UNIFY

FOR SOMETHING
GREATER

UNIVANTS™
OF HEALTHCARE EXCELLENCE

CELEBRATING
THE **2019**
WINNERS

UNIFYING FOR SOMETHING GREATER

Dear Reader,

Unifying across the care continuum to achieve better healthcare has never been more important. The opportunities that exist to drive enhanced population wellness, as well as cost avoidance through global disease prevention and early intervention, become essential under any value-based healthcare approach.

That said, actual transformation of the delivery of care will require agility, novel thinking, innovation and teamwork.

Laboratory medicine has classically been an under-utilized and often under-recognized strategic asset in driving improved health outcomes. Impacting not just the quality of testing but the road to actionable insights through novel approaches can help guide clinical decision making, direct triage, and help enable more targeted interventions – from prediction to screening, diagnosis, monitoring, surveillance and management.

Seeking to inspire those healthcare professionals on the frontlines of improving care, Abbott has partnered with key healthcare leaders to create the UNIVANTS of Healthcare Excellence Award. The annual award recognizes teams that collaborate across disciplines, including the core laboratory, to reshape care pathways and ultimately achieve better outcomes for patients, clinicians, payers and entire health systems.

In the following pages, you willl read about how the inaugural 2019 winners of this award are changing the way healthcare is delivered across the world.

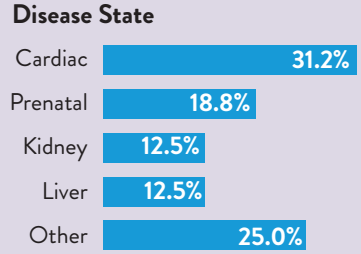
At Abbott, we pledge to continue to lead, collaborate and respond quickly to changes in the world around us, and to deliver consistently better solutions to help people live their best lives. It is the hope of Abbott and our partners that the UNIVANTS of Healthcare Excellence Awards inspire key learnings and best practices across the industry to help solve some of the global challenges facing hospital systems today and tomorrow.

John Ginascol
Executive Vice President, Core Diagnostics, Abbott

RECOGNIZING MEASURABLY GREATER PERFORMANCE

REGION	PERCENT OF APPLICATIONS
Europe, Middle East and Africa	62.4%
Latin America and the Caribbean	18.8%
United States	12.5%
Asia-Pacific	6.3%

Disease State



Top KPIs Most Frequently Used Across Applications

From Left to Right: Jennifer Nobes, Elizabeth Furrie, Ian Kennedy, Michael Miller, John Dillon, Ellie Dow

ACADEMIC HEALTH SCIENCE PARTNERSHIP IN TAYSIDE, UNIVERSITY OF DUNDEE AND NHS TAYSIDE NINEWELLS HOSPITAL AND MEDICAL SCHOOL, DUNDEE, SCOTLAND

Intelligent Liver Function Testing (iLFT): A Cost-Effective Way to Increase Early Diagnosis of Liver Disease

Deaths from liver disease are on the rise. In the UK, deaths from liver disease have increased by 400% since 1970 and it is the only major cause of death that is rising in the country, according to the British Liver Trust. Clinicians at NHS Tayside, a region of NHS Scotland, are experiencing this trend firsthand.

"We were struck that we saw patients presenting with end-stage liver disease having not been previously diagnosed. Many died within their first admission," said John Dillion, a hospital-based hepatologist at the NHS and professor of hepatology and gastroenterology at the University of Dundee.

Dillon and other leaders at NHS Tayside knew that they had many patients in their system whose Liver Function Test (LFT) results were being flagged as abnormal. An abnormal result can be harmless, but further testing needs to be done to determine if it may be a sign of liver disease or a viral infection.

But patients don't always come back for follow-up testing: providers found that about 44% of abnormal tests weren't being properly followed up on, according to Ellie Dow, a consultant in biochemical medicine at NHS Tayside. For patients who do receive follow-up testing, it was found that some had as many as six occasions of further blood testing even though they ultimately required no clinical intervention.

The NHS team determined that innovation was needed to more quickly diagnose treatable liver disease and limit the need for excessive follow-up. Their solution, a new, algorithm-based option called iLFT, or Intelligent Liver Function Test, ensures that follow-up testing occurs during a patient's initial testing workflow, rather than requiring additional visits for further testing.

When clinicians choose the iLFT test, they're asked to enter the patient's Body Mass Index, estimate their alcohol intake and indicate whether the patient has features of metabolic syndrome. Under the iLFT protocol, the blood undergoes a traditional LFT test, and if that result is abnormal, an algorithm references the patient information to determine what additional tests are needed, and those tests are performed in the same workflow, using blood samples that have already been taken. Doctors receive a much more advanced report in roughly the same timeframe that they would have received the results of a traditional LFT test.

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43% increase in detection of previously undiagnosed liver disease compared to standard practice

52% increase in likelihood of correct diagnosis, from 41% to 93%

85% decrease in avoidable visits to GPs and 75% reduction in referral rate to secondary care

This intelligent testing workflow makes it easier for general practitioners to know that they've performed the right tests, and more quickly offers advanced diagnostic information to liver specialists.

