

impact

A Quarterly Publication by Cepheid : Worldwide Edition



Creating a state-of-the-art PCR laboratory

→ Microbiology and Infection Control departments team up to improve the patient care continuum : *pg 4*

Ripple Effect

→ A GeneXpert® System placed in a lab creates “ripples” of savings that radiate throughout an institution : *pg 8*

Q&A with Dr. Beryl Oppenheim

→ : *pg 12*



NICO ARNOLD
EXECUTIVE VICE PRESIDENT,
WORLDWIDE COMMERCIAL OPERATIONS,
CEPHEID

From the editor



Welcome to the first issue of our new quarterly magazine, **IMPACT**. Cepheid's Systems & Solutions team has created this publication with one primary goal — providing **you** with interesting and informative articles that can help you significantly **impact** total patient costs, create a higher level of patient satisfaction, and lower infection rates in your facility.

Over the past decade I have watched with great interest the increasing debate over the best methods to control the alarming growth in health care costs in the US and abroad. Many recent studies clarify that cutting reimbursements and percentage cost cutting, in general, do not work. In the September 2011 issue of Harvard Business Review, Kaplan and Porter wrote an excellent article titled *How to Solve the Cost Crisis in Health Care*. One of the key messages in this article is that in the health care industry “we are measuring the wrong things in the wrong way.” **The reality is that we cannot manage costs effectively until we measure costs effectively.**

Cepheid's Systems & Solutions team helps healthcare facilities analyze their costs more effectively utilizing methods such as LEAN, Value Stream Mapping (VSM) and Activity Based Costing in the hospital — not solely in the lab. Our team has a large number of cost effectiveness studies completed with input from both customers and our internal team of specialists. In this magazine we will share articles, reports, and studies by GeneXpert® users illustrating the impact Cepheid's “Rapid Turn-Around” technology has on work flow, patient flow, infection control, bed management, isolation practices and antibiotic stewardship.

The ease-of-use of Cepheid's GeneXpert Systems, combined with their unprecedented accuracy, sensitivity and specificity, allow you to explore new clinical pathways to improve the way patients are diagnosed and treated. With more than 2,500 GeneXpert Systems placed worldwide, we see more and more examples of centralized AND decentralized testing. Emergency rooms and Intensive Care Units are becoming great examples of how impactful GeneXpert technology can be. We hope these examples will help you find ways to significantly impact the total patient costs in your facility.

I invite you to contact us at any time if you would like to contribute to the magazine or if you want to share with us your feedback — or if you would like one of our Systems and Solutions experts to help you explore your own cost-effectiveness study!



INFO@CEPHEIDIMPACT.COM

CHANGE : OUTCOME

impact

ON THE TABLE

FEATURE

Creating a state-of-the-art PCR laboratory

→ Microbiology and Infection Control departments team up to improve the patient care continuum : pg 4

SOLUTIONS

Ripple Effect

→ A GeneXpert System placed in a lab creates “ripples” of savings that radiate throughout an institution : pg 8

INDUSTRY Q&A

Q&A with Dr. Beryl Oppenheim

→ : pg 12

INSIDE CEPHEID

When Art Met Innovation

→ Cepheid delivers knock-out product launch : pg 14

FACTS

Just the Facts

→ : pg 18

Creating a state-of-the-art PCR laboratory

●●● Microbiology and Infection Control departments team up to improve the patient care continuum

One year ago, Seattle-based Stevens Hospital joined Swedish, an established hospital group in Washington state. The move put immediate pressure on the Swedish laboratory, with MRSA test volumes more than tripling. Coupled with calls for greater sensitivity in *C. difficile* testing, the Microbiology team knew that change was in order.

Pattie Bolgen, Swedish's Microbiology Supervisor, worked closely with Bobbi Raglan of Infection Control to champion plans for delivering better turn-around times, alleviating the isolation burden associated with MRSA and *C. difficile* status, and improving overall patient satisfaction. [read more...](#)



SWEDISH HOSPITAL,
SEATTLE, WASHINGTON



● Bolgen knew that testing by PCR would deliver optimal results. But she also knew that traditional PCR methodologies would pose physical space and human resource challenges that current budgets could not overcome.

