

## Valuation of Ambulatory Surgery Centers (ASCs): Technology

As noted in the first installment of this five-part series, an *ambulatory surgery center* (ASC) is a distinct entity that primarily provides outpatient surgical procedures to patients who do not require an overnight stay after the procedure.<sup>1</sup> ASCs typically provide relatively uncomplicated surgical procedures in a non-hospital, outpatient setting, and most ASC cases are non-emergency, noninfected, and elective.<sup>2</sup> The last installment of this five-part series on the valuation of ASCs will review some of the technology advancements that are driving ASC industry growth and evolution.

The term technology can be all-encompassing in healthcare, ranging from tangible tools, to pharmaceuticals, to software. The modern ASC industry exists mainly due to advances in anesthesia and new surgical techniques and technology.<sup>3</sup> Simultaneously, the increased demand for outpatient services in general has been driven by technological advances. The technology advancements allow for more procedures to take place in an outpatient setting. Technological breakthroughs have resulted in fewer and smaller surgical wounds that require less recovery time.<sup>4</sup> Improvements to anesthesia have shortened recovery time and minimized post-operative side effects.<sup>5</sup> Advancements in *scope technology* (wherein scopes are connected to a fiber optic cable for lighting and can magnify images) have led to quicker and more minimally invasive surgeries.<sup>6</sup> One such form of minimally invasive surgery is *robotic surgery*, a term to denote procedures performed utilizing small robotic arms equipped with surgical instruments that the physician controls via computer,<sup>7</sup> and allows for far fewer incisions.<sup>8</sup>

One type of technology used by ASCs, due to federal regulatory requirements, is *electronic health records* (EHR),<sup>9</sup> which have the potential to improve efficiencies and quality of patient care.<sup>10</sup> Effective use of EHRs may save providers and patients money and time due to increased efficiencies.<sup>11</sup> Many ASCs are also starting to utilize data management systems to keep track of supplies, starting case times, personnel schedules, and financial performance.<sup>12</sup> EHR and management software show great potential for improving the interpretation of quality and outcomes data, as well as for meeting performance metrics. Significantly, the data produced utilizing EHR and management software can help ASCs identify profitable revenue streams.

Advances in clinical *artificial intelligence* (AI) solutions also have the potential to optimize workflow, productivity, and patient flow.<sup>13</sup> Current applications of AI in clinical settings help clinicians with daily tasks rather than replacing the need for clinicians.<sup>14</sup> The *U.S. Food and Drug Administration* (FDA) has approved 28 algorithms for use in diagnostic radiology.<sup>15</sup> The health research unit of Alphabet Inc. (d/b/a Google) has developed an AI clinical solution that can match or outperform radiologists in detecting breast cancer.<sup>16</sup> Google's technology is able to identify cancers that were missed by humans and decrease the false-positive cancer identification rate.<sup>17</sup> Importantly, Google contends that the technology could reduce the workload of mammogram readers by 88%.<sup>18</sup> Alphabet's other venture, *DeepMind Health*, has shown the capability to predict individuals at high risk of developing *acute kidney injury*, with accuracy levels up to 90%.<sup>19</sup> The algorithmic model utilized medical records from the *U.S. Department of Veterans Affairs* to predict which patients are at the highest likelihood of developing a sudden deterioration in kidney function.<sup>20</sup> AI is poised to reduce workloads and solve some of the largest problems in healthcare.<sup>21</sup> However, AI's abilities in clinical settings are currently limited to the size of the datasets available to the computer programs. As the datasets available to AI programs expand, so will the capabilities of AI in clinical settings. The implementation of AI technology in healthcare will undoubtedly be felt in the ASC industry, with unnecessary procedures potentially being reduced as better diagnostic imaging technology developed with AI reduces the likelihood that patients will be referred for unnecessary surgeries.<sup>22</sup>

Advancements in pharmaceuticals may also mitigate the need for surgeries. For example, a recent study has shown that heart procedures, such as bypass surgery and stents, are *not* more effective than drug treatment and lifestyle changes at preventing future heart attacks.<sup>23</sup> The standard treatment for many individuals with heart disease is the use of stents; however, this recent study indicates surgical procedures to be unnecessary in non-emergency cases.<sup>24</sup> The study, which to date was the largest in size comparing the various treatment approaches, may gradually change the standard of care for the treatment of heart disease.<sup>25</sup> Reductions in referrals for heart surgery would likely impact a significant revenue stream for ASCs.

Inevitably, technology changes how healthcare is delivered and managed. The natural progression of healthcare technology will continue to shape the greater healthcare industry. The continuing trends in robotics, AI, and pharmaceuticals will impact the ASC industry. In turn, the ASC industry will need to adapt to technological advancements and implement innovative technology to remain competitively viable in the future. ASCs will

likely be augmenting or enhancing the healthcare provided to consumers utilizing various technological advancements in the future. Consumers are becoming increasingly comfortable interacting with technology in healthcare settings. Similarly, ASCs are increasingly leveraging technology for management purposes. As healthcare technology trends persist, hopefully, optimized workflow trends and productivity will result.

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- 21 Palmer, October 1, 2019.
- 22 Noting that better diagnostic technology will lead to less extra testing and unnecessary treatments of improperly diagnosed cancers. "Google AI Beats Doctors at Breast Cancer Detection— Sometimes" By Brianna Abbott, The Wall Street Journal, January 1, 2020, <https://www.wsj.com/articles/google-ai-beats-doctors-at-breast-cancer-detectionsometimes-11577901600> (Accessed 1/2/20).
- 23 Study results have not been published in journals yet but are available to the public via the study's website. "ISCHEMIA Study Results" NYU Cardiovascular Clinical Research Center, 2020, <https://www.ischemiatrial.org/ischemia-study-results#ischemia> (Accessed 1/3/20).
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- 25 The study finds the results apply to people with stable symptoms and not those in emergency situations where a stent saves lives. *Ibid.*

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