"It takes the worry and the thought process away from general practitioners," Dow said. "They know if they check off iLFT, they'll get an extra layer of information that helps them prioritize."

For payers and administrators alike, this means liver disease is being caught earlier, and patients are only being referred to a liver specialist if they truly need to be.

"This is a standout application, as it provides a replicable way to implement a faster way to diagnosis liver disease." —COMMENTS FROM EHMA

From Left to Right: Jens Ringel, Annemarie Albert, Elisabeth Engelmann, Michael Haase, Saban Elitok

ERNST VON BERGMANN HOSPITAL WITH THE DIALYSIS CENTER POTSDAM AND THE DIAVERUM KIDNEY CARE CENTER MVZ POTSDAM AFFILIATED WITH OTTO-VON-GUERICKE UNIVERSITY MAGDEBURG

Improved Diagnostic Pathway and Treatment for Hospitalized Patients with Acute Kidney Injury Disease

Acute Kidney Injury (AKI), which affects about 10% of hospital patients, is an initially asymptomatic condition of uremia toxin accumulation in the blood, electrolyte and acid-base disorders that can lead to a patient's inability to produce urine. Because AKI is asymptomatic in its early stages, nephrologists are often only consulted once the kidney problem becomes very presentable and highly severe.

Initially, AKI (formerly known as Acute Renal Failure) is only diagnosable by a pathology value: a significant increase of serum creatinine from a patient's baseline. Creatinine levels can be reported by a lab fairly quickly but comparing these levels to a baseline can require a complex calculation for clinicians, which can be a barrier for doctors who lack the expertise or time.

UNIVANTS IN ACTION

50% reduction in AKI complications

25% increase in documentation of AKI in the medical record

200% increase in coded AKI following alert implementation

Seeking to more quickly diagnose AKI and expedite treatment of the disease, a team of clinicians, biochemists and technologists was formed at the Ernst von Bergmann Hospital with the Dialysis Center Potsdam and the Diaverum Kidney Care Center MVZ Potsdam affiliated with Otto-von-Guericke University Magdeburg. The team sought to create an algorithm-based program that would determine from lab data whether there is a relevant increase in a patient's creatinine levels, and automatically alert nephrologists if this was the case.

This system takes the burden off of non-nephrologists to discover AKI, but still ensures they're kept in the loop about the diagnosis, said Saban Elitok, medical director of the department of nephrology and endocrinology. Along with the system, a nephrology response team was created to rapidly visit all patients alerted by the system.

"This system allows us to treat patients that we otherwise wouldn't have known existed, and that is the magic," Elitok said.

This system requires clinicians to reach across disciplines and care settings to improve care, an important theme of the UNIVANTS award. Michael Haase, a nephrologist and head of research of the Diaverum Kidney Care Center MVZ Potsdam, developed a program that alerts multiple clinicians once AKI is diagnosed by the electronic alert, and worked with Dr. Elitok to educate clinicians about the need for an AKI alert system and response team. Administrators, coders and other support staff were also brought on board with the new system, as it resulted in improved documentation of AKI, which improved reimbursement.

Haase, an initial leader of the AKI response team, noted that AKI alerts furthermore provided a touchpoint for providers to assure patients that the hospital was proactively managing their care, a boon to patient satisfaction.

The team is continuing to build scientific data for payers, who may be supportive of the system's ability to limit liability and missed AKI. Haase notes that payer support will be important in further expanding use of the system in the outpatient setting.

> "A simple yet elegant demonstration of how a common laboratory parameter — when integrated with change over time — can have a powerful impact on treatment interventions and outcomes, in an all-too-common problem that often goes undetected in hospitalized patients." —COMMENTS FROM AACC

From Left to Right: Matthew Covill, Guy Checketts, Julia Eades, Manu Vatish, Tim James
Not pictured: Sofia Cerdeira

OXFORD UNIVERSITY HOSPITALS NHS FOUNDATION TRUST

Improving the Safety of Mothers and Babies Using Angiogenic Biomarkers for Pre-Eclampsia

Roughly half of patients who are admitted to the hospital at risk of pre-eclampsia (PE) don't end up suffering from the condition. That's because diagnosis of PE currently relies on indicators of hypertension (high blood pressure) and proteinuria (protein in the urine), which aren't definitive indicators that a patient will have PE.

Tim James, head biomedical scientist in the clinical biochemistry department of the Oxford University Hospital NHS Foundation Trust, and Manu Vatish, an academic obstetrician at Oxford University, have worked extensively around the potential use of laboratory tests that could offer clinicians reassurance of their PE diagnosis while avoiding hospitalization of patients who won't develop the condition. They found significant opportunity in two biomarkers: Placental Growth Factor (PlGF), and its receptor, Soluble Flt-1. These biomarkers showed a very powerful negative predictive value, meaning they were a reliable indicator of patients who were not likely to develop PE.