Enter Cepheid's GeneXpert® Infinity System. With its patented ease of use (read: no additional specialized staff), and on-demand workflow (read: rapid turnaround 24-hours a day), she knew the hospital-wide benefits would quickly offset any up-front costs in getting the program launched. But in today's budget-constrained environments, the numbers had to make sense.

WRITTEN BY
JACQUELINE MCDOWELL
SYSTEMS AND
SOLUTIONS MANAGER,
CEPHEID

With the support of Laboratory Director John Boblett, Raglan and Bolgen began the journey of quantifying the benefits of providing patient results within hours versus days and adding routine core laboratory testing to the micro lab. Knowing the greatest benefits would be realized outside of the lab, Bolgen and Raglan created a report analyzing patient management workflow throughout the previous year. The report looked at isolation time, antimicrobial use, infection control workflow, and impact on employee attendance.

⚙️ **The findings were compelling. During the previous year, preemptive isolations consumed an astounding 563 days. The investigative work also uncovered that patients had an average of 90 contacts each 24 hour period by healthcare workers.**

In addition, employee time spent getting into and out of Personal Protective Equipment (PPE) totaled approximately 1,300 hours during the previous 12 months. And the hospital spent nearly \$170,000 on patient PPE for those ultimately found to be negative for MRSA and *C. difficile*. The hospital also spent \$35,000 on empiric Vancomycin.

Raglan and the Infection Control team also knew that test results were not always acted upon immediately. With timely, accurate results, the Infection Control staff could move from monitoring patient results to proactively managing their patients.

The impressive multi-department effort to cost-justify state-of-the-art molecular testing has enabled the laboratory of Swedish Hospital to have a profound impact on patient management throughout the institution.

⚙️ **RESULTS OF VALUE IMPACT ANALYSIS**

🕒 **DONNING PERSONAL PROTECTIVE EQUIPMENT (PPE) CONSUMED APPROXIMATELY 1,300 HOURS**

📦 **\$170,000 WAS UNNECESSARILY SPENT ON PPE FOR PATIENTS NEGATIVE FOR MRSA AND *C. DIFFICILE***

💰 **\$35,000 SPENT ON EMPIRIC VANCOMYCIN**



➔ **IMPACT OPPORTUNITY:**

The Cepheid GeneXpert Infinity System will allow the laboratory at Swedish Hospital to become a state-of-the-art PCR laboratory, rivaling any of its neighboring facilities and competitors.

The Ripple Effect

A GeneXpert® System placed in a lab creates “ripples” of savings that radiate throughout an institution



One of the greatest services that Cepheid offers hospitals and laboratories is a complete Value Impact Analysis. In fact, we formed our Systems and Solutions Group to help our customers capture, quantify, and evaluate the impact that real-time, on demand molecular diagnostics can bring to their facilities.

In my 20 years in diagnostics, I have NEVER seen a system that provides such widespread and dramatic impact to the overall healthcare delivery continuum. I am continually amazed at the completion of each analysis engagement at the diversity and amount of resource improvement we find. And this brings us to the reason for the publication you are currently reading — we wanted to be able to share these instances of “impact” with you.

WRITTEN BY
DAVE FREESTONE
EXECUTIVE DIRECTOR OF
SYSTEMS MARKETING,
CEPHEID

As part of the Value Impact Analysis process, we utilize standardized tools and methodologies to capture the benefits our solutions bring to the healthcare continuum. Although tests are generally run in the laboratory, the benefits of our products spread well beyond the walls of the lab. Many areas, such as pharmacy, patient management, nursing, housekeeping and surgery (just to name a few) realize savings from the Cepheid solution. We generally refer to this as “the ripple effect”. Just as a pebble thrown into a body of still water cause ripples to radiate outward, the Cepheid system placed in a lab creates “ripples” of savings that radiate throughout an institution.

Allow me to take a moment to walk you through what is involved in the Value Impact Analysis process. It all starts with a qualified request from your local sales representative. This request is generally made to help with the justification of a new system, to validate a process (HA1 surveillance for example), or to help optimize resource utilization.

Once the request is made, a Systems and Solutions Manager will make contact and begin by simply having a discussion of what is needed and then establish scheduling and help set expectations.

