House of Delegates Background Fall 2019
Strategic Issue Discussion: Technology/Big Data

Technology capabilities and data analysis (Big Data, Artificial Intelligence (AI), machine learning) are rapidly expanding in other fields, and have the potential to dramatically impact the role of Registered Dietitian Nutritionists (RDNs) and Nutrition and Dietetics Technicians, Registered (NDTRs) in all areas of practice.

Any data produced in large quantities is considered Big Data, and it is the volume that matters. Big Data works on the principle that the more you know about anything or any situation, the more reliably you can gain new insights and make predictions about what will happen in the future. By comparing more data points, relationships will begin to emerge that were previously hidden, and these relationships will inform our decisions and enable us to learn. In machine learning, computers can be taught to identify patterns in the data and to make recommendations based on these patterns, and they can most often do this more quickly and reliably than humans. Many thought leaders believe we are entering the Fourth Industrial Revolution, characterized by the range of technologies that are fusing the physical, digital, and biological worlds.

Everywhere food and nutrition are discussed will be impacted by AI, which is the capability of a machine to imitate intelligent human behavior. RDNs and NDTRs must possess a deeper understanding of Big Data and AI as well as the full potential of using these technology advances within the profession. AI tools are essential to track and manage data, but also to create opportunities for RDNs and NDTRs to focus more on human skills and behavior change. If we can tap into the flow of information, the wide availability of Big Data can unlock possibilities for us to use it to positively impact consumer behavior change and improve nutrition and health outcomes.

**Strategic Issue Question**
How does the Academy and its members leverage Big Data and Artificial Intelligence technology to improve outcomes in all areas of practice and elevate the roles of credentialed nutrition and dietetics practitioners?

**Objectives**
1. Delegates will report increased knowledge of and advocate for how technology/Big Data can be utilized to advance the profession.
2. Task forces will be established to work collaboratively on gaps identified during the dialogue.

**Background Materials;**
Please review the following information to prepare for the Fall HOD dialogue

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<td>• New York Times: <a href="#">The Age of Big Data</a></td>
<td>• YouTube: <a href="#">Big Data 101</a></td>
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<td>• Oracle: <a href="#">The Definition of Big Data</a></td>
<td>• NutriFacts: <a href="#">Big Data and Nutrition in the Information Age</a></td>
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<td>• YouTube: <a href="#">Big Data will Impact Every Part of Your Life</a></td>
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<td>• Oracle: <a href="#">The Connection Between Big Data and AI</a></td>
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Academy Technology/Big Data Efforts
As the HOD begins the dialogue, it is important to recognize efforts already underway within the Academy. Below are some of the Technology/Big Data efforts from the various committees and task forces, which are in alignment with the Academy’s Strategic Plan.

Education
- The “Technology Impacting Practice” topic has been a learning track at FNCE® for many years. At FNCE®, it has been more broadly defined than just the Big Data and AI topics. Here is the link to the FNCE® 2019 Tracks.
- The past two Presidents’ Lectures during FNCE® focused on both Big Data and AI, with an additional session led by the Research, International and Scientific Affairs (RISA) team for FNCE® 2019.
- The Academy offers a Certificate of Training in Informatics, and module five in the series focuses on big and small data.
- Sphere 5 of the Commission on Dietetic Registration’s (CDRs) Essential Practice Competencies is related to Informatics.
- The Accreditation Council of Education in Nutrition and Dietetics (ACEND)’s 2017 Standards include Knowledge Requirements related to technology within Standard 5: Curriculum and Learning Activities.

