Standardization and Personalization for Improved Healthcare

Standardized healthcare uses evidence-based data to ensure patients receive high-quality care, while personalized healthcare recognizes the uniqueness and individuality of the patient. Although they are often thought of as mutually exclusive, standardization and personalization can augment one another for measurably better healthcare.

Clinical laboratory testing provides valuable insights in diagnostic decision making. Results provided by the laboratory are used to identify individuals with diseases or those at risk for a disease, guide treatment decisions, determine prognosis, and monitor the success of treatment. Many clinical care plans use fixed laboratory values for decisions, particularly in comparison to established reference ranges or clinical decision limits. However, often care activities are based on unique clinical experiences and not unique patient factors. Standardization can supplement clinician experiences and reduce uncertainty through outcome specific resolutions powered by evidence-based medicine. Standardization ensures consistent, high-quality test results are equivalent across health systems or commercial assays, decreasing variability in patient care and outcomes.

Capitalizing upon the foundation of standardization can enable best-practice care initiatives. Classifying patients into subpopulations that differ in their susceptibility to a disease or their response to a specific treatment is maximized through personalization. Multidisciplinary integrated care teams can utilize their unique skills and contributions, collaboratively define the goals of standardization, and set the criteria for defining specific desired outcomes. Through partnerships, patient care is improved and enhanced with well-founded clinical judgment and consideration and appreciation for specific care needs across patients. Recognizing that every patient encounter is unique, can involve different presentations, and have distinctive characteristics, healthcare providers can provide insights for personalization while balancing standardization.

Recently recognized by the UNIVANTS of Healthcare Excellence Program, an integrated care team from Marienhospital in Stuttgart, Germany achieved an excellent balance of standardization and personalization. This team recognized that the "one size fits all" assessment for renal function testing using creatinine-based estimated glomerular filtration rates (eGFR) by Modification of Diet in Renal Disease (MDRD), or Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equations were misleading in selected populations, leading to the high potential of misclassification and/or incorrect targeting of treatment. A downside of standardization using the pre-established methods for GFR is that patients do not always resemble the population used to establish the estimation, leading to under or overestimations of GFRs. There are known disparities between creatinine and cystatin c-based eGFRs based on patient age, muscle mass, and other known conditions. Thus, eGFRs will differ as well. Dual reporting estimations of GFR using multiple equations can enable both personalization and standardization of care, particularly when the values do not agree. The use of equations that leverage the strengths of both creatinine and cystatin c methods improves the accuracy of staging associated with chronic kidney disease (CKD)

while maximizing the ability of clinical care providers to generate treatment plans tailored to individual patients. According to Manfred Hoffmann MD, Ph.D, Head of Department of Gynecology and Obstetrics, "eGFR with Cystatin C enables me to optimally direct treatment for all my patients with confidence. I only start effective but highly toxic antineoplastic drugs if we also have the information on renal function based on Cystatin C-based GFR." Through co-reporting, eGFRs pharmacological treatment could be adjusted to fit the needs of each patient and led to an annual cost avoidance of approximately 105,000 euros through the reduction of chemotherapy drugs alone. Highly specific individual markers, paired with custom-tailored care plans for patients, ensure sustainable value.

Opportunities to further bridge standardization-personalization gaps can be vast across disciplines and diseases. Novel insights powered by clinical laboratory data can transform clinical procedures and drive measurable benefits across stakeholders. If you have an example of a similar or valued best practice, visit www.UnivantsHCE.com to apply for team recognition or to learn more about other best practices of healthcare excellence.