Our initial “on site” visit is the discovery phase of the engagement. During this time in your facility (1–3 days) we will conduct formal and informal interviews with all critical stakeholders, observe your processes in action, and learn as much as we can about your institution. We try to be as discreet and minimally disruptive as possible. There are no teams of people walking around with stopwatches or “efficiency experts” correcting individuals at every turn.

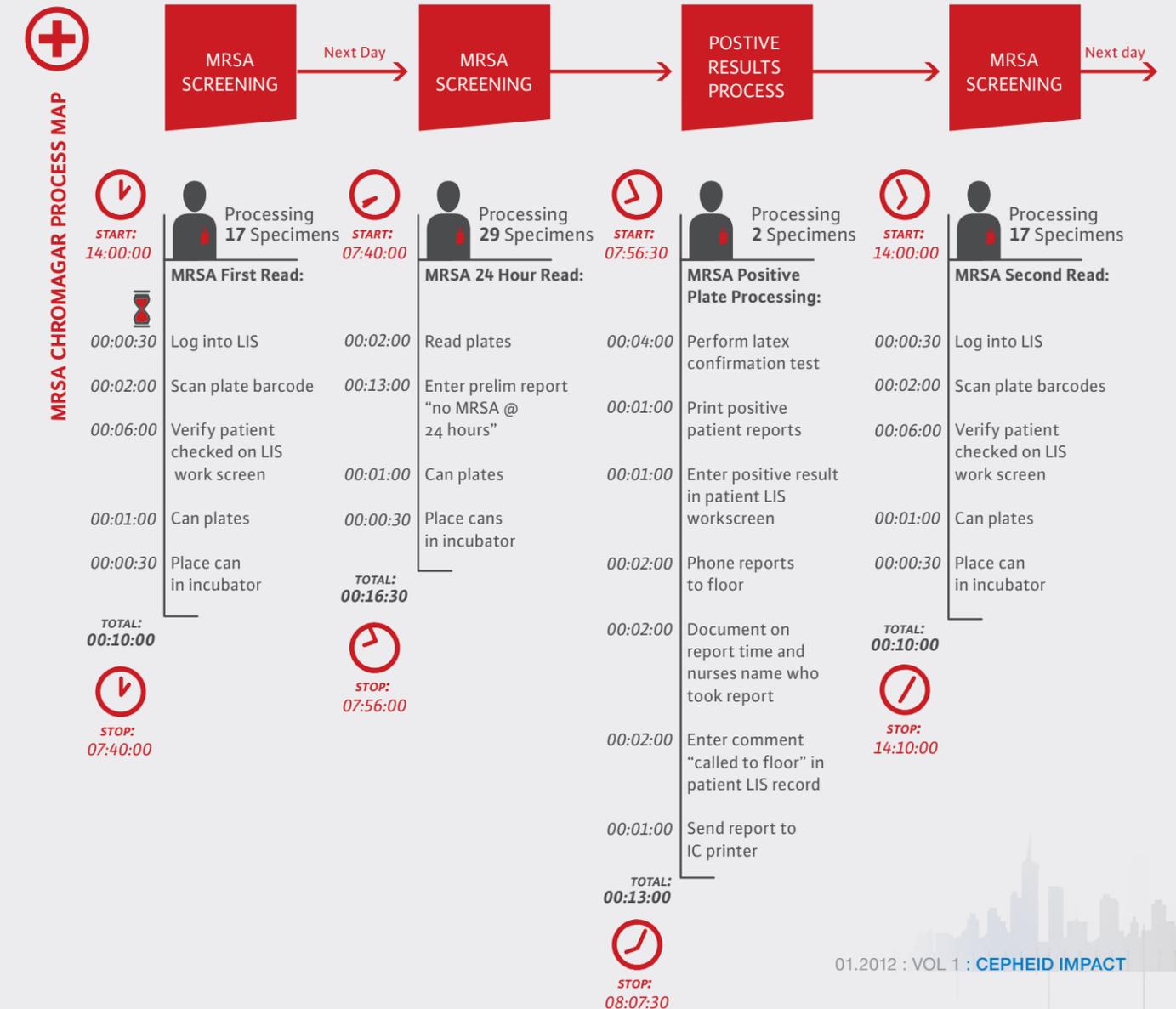
Once all the data is collected we then begin to analyze and evaluate impact areas. Thanks to the broad range of experience that our team members possess, we often find areas of resource utilization that many in the institution didn't know existed. By mapping out entire processes, and looking for areas that are most affected by the Cepheid value proposition (rapid, easy, and accurate) we can capture and quantify overall resource savings.

