips, and now you can access it anywhere too. Just connect your device to your local WiFi network or plug it into an Ethernet port, log into **DicksonOne**, and boom, complete data control.

DicksonOne Allows You To:

- Get email, text, or phone call alarms from your Touchscreens.
- Access every one of your Touchscreens' data history on one website.
- Generate customizable reports, delivered directly to your inbox when you want.



The new Touchscreen allows for USB download to DicksonWare.

Only DicksonWare A017/A027 will function with Touchscreen Loggers.

DicksonOne
Touchscreen Pricing

MODEL	REMOTE PROBE	PRICE
TSB	USB Download	**$424**
TWE	DicksonOne WiFi/Ethernet Connection and Download	**$524**
TWP	DicksonOne Download and Power over Ethernet	**$599**

The TSB, TWE, and TWP all allow for basic USB download independent of DicksonOne. Use DicksonWare A017/A027 for USB download with these models.

DicksonOne
Display Logger Pricing

MODEL	REMOTE PROBE	PRICE
DWE	DicksonOne WiFi / Ethernet Connection and Download	**Starting at $350**

DicksonOne
Software Pricing

DEVICES	FEATURES	PRICE
1 to 10	Unlimited Data, Multiple Sample Rates, API Access, Email, Phone, and Text Alarms	**$300/year**
11 to 25	Unlimited Data, Multiple Sample Rates, API Access, Email, Phone, and Text Alarms	**$725/year**
26 to 50	Unlimited Data, Multiple Sample Rates, API Access, Email, Phone, and Text Alarms	**$1400/year**
51 +	Unlimited Data, Multiple Sample Rates, API Access, Email, Phone, and Text Alarms	**Call for Quote**

* Dickson offers a Basic Plan with a rolling window of 30 Days of data. One hour sample rates for unlimited loggers at no cost.

Calibration In Five Seconds

HOW REPLACEABLE SENSORS **WORK**

Dickson Replaceable Sensors are Dickson's answer to the headache of calibrating your temperature or humidity monitoring device. When your device needs to be calibrated, just pop off your sensor and pop on a new one. It's that easy. Now when you order a DicksonOne or Touchscreen Logger, you get the benefit of never having to ship a logger back to us again.

WITHOUT REPLACEABLE SENSORS

1. Order a recalibration for your device
2. Acquire a Return Authorization Code from a Dickson Representative
3. Take unit out of its environment
4. Move products out of environment/install backup monitoring system
5. Box unit up
6. Ship unit to Dickson
7. Dickson recalibrates unit and ships it back
8. Receive the unit
9. Disassemble backup system/move product back into environment
10. Reinstall unit/system

Total Down Time: 7-10 Days

VS

WITH REPLACEABLE SENSORS

1. Order a Replaceable Sensor
2. Take old sensor off, put new sensor on

Total Down Time: 0 Days

All DicksonOne and Touchscreen Loggers are **RS COMPATIBLE.**

High Temp Solutions

D605 Probe sold separately. For more information on Dickson's Probes and Accessories, visit **dicksondata.com.**

1. **HT 300 Waterproof, High Temperature Data Logger** HACCP and FDA Compliant. USB Download. IP68 Rating. Temperature Range -40° to 257°F (-40° to 125°C). **$349**
2. **HT350 High Temperature Process Logger** HACCP Compliant, K-Thermocouple Probe, USB Download, and a large temperature range. Temperature Range -40° to 257°F (-40° to 125°C). **$349**

Instant Data Solutions

3. **TC700/TH700 Touchscreen Handheld Indicator** Instant temperature or temperature/humidity data. No-slip silicone cover. Battery powered. **$299**
4. **RL200 Report Logger** We decided to make the best compact data logger on the market, our RL200. With a new outer case, user selectable logging times, and redesigned PC interface, it's exactly what you need. **$59**

Temperature and Temperature/Humidity

Chart Recorders

Want a physical readout right where you are monitoring? Our Chart Recorders have you covered. For ninety years we've built the best chart recorders in the business. Check out our models below.

