

# Rethinking Clinical Workflow



Joseph J. Schlesinger, MD<sup>a,\*</sup>, Kendall Burdick, BS<sup>b</sup>, Sarah Baum, PhD<sup>c</sup>,  
Melissa Bellomy, MD<sup>d</sup>, Dorothee Mueller, MD<sup>a</sup>, Alistair MacDonald, MD<sup>e</sup>,  
Alex Chern, PhD<sup>f</sup>, Kristin Chrouser, MD<sup>g</sup>, Christie Burger, PharmD<sup>h</sup>

## KEYWORDS

• Workflow • Team dynamics • Urgency • Attention • Distractions

## KEY POINTS

- Clinical workflow is modulated via models interpolating human factors to neural processing.
- Music perception and cognition research translates into clinical workflow principles of urgency and attention.
- Work system, process, and outcomes can only be improved through understanding the organization, physical environment, person, tasks, technology, and tools.

## WORKFLOW, TEAM DYNAMICS, AND CLINICAL ENVIRONMENTS

As the demands and expectations of the modern world change, industries and workflow must also adapt. Because of the complex nature of so many industries (health care is just one example) the process for rethinking workflow must be as complex as the nature of the workflow itself. For high consequence industries, such as health care, aviation, and nuclear power, rethinking and optimizing workflow requires the integration of a detailed and consistently reanalyzed improvement plan. These plans are formulated from several historically successful improvement techniques, such as the Plan-Do-Check-Act (PDCA) cycle, Six Sigma, and Crew Resource Management.

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<sup>a</sup> Department of Anesthesiology, Division of Critical Care Medicine, Vanderbilt University Medical Center, 1211 21st Avenue South, Medical Arts Building, Suite 422, Nashville, TN 37212, USA;

<sup>b</sup> Neuroscience/Pre-Med Undergraduate, Vanderbilt University, 1211 21st Avenue South, Medical Arts Building, Suite 422, Nashville, TN 37212, USA;

<sup>c</sup> Institute for Learning and Brain Sciences, University of Washington, 1715 NE Columbia Road, Seattle, WA 98195, USA;

<sup>d</sup> Department of Anesthesiology, Vanderbilt University Medical Center, 1211 21st Avenue South, Medical Arts Building, Suite 422, Nashville, TN 37212, USA;

<sup>e</sup> St. Patrick's Hospital, 500 West Broadway, Missoula, MT 59802, USA;

<sup>f</sup> Vanderbilt University Medical Center, 1211 21st Avenue South, Medical Arts Building, Suite 422, Nashville, TN 37212, USA;

<sup>g</sup> Department of Urology, University of Minnesota, 720 University Ave SE, Minneapolis, MN 55414, USA;

<sup>h</sup> VA Tennessee Valley Healthcare System, 1310 24th Avenue S, Nashville, TN 37212, USA

\* Corresponding author.

E-mail address: [joseph.j.schlesinger@vanderbilt.edu](mailto:joseph.j.schlesinger@vanderbilt.edu)

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Although each industry has formed a technique that functions the best for them, each optimization process contains aspects that mirror the founding frameworks of Taylor and Drucker. For example, the Maestro Concept is used in journalism workrooms to encourage a project-based, team-centered workflow.<sup>1</sup> The goal of this work concept is to “think like the reader.” The maestro role is held by the editor, who stresses teamwork and big picture thinking. In health care, this is synonymous to treatment plans that incorporate “think like the patient.” A similar technique is Kaizen, meaning “change for the better.”<sup>2</sup> Kaizen has been adopted by management systems in massive organizations, such as Toyota and the government of the Indian state of Gujarat. The Kaizen action plan and philosophy used a broad action plan (PDCA cycle) also commonly referred to as the Shewhart Cycle. Walter Shewhart began the thinking for this type of quality management, and so the established Shewhart Cycle was named in his honor by W. Edwards Deming in 1993.<sup>3</sup> The Shewhart cycle has become so widely used that many industries use it implicitly. Health care, for example, functions as a team of providers that create a plan and actively rework it as additional data become available. This cycle provides grounds for broad and small application, while offering opportunity for continuous improvement.

Although these previous techniques and philosophies effectively encourage improvement, Six Sigma is generally regarded as the most well-known and overarching process improvement technique; more than 100 of the largest companies in the United States have claimed success with this technique. Six Sigma is an implementation method focused on minimizing error and maximizing benefits.<sup>4</sup> It was created to replace older top-down management styles and implement number- and error-focused reform. Six Sigma is used in such industries as health care, government, and financial services. The numbers-driven program uses proven successful approaches to focus on variation reduction and process improvement to result in an operational process being virtually error free. Six Sigma was made famous by its success at General Electric, led by Jack Welch. Six Sigma created the Define, Measure, Analyze, Improve, and Control framework, a more advanced version of PDCA, to accomplish its goals. The Six Sigma approach requires first defining the consumer, measuring current performance, and then analyzing data to implement an improved process.

Six Sigma has also delivered multiple successes in the health care industry. For example, in a 2010 study, Six Sigma’s Define, Measure, Analyze, Improve, and Control framework was applied to an operating room (OR) at a high-volume tertiary care medical center to assess process and cost efficiency.<sup>5</sup> The entire surgical process, from the decision to operate to discharge, was analyzed with the goals of increasing OR efficiency and financial performance across the entire operating suite. The implementation of a Six Sigma program resulted in performance gains that were substantial, sustainable, financially positive, and transferrable to other specialties within the medical center.

Many health care locations have also adopted Six Sigma to improve efficiency and decrease error in several their safety procedures. The Six Sigma success at Massachusetts General Hospital (Boston, MA), Virginia Mason Medical Center (Seattle, WA), Mayo Clinic (Rochester, MN), and Clearview Cancer Institute (Huntsville, AL) was referenced at the 2009 American Society for Quality conference.<sup>6</sup> The Mayo Clinic’s success was so significant that they created a curriculum for other health care providers to use and effectively rework their own safety measures.<sup>7</sup> Using Six Sigma techniques, the Mayo Clinic Quality Academy goes further than teaching protocols for disease management by also incorporating topics related to quality improvement and measurement, patient safety, evidence-based medicine, and more.

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