This information is then captured in a single draft report. We review this information with all original stakeholders and get complete agreement on the findings. In many instances, we are told that our numbers are too conservative — but we would rather err on the side of prudence. Once there is full alignment on the findings, we provide the final report and

presentation to your organization. These presentations are generally to high-level audiences as justification for the previously mentioned scenarios.

Our sole purpose is to support you and the decisions you are making. We know how difficult large budget decisions are to make. We want you to be fully confident in the expenditure you are making, what the return on that investment will be and how far the benefits of this decision extend.

BEFORE:



By examining the overall impact to the institution, we are able to capture the compounded savings that can be had across the entire patient care pathway. We try to break down the silos that have existed in the past, to foster a global approach to savings and problem solving within your institution. Going back to my earlier comment, in my entire career I have never seen an opportunity to save a hospital millions of dollars per year across multiple departments. Yet this level of savings is routinely found and delivered by the Value Impact Analysis.

In this issue, there is a wonderful overview of the justification process that Swedish Hospital used for their GeneXpert Infinity-48 system; a laboratory acquisition with profound potential both inside and outside the laboratory.

In future volumes of this publication, you will be able to read about facilities just like yours that have benefited from the Systems and Solutions group. We have many cases to share with you, and hopefully you can glean areas of impact for your own institution.

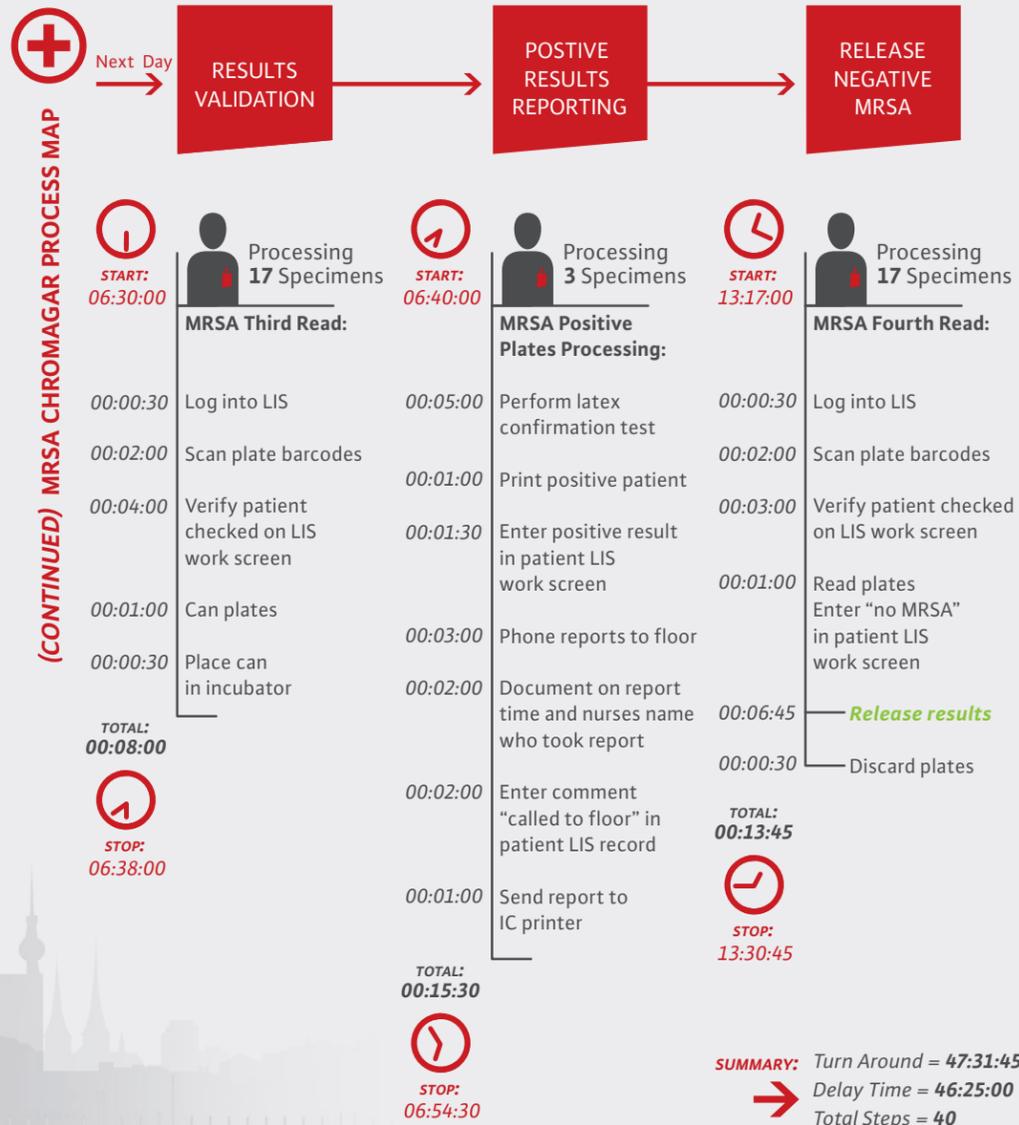
For example, there is a two hospital group in the Northeast that is beginning to implement our strategy based on the findings of a 3 day engagement. They are **anticipating savings of over \$1.8 million per year** through improved isolation profitability, reduced isolation days, and pharmaceutical stewardship. All these **“ripples”** are direct results of the Cepheid solution.

