



## Capital Guide

# Market Intelligence Report

## Surgical Lights

### Description

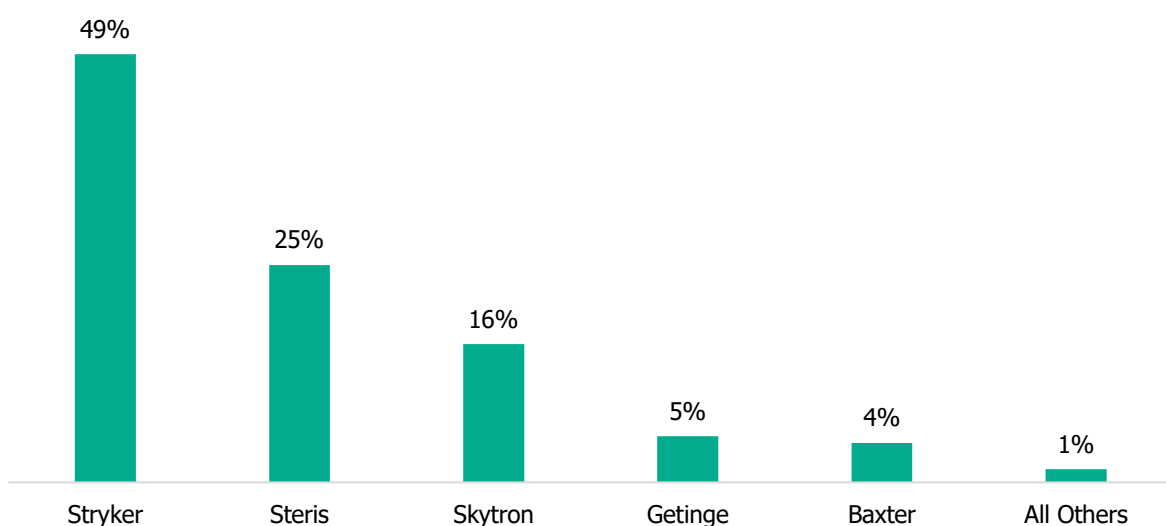
**Surgical Lights** are designed to provide illumination to the surgical site for a prolonged period of time on a flat surface and/or in a deep surgical cavity to assist medical personnel during a surgical procedure. These units typically have counterbalanced arms which are free to rotate continuously at every joint to satisfy various heights and angles needed during surgery. Surgical lights provide high-intensity illumination while reducing shadows and producing minimal color distortion. These lights use elements such as incandescent or halogen bulbs or light-emitting diodes [LED]) and are available mounted in fixtures (e.g., lamps) of several shapes and sizes. They may be ceiling-mounted, stand-alone or wall-mounted.



### Popular Vendors and Models

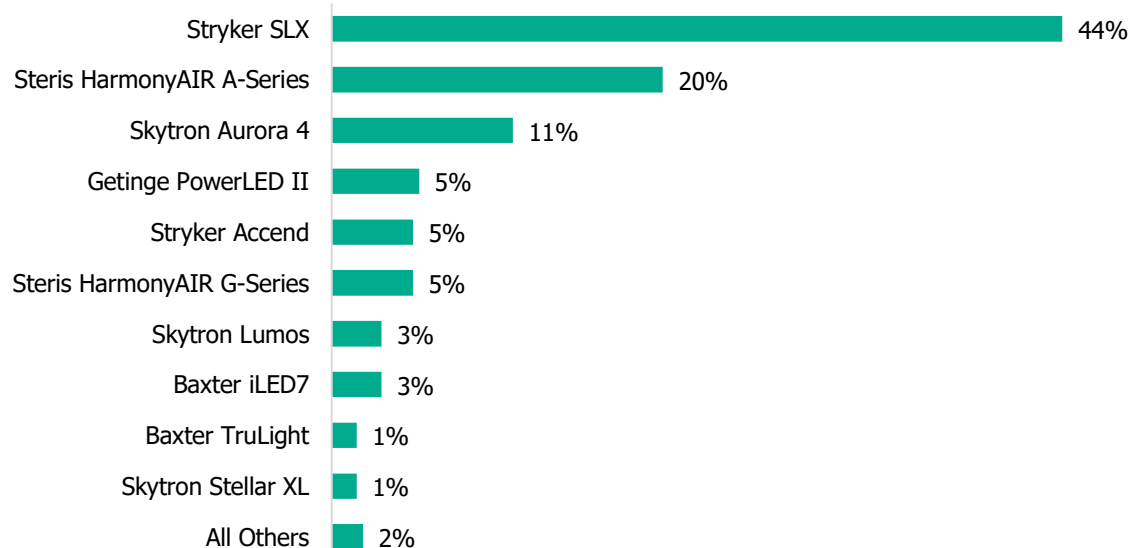
Capital Guide Member Interest  
Surgical Lights, by Vendor  
(Jan 2022 - Jan 2023)

