

CORE DIAGNOSTICS

Highlights from the 2019 EHMA Annual Conference – A Multidisciplinary Interactive Workshop on “Best Practices to Advance Healthcare: Integration of Laboratory Insights in Healthcare Management”



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1. Introduction

Cost pressures, reduced resources with increasing workloads, high patient expectations and disease complexity are consistent challenges for health systems across the globe. Mobilizing insights from available laboratory data can improve the recognition, diagnosis and outcomes of patients with previously unknown disease while helping to transform healthcare to meet the requirements of the future.

In collaboration with the European Health Management Association (EHMA), a non-profit organization focused on enhancing the capacity and capability of health management to deliver high quality healthcare, Abbott organized a first-of-its kind workshop at the 2019 annual EHMA conference to assess the evolving role of Laboratory Medicine as a strategic stakeholder in health management.

The EHMA workshop was entitled “Best practices to advance Healthcare: Integration of Laboratory Insights in Healthcare Management” with standout leaders on an interactive panel.

- EHMA representation and moderation by President Prof. Federico Lega, University of Milan, Italy
- Laboratory Representation by Khosrow Shotroboni, CEO and founder of the newly established Lab 2.0 Strategic Services, LLC., USA
- Clinician Representation by Prof Michael Haase, nephrologist, Otto-von-Guericke University of Magdeburg, Diaverum Kidney Care Center Potsdam, Germany
- Payor Representation by Mathias Neelen, Socialist Mutualities, insurance association, Belgium
- Abbott Diagnostics Division, Representation by Tricia Ravalico, Director Scientific Leadership, USA

2. EHMA Perspective – Federico Lega

In the last 10 to 15 years, Laboratory Medicine has been considered a commodity within the healthcare organization, rarely engaged or involved in collaboration and clinical activities. The laboratory in many countries is often thought of as a cost center and consequently, become targets for cost reduction efforts based on this under-appreciation of value. In the last few years however, there has been a focus on important new biomarkers and precision medicine, unveiling a new role for Laboratory Medicine including partnerships with clinical practice.

Integration of laboratory physicians and pathologists into clinical care teams without silos and with a strategic vision of alignment is crucial for ongoing healthcare transformation.

3. The Power of Clinical Laboratory – Khosrow Shotorbani

Today, in many countries with different healthcare systems, we fail the patient because they are already sick when they come to the hospital. In this era of “**sick care**”, the physician sees the patient, assesses diagnostic options and orders diagnostic testing as a reaction on their hypothesis. This is transactional involvement of laboratory physicians or pathologists, and this needs to be transformed into an integrative approach for Laboratory Medicine.

Laboratories offer a high quality 24-hour service, 7 days a week with the ability to save lives, managing and measuring quality and outcomes. The top 5 reasons why the clinical laboratory is healthcare’s best strategic asset is as follows:

1. The **laboratory** is the first responder and can do “**Real Time**” population health surveillance. If we take infectious disease break out as an example, the laboratory discovers and confirms first.
2. The **laboratory** is the largest touch point in healthcare with impact on patient’s live at home, in the emergency setting, and in the hospital for both out- and in- patient. The laboratory is a gold mine of data as 70% of information used for medical decision comes from the clinical lab. It used to confirm physician diagnostic hypothesis, to correctly rule in and out.
3. Information from the **laboratory** is real time for chronic and acute care surveillance. Patients’ centric longitudinal view needs to be captured in a database of patient results so that real time change can be measured to allow for individual precision medicine. Decisions will be based on individual persons change compared to their own baseline even within the normal range.
4. The **laboratory** is the first to know. By using data in a longitudinal fashion, we can measure change for risk stratification and early detection and targeted prevention of chronic disease conditions. This allows to close care gaps, and we can identify persons early before they become sick, get hospitalized or get to the emergency room.
5. The **laboratory** is an important subspecialty of medicine unfortunately an under-leveraged asset. In value-based healthcare the role of the lab can help with intervention, prevention, cost avoidance and risk adjustment.

The **laboratory** can already do all this today in key partnership. The goldmine of data and information is there, but have not leveraged the data to an extent that we should.

For every Euro or Dollar spent in healthcare, three cents/pennies are spent for diagnostics. “**Given the power of laboratory insights, lab medicine is a cheap bargain heavily unleveraged and unexploited clinical asset**”, explains Khosrow.



Khosrow Shotorbani

“We, the Clinical labs globally, must maximize our measurable and quantitative value and utilize our wealth of clinical lab data to be a key partner in improving clinical outcomes, to transform overall population health management and to provide the best bargain for every Dollar or Euro spent on healthcare.”