Another laboratory has been able to nearly quadruple its workload while reducing the number of FTE's required by over 50%. They have also gone to lower complexity staff and improved TAT's by 60-80% (in some cases they are DAYS faster). These benefits have led to bottom line savings and increased market penetration.

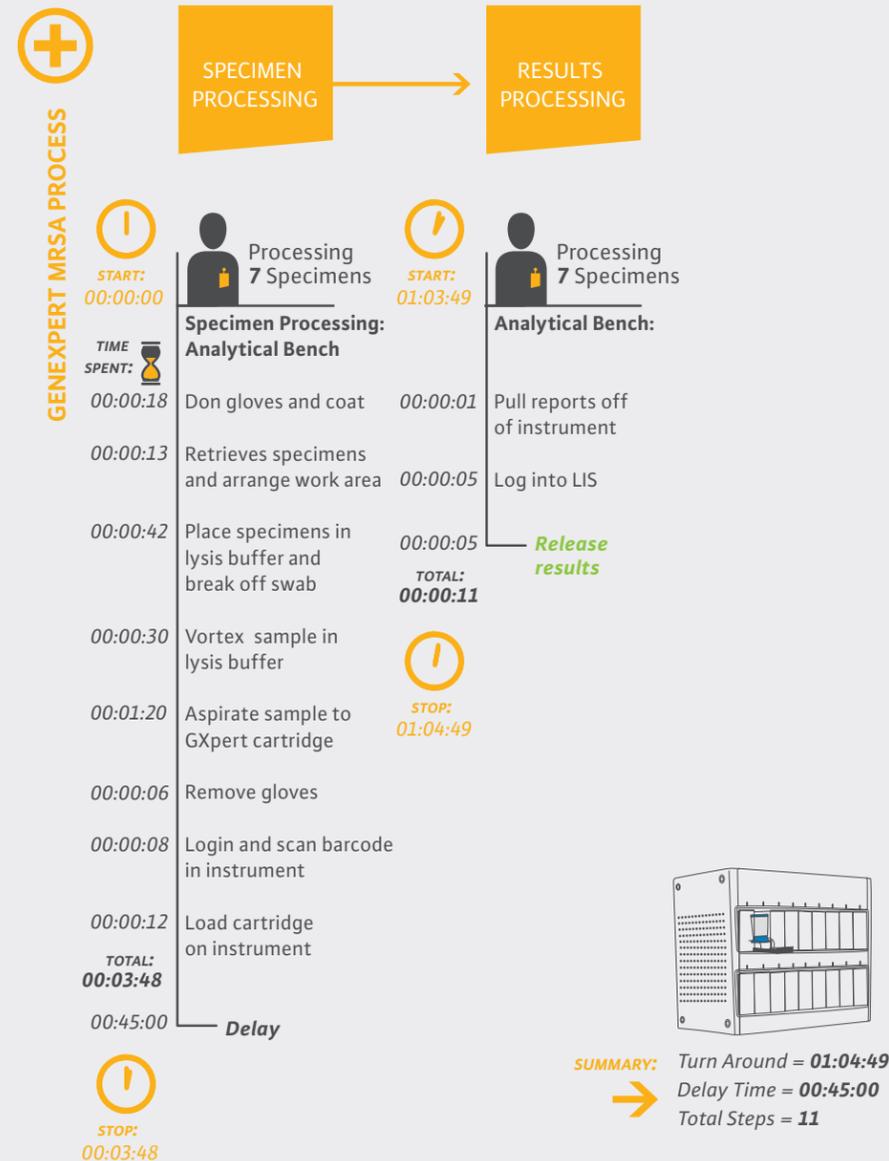
Lastly, a large Midwest Hospital is in the process of realizing substantial reductions in overall patient isolation (26% reduction in patients isolated, yielding a 21% reduction in isolation days). This eliminates their acute issues of blocked beds and ER bypass due to persistent high census. These improvements have the potential of allowing this facility to **recover in excess of \$5 million in revenue annually.**

