



### A193 Reducing Backlogs as a Systems Problem

Max M. Houck, PhD\*, Consolidated Forensic Laboratory, 401 E Street, SW, Washington, DC 20024; Chris Maguire, PhD, Department of Forensic Sciences, Consolidated Forensic Laboratory, 401 E Street, SW, Washington, DC 20024; Christine Funk, JD, Department of Forensic Sciences, 401 E Street, SW, Washington, DC 20024; and Jason C. Kolowski, PhD, Department of Forensic Sciences, Forensic Science Laboratory, 401 E Street, SW, Washington, DC 20024

After attending this presentation, attendees will have knowledge of how a systems-thinking approach can aid in the reduction of case backlogs (unworked cases older than 30 days).

This presentation will impact the forensic science community by providing a novel, conceptual approach to backlog reduction in forensic laboratories and, more importantly, instituting systems to keep backlogs reduced and managed.

The current but waning paradigm of machine-age thinking, where mechanisms or problems are taken apart like a machine to understand how the immediate components work, fares poorly in the face of ever-increasing and more-connected information. Individual parts no longer equate to the larger whole, the system, the environment, and externalities are as important and dynamic as the thing under study. Systems thinking takes the perspective that systems come about as a result of the interactions and relationships among their elements. These interactions, and their emergent behaviors and unintended consequences, are as much a part of the system as the individual components.<sup>1</sup> Systems cannot be divided into independent parts; therefore, every element of a system loses some properties if removed from the system and the system — as a whole — has essential properties that none of its elements do.<sup>2</sup>

Problems can be thought of as a system with a critical value proposition attached.<sup>3</sup> A problem has an external context and internal structure. It should be addressed through a process of systemic inquiry, such as Checkland's Soft Systems Method (SSM).<sup>4</sup> Backlogs at the District of Columbia Department of Forensic Sciences' Forensic Science Laboratory Division (FSL) were addressed using this approach. Backlogs are hysteretic in nature (history dependent) and can be thought of as the cumulative lag in a system; this is true regardless of their rate of development. Predictable amplifications of small lags are a disproportionate cause of later circumstances; in the long run, this "historical hangover" leads to inefficiency, that is, backlogs.

Using relevant metrics from the FORESIGHT process, the following data was collected for CY13 (as of July 1, 2013):<sup>5</sup>

While case submissions exceed work capacity in each unit, evaluation of inputs and outputs did not necessarily equate to the backlogged values; streamlining of casework processes suggested achieving acceptable but not desired output rates. Other environmental factors had to play a role. Through a systematic review of court files, backlogged cases, service requests, and open investigations, significant backlog reductions were achieved. Therefore, the backlog derived not from an internal process but from a lack of a systematic feedback loop (communication) from external entities (attorneys and police) into the FSL and vice versa.

#### References:

- <sup>1</sup>Senge, P. M. (2006). *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York City, Doubleday/Currency.
1. Ackoff, R. L. (1999). *Ackoff's Best: His Classic Writings on Management*. New York City, Wiley.
  2. Edson, R. (2008). *Systems Thinking*. Applied. Arlington, VA: ASysT Institute.
  3. Checkland, P. (1993). *Systems Thinking, Systems Practice*. Chichester, Sussex; New York City, Wiley.
  4. Houck, M. Riley, R., Speaker, P., Witt, T. (2009) FORESIGHT: A Business Approach to Improving Forensic Science Services. *Forensic Science Policy & Management: An International Journal*. 1(2):85-95.

#### Laboratory, Backlog, Systems