4. “Improved Diagnostic Pathway and Treatment for Hospitalized Patients with Acute Kidney Injury” – Michael Haase

Detection of Acute Kidney Injury (AKI), a complication seen in approximately 10% of hospital patients, is associated with high mortality, longer length of stay and a significant increase in costs. AKI goes often undetected as it is asymptomatic in its early stages and nephrologist's consultation only happens, when damage to the kidney is already irreversible.

An interdisciplinary team started a regional Potsdam initiative for AKI care involving Laboratory Medicine together with hospital and outpatient nephrologists to improve detection of AKI and to reduce time to diagnosis and treatment. AKI can be diagnosed very early if creatinine increase occurs above 50% of its baseline value in a patient independent of the reference range.

More information on longitudinal results in addition to a close connection between hospital and ambulatory information is important to recognize significant changes early.

Major findings after the start of the initiative were as follows::

- AKI is common with an incidence of 4–9% in two hospital centers
- Length of stay for patients with AKI increased from 7–8 days to a median of 15 days
- Patients with AKI have a poor prognosis with hospital mortality between 15 to 23%
- Only 25% of patients developing AKI were detected, 75% were undetected
- Poor recognition led to poor management, in 80% of patients' nephrotoxic medication and in 63% antihypertensive treatment is not stopped

The initial hypothesis of the care project was confirmed. Early detection of even small creatinine increase in the reference range allowed to detect AKI associated creatinine increase early. Close monitoring of patients and their creatinine changes and set-up an electronic AKI alert system is required, however in addition to the flagging of creatinine values, it is required to act on alerts with a kidney response team.

Clinicians were supportive and patients empowered and involved, knowing about their AKI and what they can do to prevent recurrence of AKI to stop developing chronic kidney disease.

Success factors were numerous:

- Detection and coding of AKI increased by a factor of 3
- The proportion of patients with unknown cause of AKI was reduced from 25% to 5%, the first step to better manage the underlying cause
- AKI complications were reduced by 50%

Early detection translated directly into better patient wellness, increased the clinician confidence and satisfaction, and reduced costly complications. The program did not stop at the hospital level, it was also extended to the outpatient system to reduce the known long-term complication after an AKI episode in the hospital. Patient mortality can be reduced by the follow-up in the ambulatory sector mainly due to reduction in cardiovascular mortality by optimization of blood pressure, blood sugar control, blood fat reduction and fluid management.



Federico Lega

“This is an example of a patient centered exercise that shows the importance of intelligent use of data. Patient care is in the center of Laboratory Medicine and the clinician.”

5. Payor Perspective – Mathias Neelen

From the health care payor perspective current healthcare system including Laboratory Medicine must change to become more flexible, this is one major topic at the 2019 EHMA conference.

In the current system the Laboratory Medicine is not directly involved in the clinical pathways and the direct patient care, therefore integration into the care pathway is required. The important question is not whether more testing should be performed, focus should be directed to optimize testing and the use of laboratory insights to connect the dots, that are not connected today.

The AKI initiative is a powerful example for integrated clinical care with measurable impact for all stakeholders, patient, clinician, hospital and payor, so it is very surprising that this is not implemented routinely in all hospitals in Germany or in other countries. Healthcare payors and the whole system seems to be too slow to adapt.

From a payor perspective change is needed. Prevention is one of the key topics especially when looking at the benefits seen by detecting AKI earlier. Another important point is the sharing of data, the patients in the hospital should be also followed-up as outpatient.

Health data sharing and data privacy of patient medical records is in Europe a sensitive issue in view of the strict data privacy protection.

In summary from a payor perspective over testing should be avoided and it is very important to integrate the laboratory in the decision making.



Tricia Ravalico

“Over- or under testing is important and a vital topic that needs to be managed, however, more or less testing is not the question but rather how to best leverage the information needed into integrated pathways of clinical care.”

6. Industry Perspective – Tricia Ravalico

A key area of passion within the global scientific leadership group at Abbott Diagnostics is helping others achieve measurably better healthcare performance.

The UNIVANTS of Healthcare Excellence award program was designed to inspire and amplify success stories of integrated clinical teams who have proven best practices in this area. The name of this award is based on two foundational principals.

First, UNITY, the “Uni” in Univants is about unifying across the care continuum or Unifying for something greater. Using the AKI care project as a great example, as their alert program required Laboratory Medicine, Information Technology, Nephrology and many others. Use of an algorithm was not sufficient alone, triggering the need for education to effectively activate new processes and change the pathway of care is essential for improved outcomes.

