

## Editorials

# Curbing Cascades of Care: What They Are and How to Stop Them

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Rodrigo is a healthy 30-year-old man who visits his primary care doctor for an annual wellness visit. His physician hears what is likely a flow murmur on examination and orders an echocardiogram. The echocardiogram findings suggest pulmonary hypertension, which prompts a cardiology visit, and then hospitalization for right heart catheterization. And in the end? The catheterization shows normal pressures. It was a false alarm.

Such stories are viscerally familiar to most clinicians. This is a cascade of care: a seemingly unstoppable succession of medical services often initiated by an unnecessary test or unexpected result and driven by the desire to avoid even the slightest risk of missing a potentially life-threatening condition.<sup>1,2</sup>

Cascades of care are common and will become more so as imaging tests gain sensitivity.<sup>2</sup> In a survey of U.S. internists, most said they saw incidental findings on imaging studies and laboratory tests lead to office visits, invasive tests, hospitalizations, and new diagnoses for their patients at least several times per year.<sup>3</sup> Cascades have been described following magnetic resonance imaging for low back pain,<sup>4</sup> an electrocardiography (ECG) before cataract surgery,<sup>5</sup> prostate-specific antigen testing,<sup>6</sup> and “routine” tests during annual wellness visits such as an ECG and urinalysis.<sup>7-9</sup> More often than not, these cascades led to no important findings in the end.<sup>3,10,11</sup>

Each step in a cascade seems to be a rational progression from the step before. Yet taken together, these cascades can cause substantial harm to patients, including procedural complications, out-of-pocket costs, psychological distress, and stigma from new diagnoses.<sup>12</sup> Clinicians, especially those practicing in rural settings, report anxiety, frustration, and wasted time and effort.<sup>3,12</sup> There are also financial burdens on the already taxed health care system. For example, cascades following an unnecessary ECG before cataract surgery may account for \$35 million per year in Medicare costs, an average of 10 times the cost of performing the ECG itself.<sup>5</sup>

What can clinicians do about cascades? The first strategy—avoiding unnecessary services that may trigger cascades—is appealing to the extent that such services are identifiable. As a healthy 30-year-old, Rodrigo could have foregone an annual check-up; barring that, his doctor might have skipped the physical examination that revealed the incidental murmur. Reducing low-value care has been the focus of the Choosing Wisely campaign, through which physician societies create lists of tests and treatments to avoid.<sup>13</sup> Practice leaders might also use tactics such as decision support and performance feedback to encourage clinicians to avoid ordering that unnecessary computed tomography (CT) scan or ECG.<sup>14</sup> When considering any test (e.g., mammography, screening lung CT), clinicians can be more explicit with patients about the limitations of tests (e.g., false positives) and the possibility of cascades, weighing these and other potential harms against the potential benefits.<sup>15</sup> As of April 2021, the 21st Century Cures Act requires that patients have immediate electronic access to their test results; therefore, it is even more important to educate patients in advance that an abnormal result does not always mean something is wrong or warrants more testing.

The second strategy is to mitigate cascades once they begin. The mitigation strategy can be more challenging because it is harder to unsee an incidentaloma than to avoid seeing it in the first place. Clinicians are trained to be thorough and are often uncomfortable with uncertainty.<sup>16</sup> In a survey of U.S. generalists, respondents said they often ordered a second or third test not because they thought it was needed clinically but because they were afraid of missing something important, following practice norms, worried about lawsuits, or, less often, responding to patient requests.<sup>17,18</sup> In a qualitative study, one primary care physician described it as feeling compelled to chase “a ghost that is expensive, but not necessarily going to lead to better outcomes.”<sup>17</sup>

Given these drivers, clinicians would benefit from point-of-care guidance on the risk and management of incidental or borderline findings (e.g., evidence-based recommendations written into result reports that quantify the likelihood of cancer or other outcomes in plain language).<sup>3,19,20</sup> Rather than assuming that patients want more testing, we can engage patients in shared decision-making about next steps that take into account their personal risk tolerance. We should communicate that uncertainty is inherent in medicine (as it is in life), that there is no such thing as zero risk of something such as cancer, and that performing another test cannot remove all risk.<sup>16,21</sup> Layperson's terms, instead of medical jargon, and images or simple comparisons can be used to convey risk.<sup>22</sup> Whenever possible, we can offer alternatives such as active, watchful waiting.

In Rodrigo's case, his physician could have explained that the murmur was almost definitely benign. They might have decided together to keep an "ear" on it and evaluate further only if he developed a symptom such as shortness of breath. Although time is short in the examination room, we may overestimate how long these conversations take and underestimate the time saved downstream. Ultimately, these conversations are central to the tenet of family medicine to provide holistic, person-centered care.

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