Clinical implementation of these biomarkers could still lead to hospitalization of select patients, but with higher accuracy. And while these tests may offer significant cost-savings in reducing unnecessary hospitalization, the team decided to present a cost-neutral approach in making their case to bring the test into standard clinical practice, capitalizing on both the "rule-out and rule-in potential," Vatish said.

For administrators, unnecessary hospitalizations are always a target of cost reductions, but missed diagnoses also present a litigation risk, making this test an attractive business case despite being cost neutral. Clinicians appreciate the test because it provides empirical data to back up their diagnosis, and ensures patients aren't being admitted simply as a precaution. Ultimately, non-academic clinicians lobbied for the test's swift availability following meaningful trials.

"If you don't have a firm diagnosis, you either incorrectly send someone with PE home or incorrectly admit someone who doesn't have PE," Vatish said. "Those are both bad outcomes for the professionals involved in their care."

The test has been well-received by patients, who are often unnecessarily frightened when PE is explained to them during prenatal visits. Hospitalization can be a frustrating experience for patients who ultimately have their baby without issue.

"The city of Oxford is full of professional, educated women who can't afford time to sit in the hospital while physicians make their mind up," Vatish said. "Now, we'll have a decision in about 25 minutes with 99% confidence. What patients aren't going to like that?"

UNIVANTS IN ACTION

99.6% correct identification of women without PE when using the test alone

100% correct identification of women without PE when the test is used together with standard clinical practice

20% decrease in PE related admissions by improving clinician confidence

The test demonstrates how clinical chemists can make significant strides in improving care if they engage internal users. "We often lock ourselves away and think we'll just do the lab work, but we've got to build a relationship with clinicians and think about how we improve and create quality initiatives that will help patients," James said. "These are relatively simple methods, which means the patient benefits can be widely delivered."

"This was an excellent example of how a new biomarker can be incorporated into a revised care pathway with a documented impact on patient management with health economic benefit." —COMMENTS FROM IFCC

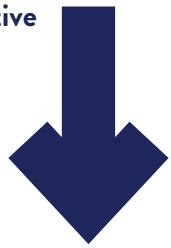
CONGRATULATIONS TO ALL SITES

Abbott and its partners are pleased to recognize seven for achievement, all of whom have made a measurable impact in

RECOGNITION OF DISTINCTION

TRICORE REFERENCE LABORATORIES | USA

Improving Clinical and Quality Outcomes for Prenatal Care — A Clinical Laboratory Driven Initiative



64%
reduction in prenatal care gaps

HAMILTON HEALTH SCIENCES/ POPULATION HEALTH RESEARCH INSTITUTE | CANADA

The Global Impact of Troponin and Biomarkers on Ischemic Myocardial Injury and Surgical Care

25%
improvement in classification of patient risk

GUY'S AND ST THOMAS' NHS FOUNDATION TRUST | UK

Identifying Untreated Hepatitis B and Hepatitis C via Opt-out Screening Program in Urban ED Settings

> "The testing of patients in the ED for a treatable disease that the patient was unaware that they have saves money and improves the health of the community at large."
>
> — COMMENTS FROM NAHQ

CLEVELAND CLINIC | USA

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annualized savings due to mitigated costs

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achieving better healthcare performance.

MARIENHOSPITAL | GERMANY

Avoiding Insufficient Therapies and Overdosing with Co-Reporting eGFRs for Personalized Drug Therapy and Improved Outcomes

"This is an example of integration of decision-making across the patient pathway that well articulates patient, clinical confidence and system outcomes." – COMMENTS FROM IHE

SYNLAB HOLDING DEUTSCHLAND GMBH | GERMANY

FH ALERT: Identification of Patients with Familial Hypercholesterolemia (FH) by Using the Expertise and Resources of the Clinical Laboratory

3,512
patients identified at risk in three months

UNIVERSITY MEDICAL CENTER GRONINGEN | THE NETHERLANDS

Optimizing of Heart Failure Management Using Biomarkers in Patients with Low Risk for Rehospitalization

"This is a simple process using diagnostic analytics that has significant impact on cost and care quality." – COMMENTS FROM HIMSS

RECOGNITION OF ACHIEVEMENT

PALESTINIAN MEDICAL TECHNOLOGY ASSOCIATION | PALESTINE

Maximizing Patient Care in a Cost Conscious Environment

"Healthcare quality is something we take for granted. The changes in this care program were impactful across Palestine."

– COMMENTS FROM MODERN HEALTHCARE

DUBAI HEALTH AUTHORITY | UAE

Increased Population Engagement, Enhanced Patient Experience and Safe Blood Donations Through Strategic Partnerships and Targeted Media Campaigns

9.5%
reduction in supply gap

Abbott

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IFCC International Federation of Clinical Chemistry and Laboratory Medicine · AACC · EHMA European Health Management Association · Modern Healthcare · HIMSS · NAHQ National Association for Healthcare Quality · IHE Institute of Health Economics

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