8 and 6 Inch Models

Eight and Six Inch Chart Recorders display detailed temperature and humidity values.

MODELS AND FEATURES

KT6P	6 Inch Temperature	**Starting at $369**
KT8P	8 Inch Temperature	**Starting at $419**
TH6P	6 Inch Temperature and Humidity	**Starting at $489**
TH8P	8 Inch Temperature and Humidity	**Starting at $489**

4 and 3 Inch Models

Four and Three Inch Temperature Chart Recorders designed to fit any application.

MODELS AND FEATURES

SL4350	4 Inch	**$239**
SL4100	4 Inch	**$239**
SC3 Series	3 Inch	**$239**

Charts sold separately. For charts and accessories, call **630.543.3747** or go to **www.DicksonData.com.**

PRESSURE DATA LOGGERS

Pressure Data Logger One second sampling rate. User replaceable battery. Optional delayed start. USB connectivity. Pressure sensor includes built-in diaphragm seal.

PR125	**$499**	0-100 PSI
PR325	**$499**	0-300 PSI
PR525	**$599**	0-500 PSI

Rugged Utility Pressure Data Logger Water resistant case. 3 year battery. Unobtrusive design. Fits easily in a toolbox. USB Connection.

PR150	**$499**	0-100 PSI
PR350	**$499**	0-300 PSI

PRESSURE CHART RECORDERS

4 and 8 Inch Models

Four and Eight Inch Chart Recorders to meet your needs.

Single AA battery powered. Rugged low-maintenance design features. 7-day or 24-hour recording times. 1/4 inch NPT Connector.

MODELS AND FEATURES

0-100 PSI	**PW860/1**	**$629**		**PW470**	**$449**
0-200 PSI	**PW864/5**	**$629**		**PW474**	**$449**
0-300 PSI	**PW866/7**	**$629**		**PW476**	**$449**
0-500 PSI				**PW479**	**$449**
0-1000 PSI	**PW875**	**$749**			

Charts sold separately. For charts and accessories, call **630.543.3747** or go to **www.DicksonData.com.**

MAPPING DATA LOGGERS

SP125 $119 Temperature Logger. Accuracy ±1.2°F, ±0.67°C. Range -10 to 176°F, -23 to 80°C.
SP175 $229 Temperature Logger with Thermocouple Probe. Accuracy ±1.8°F, ±0.1°C. Range -300 to 2000°F, -30 to 50°C. A203 Probe required for +500°F.
TP125 $199 Temperature and Humidity Logger. Accuracy ±0.8°F, ±0.45°C. Range -10 to 176°F, -23 to 80°C.

SK550 $699 Temperature. Pack of twelve. Accuracy ±1.8°F, ±1°C. Range -4 to 158°F, -20 to 70°C.
TK550 $999 Temperature & Humidity. Pack of twelve. Accuracy ±1.8°F, ±1°C. Ranges -4 to +158°F, -20 to +70°C.