Initiatives
- Since 2006, the Academy has had a focus on informatics. There are two committees in place to address these topics: the Nutrition Informatics Committee (NIC) and the Interoperability and Standards Committee (ISC). These groups define informatics as the “intersection of information, nutrition, and technology,” and further explain that it refers to “the effective retrieval, organization, storage, and optimum use of information, data, and knowledge for food and nutrition related problem solving and decision making.”
  - The NIC conducted the educators’ survey to find out how informatics is taught. This was followed up by the Nutrition and Dietetic Educators and Preceptors (NDEP) roundtables. The data from this survey will likely be published and potential resources for assisting educators and teaching students will be suggested.
  - In 2008, 2011, and 2014 the Academy conducted surveys to evaluate the current state of informatics within the profession and determine professional initiatives necessary to support development of informatics. The fourth Member Informatics Survey, launched in 2019, will gauge informatics usage among members and is expected to be published in JAND.
    - Survey questions primarily related to how RDNs are accessing electronic information (journals, evidence-based libraries, practice standards, recipes/menus, etc.), use of electronic medical records, and standardization of terminology, and have not been related to the field of AI.
  - NIC and ISC submitted an Action Plan, as requested by the House of Delegates, after the spring 2016 HOD dialogue on Technological Innovations that Impact Food and Nutrition.
- The Council on Future Practice is updating the currently identified change driver, Technological Obsolescence is Accelerating. Associated trends identified in the Visioning Report 2017: A Preferred Path Forward for the Nutrition and Dietetics Profession included:
  - Innovative digital technologies personalize, revolutionize, and increase access to health care.
- Technological applications, economics, and student demands disrupt traditional educational institutions.
- Technological advances impact work settings and change how, when, and where people work.
- The digital age is transforming the next generation food systems.

- Social Interventions Research and Evaluation Network (SIREN), with funding from the Robert Wood Johnson Foundation and in partnership with EMI Advisors LLC, is implementing the Gravity Project. The Academy (Data Science Center of RISA) is a Content Lead in the Gravity Project. Driven by the growing interest in capturing social risk and protective factor data in health care settings, the Gravity Project brings industry leaders together to identify and harmonize social risk and protective factor data for interoperable electronic health information exchange.

- Electronic Nutrition Care Process Record System (ENCPRS) Functional Profile validation and testing are underway so that the standard can mature; this standard is a profile that specifies the content recorded by RDNs in Electronic Health Records (EHRs) using the Nutrition Care Process.

- The Academy of Nutrition and Dietetics Health Informatics Infrastructure (ANDHII®) enables RDNs to track nutrition care outcomes and advance evidence-based nutrition practice research. Current initiatives related to ANDHII® include:
  - A joint study with IBM Research, Computational Health Behavior and Decision Science Group to analyze data in the ANDHII® Dietetics Outcomes Registry for exploration of nutrition behavioral phenotyping. The goal is to understand behavioral segments and patterns that impact nutrition care outcomes associated with intervention effectiveness.
  - ANDHII® clinical registry strategic planning seeks to identify ways to advance ANDHII’s capabilities to collect more data on outcomes by leveraging advances in interoperability, such as application programming interfaces.
  - ANDHII® Surveys, a mobile app for flexible data collection for public health and community nutrition programs, is being pilot tested.
  - Health Level Seven (HL7) Fast Healthcare Interoperability Resources (FHIR®), which is an application programming interface that allows computer systems and apps to communicate and exchange data. Other medical societies that operate clinical registries (ASCOS’s CancerLinQ) have also begun similar efforts using FHIR®.
    - New Nutrition Intake Resource FHIR® Proposal – ISC is working on a new proposal to define and create a standardized way to exchange food and nutrition intake data.
      - If approved and adopted, this could facilitate the ability to use nutrition app data, possibly even grocery store/SNAP purchase history, and more to integrate with electronic health record data. This facilitates a model for analyzing and querying this data which can be linked to nutrient composition, supply chain, etc.
      - ISC is working to generalize the existing FHIR® Nutrition Order resource. The Nutrition Order resource was originally designed and scoped for an inpatient setting, and these changes would make it suitable for an outpatient setting.

The topic of Technology/Big Data was submitted by the Food and Culinary Professionals Dietetic Practice Group (DPG) with support from the Clinical Nutrition Management DPG. This topic and timing align with the Council on Future Practice’s Technology Change Driver, which is currently under revision.