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Don't Go Chasing Big Waterfalls

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By William "Ike" Eisenhauer

As I write this, it is springtime in Oregon. I am lucky enough to live in a city that is two hours from the Pacific Ocean to the west and two hours from the Cascade Mountains. During springtime, about halfway to the base of Mount Hood lies another of Oregon's natural treasures: the 635-foot Multnomah Falls.

The second largest year-round falls in the United States, it can be seen from the highway as you drive toward Timberline Lodge. But what you do not see unless you stop and go on a hiking journey are the numerous falls above Multnomah that are even more spectacular. Personally, I suggest Fairy Falls.

Likewise, in health systems engineering we are enamored with the spectacular changes that happen in some of our largest projects and efforts, but we tend to overlook the beauty and simplicity that a series of smaller, less dramatic changes can provide. In addition, there tend to be many more of the smaller ones, and they also tend to be more successful.

Simple systems with few components are well-understood, tend to be extremely easy to implement and are much more successful. Coupling a few of these together can get you just as much improvement as one large complex system. And, after all, the larger change may be substantially harder to implement.

For example, if you want to set up a phlebotomy lab that takes care of 96 percent of patients quickly, you could devise a single complex protocol that attempts to address 96 percent of the issues and procedures that might be present. You might succeed, but the end result will be a large, very unwieldy system that tends not to be as nimble as you expect.

What's more, identifying the 96 percent of issues might take substantial time and effort. This is the Multnomah waterfall approach.

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On the other hand, your medical laboratory technicians probably can tell you – with ease – what 80 percent of the patients coming into the draw station need. In some facilities it might be a draw for hemoglobin A1c (HbA1c), in others it might be a sample for a complete blood count (CBC), and for others it might be prothrombin time (PT) for a patient on warfarin. The point is that they don't cover all the cases, but they cover about 80 percent of them.

You can create a simpler process to deal with those 80 percent of cases, and you probably can do so rather quickly. For the remaining 20 percent, you most likely can figure out what 80 percent of those are in need of and build a different, but still simple, system to handle those. And so on. This is the Fairy Falls waterfall approach.

Here is the interesting thing: While your complicated Multnomah Falls approach took care of 96 percent of the clinical activity, albeit with a complicated and time-intensive redesign, so did your Fairy Falls approach. The first process took 80 percent of the cases. The second process took another 80 percent of the remaining 20 percent, which works out to a total of 96 percent. The fixes were simpler to implement and simpler to understand, but they were just as effective in managing the process.

Most any health systems engineer can design a single simple system to deal with 80 percent of the problematic cases, but very few can design a single complex system to handle the 96 percent.

There are very few majestic 600-foot waterfalls, but there are numerous smaller ones that are just as beautiful and enjoyable to discover. So go on a hike and look for the smaller waterfalls and quit chasing the big ones. ❖

William "Ike" Eisenhauer is an engineering professor at Portland State University and national director of the Veterans Engineering Resource Centers for the Veterans Health Administration. His interests are integrating engineering and healthcare professionals to increase the value of health systems and advancing engineering science to address healthcare delivery challenges. He can be reached at wde@pdx.edu.