DISPLAY DATA LOGGERS

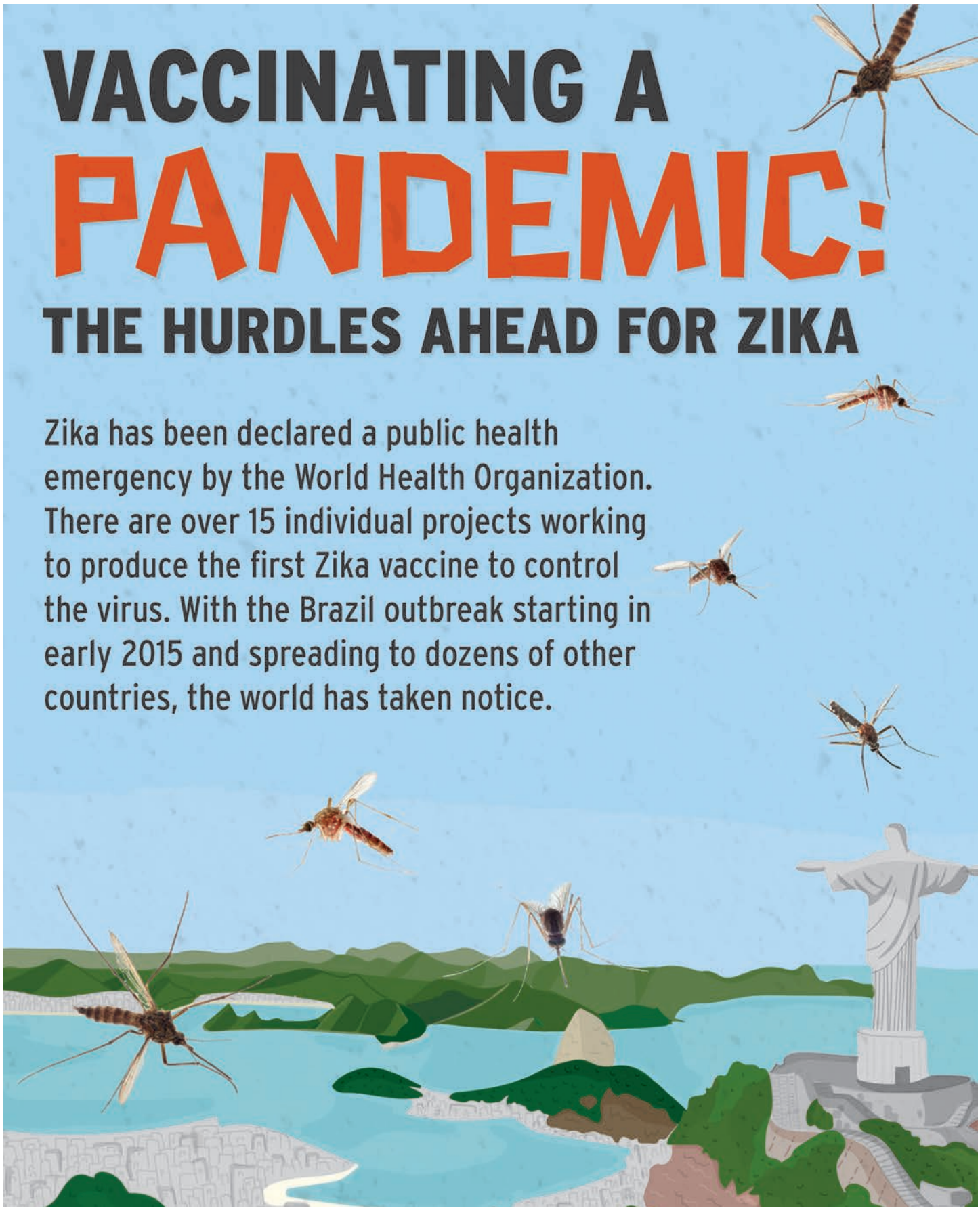
SM300 $249 Temperature Logger. Range -4 to 158°F, -20 to 70°C. Accuracy ±0.8°F, ±0.44°C.
SM320* $299 Temperature Logger. Remote Probe. Range with Probe -300 to 2000°F, -184 to 1093°C. Accuracy ±1.8°F, ±1.0°C.
SM325* $399 Temperature Logger. Two Remote Probes. Range with Probe -300 to 2000°F, -184 to 1093°C. Accuracy ±1.8°F, ±1.0°C.
SM420 $499 Temperature Logger. Remote Probe. Range with Probe -50 to 350°F, -45 to 176°C. Accuracy ±0.5°F, ±0.28°C.
TM320 $299 Temperature and Humidity Logger. Range -4 to 158°F, -20 to 70°C. Accuracy ±0.8°F.
TM325 $399 Temperature and Humidity Logger. Remote Probe. Range -40 to 185°F, -40 to 85°C. Accuracy ±0.8°F.

SP425 $159 Temperature Logger. Digital Display. Accuracy ±1.2°F, ±0.67°C. Range -4 to 158°F, -20 to 70°C.
TP425 $249 Temperature and Humidity Logger. Digital Display. Accuracy ±0.8°F, ±0.45°C. Range -4 to 158°F, -20 to 70°C.