The second principal is Avant-garde. The term is new to healthcare and is about doing things differently in a more effective way. Clinical informatics is an easy example of this resulting in changes to clinical pathways by use of data differently. Best practice examples by care teams across different disciplines can inspire others to work together and achieve more.

A key question is how to measure outcomes. To be eligible for the UNIVANTS of Healthcare Excellence award, all applicants must show measurably better outcomes in the form of key performance indicators across stakeholders:

- For patients – how are their experiences improved? Are they more satisfied? Can disease be detected sooner?
- For payor – how did the project reduce unnecessary procedures, mitigate risks and/or save costs?
- For clinicians – does the program improve their satisfaction? enhance their confidence? and/or improve their overall experience?
- For hospitals or health systems? how does the effort improve utilization of resources, enhance reputation or increase the service being provided?

New applications for the 2020 award cycle are being accepted at www.UnivantsHCE.com. Access the same website for more examples of best practices.

7. Panel Discussion – All



Khosrow Shotorbani: “I am a huge believer if you do not have a seat at the table you will not be invited for dinner.”

Delivery model of the future can be considered as a table with a seat for all stakeholders. Laboratory Medicine is reaching six sigma performances in the analytical testing phase but unfortunately pre- and post-analytical part of the process is less controlled, over- and underutilization, misutilization represents an issue especially when moving towards value based healthcare.

Public health and economic aspects need to be included in the discussion to open up a three-dimensional aspect of the conversation. The new delivery models should be focused on prevention, improved outcome and cost reduction. Initial steps are done but additional work and improved training to include more clinical experience will be needed to prepare Laboratory Medicine specialist for their role in integrated clinical care.

Tricia Ravalico: “I really like a quote that I heard earlier at this conference. There are lots of leading experts but not enough expert leaders”.

Asking for a “**seat at the table**” may be outside the comfort zone of many laboratorians and as such, it is a very difficult first step, especially when there are no clear answers to complex challenges. However, it is important to know the direction and concerns of the larger team including an appreciation of where to begin solving care gaps that have opportunities for improvement via integrated teams.

A lot of the clinical care projects of the UNIVANTS of Healthcare Excellence program have not started from within the laboratory but rather from other stakeholders asking for their expertise. Together integrated care teams can improve healthcare challenges.

Michael Haase: From a nephrology point of view there are things that need to be done differently in the future:

1. **Laboratory Medicine** should involve itself much more and provide alerting systems, not only AKI alert, but combining any type of alerting system with the automated offer for further testing and clinical decision support.
2. **Laboratory Medicine** may be one of the driving forces for combining hospital and out hospital patient information/data, setting up a system for longitudinal evaluation.
3. **Laboratory Medicine** should be reaching out into the hospital offering education, underlining more their expertise.



Michael Haase

“During the 20 years of my professional work in the hospital before I went into the outpatient setting I always met capable Laboratory Medicine physicians. It is now the time to show up.”

8. Feedback from the Audience

Laboratory physicians are becoming more important, microbiologists are part of the team, and both should be in the advisory boards in the hospital.

If we look at financial burden in the hospital setting, admission and re-admission is one challenge. In sepsis for example the clinical laboratory plays an important role. Our approach is not correct, we focus too much on costs per test, we should change the unit of measure we are responsible for and this is far and beyond costs per test.

It is the time to speak in a different language. It is not about the pennies per dollar, we need to show that Laboratory Medicine is relevant.

Having also the payor perspective makes a difference. When looking at the symbolic dinner table of the healthcare system, Laboratory Medicine is in the kitchen and must do more to get a seat at the table. Looking at patient as part of the healthcare system, they are not even invited to the meal. We must start thinking of also involving the patient.

We need to change the paradigm. Currently we are waiting that a patient is becoming sick, then start to treat, so we only react. We must change the equation. Looking at the society at large it is important to change also from patient to consumer engagement.

It is a matter of designing a healthcare system involving all stakeholders, patient should be a part of the team. There are many ways to get patients or pre-patients engaged. We need to put them into the driver seat, patients are already engaged, they manage their health, they are engaged more than ever. Taking the kidney project from Potsdam, the patients are actively involved, they are getting their individual kidney care cards plus a list of health measures how to prevent further damage to their kidneys, but we need to do it right, translate medicine in a way that patients will understand it and can be part of their own health decisions.

9. Conclusion

We must transform healthcare, moving from a medicine of reaction to a medicine of initiative. Outcome focused integrated clinical care involving all stakeholders is an effective way to move forward. Intelligent use of healthcare data, longitudinal database of individual's laboratory results is an opportunity to transition to an outcome focused approach.

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