I hope you enjoy this publication today and in the future. I am confident that the Systems and Solutions group can help you find **“ripples”** of savings within your organization as well. Please contact your local representative for more information.

BEFORE:



AFTER:



Q&A with Dr Beryl Oppenheim



Can you provide some background on your first exposure to the Cepheid GeneXpert® System? What was your immediate reaction when you saw a demonstration of the system?

In 2007 I attended a conference and trade exhibition where I saw the GeneXpert System for the very first time. I was amazed at the sheer simplicity and it was at that point that it occurred to me that this platform could potentially be able to be used for routine PCR testing in a Point-of-Care (POC) environment.

DR. BERYL OPPENHEIM
 UNITED KINGDOM
 CONSULTANT
 MICROBIOLOGIST WITH
 EXPERTISE IN INFECTION
 PREVENTION AND
 CONTROL

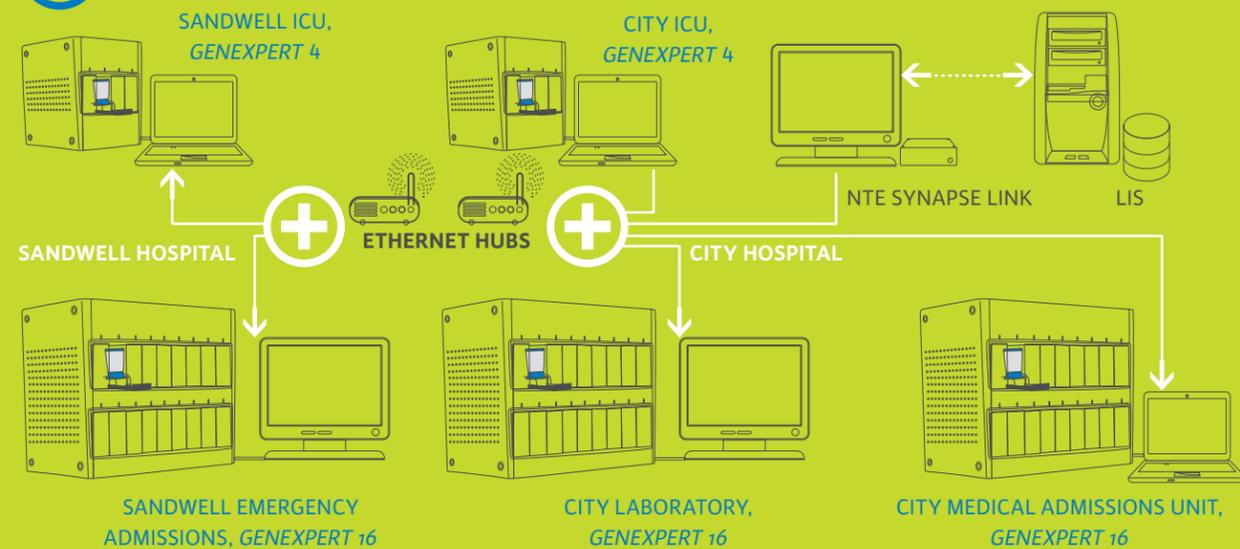
Knowing the inherent complexities of PCR testing what factors did you make sure to evaluate with the GeneXpert System?