VACCINATING A PANDEMIC:

THE HURDLES AHEAD FOR ZIKA

Zika has been declared a public health emergency by the World Health Organization. There are over 15 individual projects working to produce the first Zika vaccine to control the virus. With the Brazil outbreak starting in early 2015 and spreading to dozens of other countries, the world has taken notice.



While Zika isn't life-threatening to most adults, there is now concern that the mosquito-borne virus may be more dangerous than previously thought. The main concern has been its link to microcephaly, a birth defect in which babies' brains don't fully develop. Until recently that link was contested, however most doctors and medical researchers are now in agreement that the two are connected. In fact, we're starting to further understand how and why the damage is happening.

The growth of a fetus's head is directly related to the increasing size of the brain. As it starts to grow, it creates pressure and pushes on the skull. This pressure is what causes the head to grow. If for some reason the brain doesn't grow — because of a virus, for example — the pressure on the skull drops. It is then possible that the skull will collapse down onto the brain.

A number of mouse experiments have provided new insight into why and how this happens.
One such study was conducted by Alysson Muotri and his team at the University of California, San Diego. They infected pregnant mice with Zika and looked to see how the virus harmed the baby mice. In an interview with NPR, Muotri discussed the findings.

"We detected the virus all over the mice and in different regions of the body," Muotri says.

Even though the virus spread throughout the bodies of the mice, the virus is particularly attracted to brain cells. Once they attack them, they "turn into viral factories that start producing huge amounts of the virus." Eventually, the cells burst.

"They explode, and more viral particles are released that can infect other cells. And they can just amplify themselves," Muotri says.

The cycle then continues as more brain cells become infected and more die. This cell death is already a problem for the fetus. It scars the brain and creates inflammation. What makes a bad situation worse is that the brain cells infected by Zika are extremely special. They're called neural progenitor cells. And they're responsible for building a large portion of the brain.

"These are fast-replicating cells that will give rise to billions of cells in our brains," Muotri says. If a fetus loses even just a small percentage of these cells, a portion of its brain will never develop. According to Muotri, the impact it would have on the brain would be "dramatic."
These breakthroughs still leave several unknowns. Why is the virus attracted to brain cells? What other effects does it have on a child before birth as well as after? Are there still undocumented effects to the mother? It's these unknowns that are making the production of a Zika vaccine so tricky.

In a best-case scenario, developing a vaccine is difficult. Researchers pore over a multitude of combinations and correlations. Scientists work to strike the perfect balance: stimulate the immune system enough to produce antibodies but avoid actually infecting the disease. From concept to market, the average process takes about 15 years.

That process encompasses three stages: exploratory, preclinical, and Investigational New Drug, or IND. After passing through those stages, testing generally begins, again, in three phases: on 20 to 80 people (Phase I), several hundred people (Phase II), and ultimately several thousand (Phase III).

This process, for any vaccine, can be protracted and byzantine. The vaccine for the dengue virus, a sometimes deadly mosquito-borne germ that's a close cousin of Zika, took over 20 years to develop. In September 2014, an Ebola vaccine entered Phase I testing, but progress has since halted; there is still no legitimate Ebola vaccine produced in the U.S.

In Zika's case, the process is even more complicated because of the link the virus has had to birth defects. The risks, and regulations, inherent in developing a vaccine for pregnant women are innumerable. Researchers and scientists are split on whether to even offer a Zika vaccine to pregnant women due to fear of harming the unborn.

Other factors contribute to the potential vaccine's plight. A lack of funding, inadequate distribution, deficient administration, and improper transportation—storing the vaccine outside the proper temperature range can lead to its invalidation by the health department—all serve as sizable roadblocks.

Another major hurdle involves national funding. President Obama made a request for $1.9 billion

There are reported Zika cases in **more than 20 countries** in South and Central America, and is present in parts of The Pacific Islands, The Caribbean, as well as forty-one U.S. States and the Gulf Coast.

At least 358 travel-related Zika cases are now documented in the United States.

