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Development of a Dashboard to Monitor Employee Wellness Data

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Dashboards are graphical displays that integrate disparate related data sources. These dashboards may have the capability to be updated with the most current or real-time data. They are useful in enabling swift interpretation of large datasets, often unloading cognitive burden. They are the culmination of decades of research and development in industry and academia and are today considered a cutting-edge approach that allows real-time decision support. When designed well, dashboards allow for the critical communication of often cumbersome and complex data in a highly intuitive user interface (Franklin, et al., 2017; Wilbanks & Langford, 2014).

Organizations and groups use dashboards to provide updated reports resulting from changes in formula inputs, treatments, and sample groupings. Dashboards allow for the leverage of big data and facilitate decision making based on evidence. Effective workplace wellness programs (WWPs) realize the need to reconcile employee health, for which monitoring has been difficult, through wellness interventions and activities (Mattke et al., 2013).

Purpose: The purpose of this project is to describe the collaborative development of a Microsoft Excel dashboard to support and monitor an employee wellness program. The dashboard intended to expedite the review and management of a health program using biometric data within an easily accessible software application.

Methods: Specific steps in the iterative process of the dashboard development included: identifying key measures, identifying source(s) of data, determining optimal benchmarks or thresholds, identifying the timeframe for data inclusion and analysis, dashboard design, dashboard implementation, and review of dashboard monitoring (Russell, Hogg, Leach, Penman, & Friel, 2014; Spetz et al., 2014). Retrospective data vis-à-vis cardiac risk factors and lifestyle characteristics were gathered during employee health and wellness screenings. The raw data were downloaded into Microsoft Excel and organized. Later, data were cleaned, then explored by integrating data into specific cluster participation groups. Subject matter experts on the project team worked initially to identify key measures and associated thresholds (according the American Heart Association [2018] guidelines) related to cardiac risk factors.

Results: Cluster participation among subjects were directly determined by the thresholds, which were subject to ongoing deliberation in scientific discourse. Visual displays were automatically updated based on changes in the data and thresholds for variables. Descriptive statistics, visual sample summaries, and theoretical tests all reflected identified clusters. Thus, at any given threshold setting, the dashboard reflected the state of cluster membership as indicated by the metrics.

Conclusion: This demonstration, implemented with minimal resources, has implications for nursing research and practice. It illuminates how dashboards can help provide practice-based evidence, allowing employee health nurses to more expeditiously track the status of participants and to evaluate the impact on specific and targeted health initiatives in the workplace. These evaluations are based on sound and objective data for assessing participants' health and lifestyle statuses. We will discuss data quality,

dashboard utility, as well as lessons learned in the process. The extension and practical application of this dashboard will also be shared with participants.

Title:

Development of a Dashboard to Monitor Employee Wellness Data

Keywords:

Dashboards, Data Analytics and Workplace Wellness Programs

References:

American Heart Association. (2018). About Metabolic Syndrome. Retrieved from: <http://www.heart.org/en/health-topics/metabolic-syndrome/about-metabolic-syndrome>

Franklin, A., Gantela, S., Shirarraw, S., Johnson, T. R., Robinson, D. J., King, B. R., Mehta, A. M., Maddow, C., L., Hoot, N. R., Nguyen, V., Rubio, A., Zhang, J., & Okafor, N., G. (2017). Dashboard visualizations: Supporting real-time throughput decision-making. *Journal of Biomedical Informatics*, 71, 211-221.

Matke, S., Hangsheng, L., Caloyeras, J, Huang, C. Y., Van Busum, K. R., Khodyakov, D., & Shier, V. (2013). Workplace wellness programs study: Final report. *Rand Health Quarterly*, 3(2), 7.

Russell, M., Hogg, M., Leach, S., Penman, M., & Friel, S. (2014). Developing a general ward nursing dashboard. *Nursing Standard*, 29 (15), 43-49.

Spetz, J., Bates, T., Chu, L., Lin, J., Fishman, N., Melichar, L. (2014). Creating a dashboard to track progress toward IOM recommendations for the future of nursing. *Policy, Politics, & Nursing Practice*, 14 (3-4) 117-124.

Wilbanks, B., & Langford, P. (2014). A review of dashboards for data analytics in nursing. *CIN: Computers, Informatics, Nursing*, 32 (11), 545-549.

Abstract Summary:

Dashboards are graphical displays that integrate disparate related data sources enable swift interpretation of large datasets, often unloading cognitive burden. This project illuminated how dashboards can provide practice-based evidence, allowing for expeditious monitoring and evaluations of the impact on specific and targeted health initiatives in the workplace.

Content Outline:

Introduction:

Dashboards are graphical displays that enable interpretation of large datasets in a quick manner.

Body:

Organizations use dashboards to provide updated reports that result from fluctuations in the data.

The dashboard being described in this presentation was used to expedite the review and management of an employee wellness program.

Specific steps may help in the iterative process of dashboard development.

Conclusion:

The project demonstrated how easily accessible dashboards can be use in practice to help provide practice-based evidence.

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