Traditional PCR techniques require dedicated physical spaces, equipment, and technicians with specialized skills — which immediately negates its application in a POC environment. We needed to be sure that this was not the case with the Cepheid GeneXpert.

In addition to the ease of use what were some of the upsides?

With the requirement of specialized skills, traditional PCR is rarely performed on-demand, therefore creating delays in the physicians receiving a result and in this case being aware of the patient's MRSA status. An obvious benefit was that with the simplicity of the technology and the fact that the test could be performed anytime, anywhere, that physicians could have results when they are most needed, normally at the time of admission of the patient.

MULTI-SITE IMPLEMENTATION:



PERCENTAGE OF TIME
 CLINICIAN RECEIVED
 TEST RESULTS PRIOR
 TO PATIENT ADMISSION

What were some of the challenges?

One of the obvious challenges is that costs cannot be compared to traditional culture, such as for MRSA. But, one must look at what the benefit is when the result is available within hours versus days. If the test is a cost-effective way of managing patients and changing the strategy to manage them, then it may be that these savings offset the original costs.

It takes collaboration with the laboratory along with others participating in the patient management process to connect the dots and quantify what the impact is.

Explain the process that you use to ensure quality and competency with staff that are not laboratorians?

The laboratory must control the process to comply with regulatory bodies. The laboratory develops a training program, assesses competency on an ongoing basis and holds a registry of all staff that are trained.

I was amazed at the sheer simplicity and it was at that point that it occurred to me that this platform could potentially be able to be used for routine PCR testing in a Point-of-Care (POC) environment.

When Art Met Innovation

Cepheid delivers knock-out product launch

WRITTEN BY
JARED TIPTON
SENIOR DIRECTOR
OF CORPORATE
COMMUNICATIONS,
CEPHEID

Motorcycles don't usually figure into meeting room discussions on new product launches. But if Cepheid's success at this year's AACC (American Association of Clinical Chemistry) was any indication, perhaps they should. Cepheid's partnership with Paul Jr. Designs (pauljrdesigns.com) and the Discovery Channel quickly became the talk of the show for a number of reasons: it was unexpected, an industry first, and undeniably amazing.

“What we're doing here today is bringing together two totally different projects that really highlight and complement one another with regard to leading edge creativity and overall innovation,

said Cepheid CEO John Bishop as the custom motorcycle and new GeneXpert® Systems were unveiled before Discovery Channel cameras and hundreds of show attendees.

“We've taken the most innovative testing platform on the market and made it even more compelling with a smaller footprint, 21st century design aesthetics, and additional system configurations.

Cepheid's “Art Meets Innovation” event was an out-of-the-box approach to the unveiling of Cepheid's redesigned GeneXpert Systems and the introduction of the GeneXpert Infinity-80 System. To further highlight the new systems, Cepheid partnered with Paul Jr. Designs to create a custom motorcycle to be unveiled along with the new products. The event was filmed live for inclusion in a two-part episode of Discovery Channel's popular American Chopper show. The episodes aired this past October and continue to appear regularly on the Discovery Channel.

“As the leading innovator in the Molecular Diagnostics market, we thought that it would be interesting and exciting to team with the leading innovator in creative design in his particular field through our engagement with Paul Jr. Designs, continued Bishop.

It's an unexpected but perfect way to highlight our vision, innovation and creativity, associated with our new product offerings.

The highly successful event generated plenty of industry buzz, captured in numerous post-show write-ups, including Robert Michel in his Dark Daily (darkdaily.com) industry report:

“Honors for the most spectacular new product launch must go to Cepheid. Because of advanced mailings to AACC attendees, and a clever marketing campaign, Cepheid attracted a big crowd at its booth on Tuesday morning as the exhibition opened. They were there to greet celebrity motorcycle designer Paul Teutul, Jr., and his team as they pulled the curtain away from their creation—a chopper themed around Cepheid's GeneXpert Systems and molecular diagnostic testing. Then the spotlight immediately turned to the unveiling of Cepheid's new GeneXpert Infinity-80 system, which generated more enthusiasm.