WHAT SCIENTISTS KNOW

Zika is a flavivirus and has as RNA structure similar to that of dengue, also a mosquito-borne viral disease.

THE MAIN CONCERN

It is believed that Zika is linked to microcephaly, a birth defect in which babies' brains don't fully develop, and they are born with abnormally small heads.

DEVELOPING A VACCINE FOR DENGUE TOOK OVER 20 YEARS.

THE ROADBLOCKS TO A ZIKA VACCINE

PREGNANT WOMEN AND CLINICAL TESTING

Pregnant women are most at risk from infection of Zika, because the virus is linked to birth defects. However, researchers are debating whether vaccines and drugs developed for Zika would even be offered to pregnant women because of potentially harming the unborn.

Because of the risks that come with developing vaccines and medications for pregnant women, the process to overcome potential regulatory hurdles would be lengthy.

THE NEED FOR FUNDING

When a disease is labeled as non-threatening, like Zika was until recently, there's little incentive for companies to fund research.

EXTREMELY DIFFICULT TO DEVELOP

Vaccines in general are very difficult to develop because creating a vaccine is about striking the perfect balance. Scientists need the vaccine to stimulate the immune system enough to produce antibodies without actually infecting the disease.

ISSUES WITH DISTRIBUTION

Although it may be relatively simple to distribute vaccines to big cities, a lack of health facilities in remote areas poses a problem and makes it difficult to administer vaccines. This often means non-profit organizations have to intervene.

Proper Vaccine Temperature Range:
35° - 46°F

Also, there are strict regulations to guarantee safe transport. For example, if the vaccine were to fall outside the proper temperature ranges for too long, the vaccine could be declared invalid by the state health department.

to battle the virus, but lawmakers have shown a lack of urgency. According to the Chicago Tribune, "polls show that the public isn't anywhere nearly as scared of Zika as it was about the Ebola outbreak in West Africa and the handful of cases in the U.S. in 2014. Aides to GOP lawmakers, even those representing Southern areas most vulnerable to Zika, say they've yet to hear from many anxious constituents, though they said this could change."

According to a spokeswoman for Rep. Andrew Crenshaw, R-Fla, there have been very few calls or letters on the subject. That's important to note, because the state of Florida is currently among the states at the greatest risk for the virus. If there isn't an outcry for funding there, then it's hard to expect a demand in other parts of the country.

Despite the obstacles, there is hope. According to NBC News, a new dengue vaccine may form the basis for a Zika version. The dengue vaccine is currently being tested in Brazil in a 17,000-person volunteer trial. In theory, researchers would add on a Zika component to help shorten development time. Another breakthrough that may help provide better Zika care is a test that can now be delivered to those who have been potentially infected. While it may not help cure the illness, knowing who has been affected could go a long way toward curbing its spread.

Until that plays out and a vaccine is available, there are things you can do now, like spray for adult mosquitoes and eliminate standing water to reduce their ability to breed. Whether you're looking forward to outdoor festivals or alfresco dining as the seasons continue to change, do all you can to protect yourself and don't forget to enjoy the seasonal warmth as we have it.

D

CHECK OUT THE DICKSON BLOG!

Like what you've read? Find more great information about temperature on our blog: **Blog.DicksonData.com**

DICKSON
930 South Westwood Avenue
Addison, Illinois 60101-4917

PHONE **800.323.2448**
FAX **800.676.0498**
www.DicksonData.com

Replaceable Sensors
Calibration Made Easy

A few years ago, we set out to engineer a way for our customers to calibrate their loggers and recorders, without ever having to send the devices back to us. What we ended up with was Replaceable Sensors.

What are these things?
Replaceable Sensors measure the temperature or humidity of your environment, and then send that signal to your data logger for storage. They are calibrated independently of the device.

What does that mean for you? If you calibrate your data loggers and chart recorders (which you should be doing) it means never, ever having to send your device back in to Dickson for a calibration. Replaceable Sensors take the phrase "down time" out of calibration.

Interested? Visit **dicksondata.com/replaceable-sensors** to watch a product video, and view products that use Replaceable Sensors.

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