“ We are exceptionally proud of this bike and what it represents for Cepheid and the molecular diagnostics industry,

said Paul Teutul Jr., Chief Executive Officer of Paul Jr. Designs

Cepheid’s products are literally saving lives with the most innovative technology available. The bike is a great tribute to Cepheid’s products, people, and their collective mission of transforming healthcare with accurate, fast, and easy-to-use molecular diagnostics

Industry Analyst William Blair may have summed up things best in their post-show note:

💡 The live taping of the segment for the show generated a crowd that was at least 20 deep all the way around Cepheid’s rather large booth. The event generated a buzz that lasted throughout the show as several checks throughout the two days we were on the floor showed a lot of activity at Cepheid. But it was not just the bike that brought the crowd, rather we think the steady booth traffic is indicative of the fact that Cepheid has developed a winning platform that resonates well with lab managers—even those who are not running molecular labs.

Today, the bike continues to be a part of Cepheid’s marketing efforts. It is currently a part of the “Art Meets Innovation” road show, touring the country alongside the new GeneXpert Systems. It’s a part of a program featuring notable industry speakers and hands-on system demonstrations for roadshow attendees — as well as a close-up view of the spectacular artistry built into the Cepheid bike.

**➔ FOR MORE INFORMATION VISIT
WWW.CEPHEIDINNOVATION.COM**



Q FACT.

U.S. health care costs currently exceed 17% of GDP and continue to rise. Other countries spend less of their GDP on health care but have the same increasing trend.*

Q FACT.

Previously healthy children infected with the H1N1 influenza virus were 8 times more likely to die if they were also infected with MRSA, according to a new study conducted during the 2009 pandemic and published in the Nov. 7 issue of *Pediatrics*.

Q FACT.

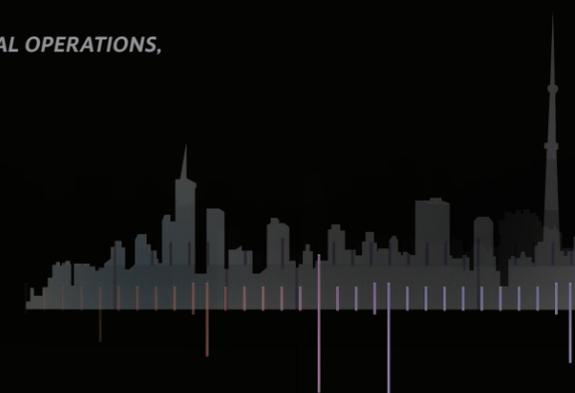
MRSA emerged into the world fifty years ago this October, and is now a major global epidemic and the most common cause of antimicrobial resistant pathogen healthcare-associated infections (HAIs) in most U.S. healthcare facilities.



Cepheid’s Systems & Solutions team helps healthcare facilities analyze their costs more effectively utilizing methods such as LEAN, Value Stream Mapping (VSM) and Activity Based Costing in the hospital — not solely in the lab. Our team has a large number of cost effectiveness studies completed with input from both customers and our internal team of specialists. In this magazine we will share articles, reports and studies by GeneXpert users illustrating the impact Cepheid’s “Rapid Turn-Around” technology has on work flow, patient flow, infection control, bed management, isolation practices and antibiotic steward ship. I invite you to contact us if you would like one of our Systems and Solutions experts to help you explore your own cost-effectiveness study.

NICO ARNOLD

EXECUTIVE VICE PRESIDENT, WORLDWIDE COMMERCIAL OPERATIONS,
CEPHEID





CHANGE : OUTCOME

CORPORATE HEADQUARTERS

904 Caribbean Drive
Sunnyvale, CA 94089 USA

TOLL-FREE 1.888.336.2743
PHONE 1.408.541.4191
FAX 1.408.541.4192

EUROPEAN HEADQUARTERS

Vira Soleih
81470 Maurens-Scopont France

PHONE 33.563.82.53.00
FAX 33.563.82.53.01

www.Cepheid.com

Copyright © Cepheid 2012

Impact is A Quarterly Publication by Cepheid. To subscribe visit www.cephheidimpact.com. Comments and questions are welcome, contact communications@cephheid.com.

0358-01