n= 268



Capital Guide Member Interest  
Surgical Lights, by Model  
(Jan 2022 - Jan 2023)

n= 268



### Key Considerations

- LED lights were introduced in 2005 and have become the **preferred light source** over conventional halogen bulbs due to their improved lighting characteristics, low heat production, high efficiency, and long life. LED technology also **enables new features** which allow greater control of high-intensity surgical lights when compared to conventional light technologies.
- LED surgical lights **provide high-quality, consistent illumination for surgical teams** to see into a patient's body, often into deep cavities. The light allows clinicians to identify and differentiate small, low-contrast tissues
- LED lights **limit the shadows** created by the surgeon's head and other objects in the path of the light much better than halogen lights, which have poorer shadow dilution. Each LED lighthead houses numerous LEDs to create **overlapping light beams** such that shadows are minimized even if a clinician is directly in the path of the light.
- Some manufacturers offer lightheads with **sensors** which detect which LEDs are blocked and **automatically reroute power** to the unobstructed LEDs to maintain the original illuminance level.
- Halogen bulbs last approximately 1,000 to 2,000 hours. LEDs are generally **specified to last** at least 20,000 to 40,000 hours, depending on the model. After this time frame, light output generally degrades to the point where the LED should be replaced. This **longer life span** means that **less maintenance** is required to replace LEDs compared to halogen bulbs. Depending on your usage, the LEDs **may last as long as the light itself**, which eliminates the need for LED replacement.

## Feature Comparison for Popular Models

<i>Surgical Lights</i>	<b>Baxter iLED 7 Solo</b>	<b>Getinge PowerLED II 500</b>	<b>Skytron Aurora 4 LED Single (AUA5)</b>	<b>Steris HarmonyAIR A-Series Single</b>	<b>Steris HarmonyAIR G-Series Single</b>	<b>Stryker SLX628 Single</b>
<b>Maximum Illuminance, lux</b>	160,000	140,000 (160,000 with boost function)	160,000	160,000	160,000	160,000
<b>Color Temperature, K</b>	3,500 - 5,000	3,800	4,100 or 4,500	4,400	4,400 +/- 300	3,600 - 5,000
<b>Adjustable Color Temp</b>	Yes	No	Yes	No	No	Yes
<b>Color Rendering Index (CRI)</b>	97	96	95 or 96	97	96	96
<b>R9 Value</b>	96	90	90 or 96	98	98	90
<b>LED Life, hrs</b>	>60,000	60,000	40,000	60,000	50,000	40,000
<b>Field Size Diameter, in</b>	6, 8, 10	5.1-7.9	6.8	6.3-11.8	7 - 11	6.3 - 11.4
<b>Focal Length, in</b>	31.5 - 51.2	45.3	20	39	39	31.5 - 47.2
<b>Sterile Handle Controls</b>	Intensity, Field Size	Intensity, Focus, Field Size	Focus	Intensity, Field Size	Intensity, Field Size	Intensity, Field Size, Color Temperature
<b>HD Camera Ready</b>	Yes, standard	Optional (wired)	Optional	Optional	Optional	Optional
<b>Automated Shadow Control Mode</b>	Yes	Yes	No	No	No	No
<b>Ambient Lighting</b>	No	Adjustable Colors	No	Yes	No	Yes
<b>Rotation, deg</b>	360	360	360	360	360	360
<b>Capable of Providing Max Illuminance Beyond 1m Working Distance</b>	Yes	Yes (without boost)	No	No	No	Not Specified

### Other Considerations

The specific models compared in this report are all single light heads which can also be configured with two or three light heads. Note that ECRI warns about the dangers of overlapping multiple surgical light heads at high power potentially resulting in tissue damage. There is no standard set of optimal lighting characteristics for a surgical light; they are largely dictated by surgical specialty and surgeon preference.

Surgical lights illuminate the surgical site for optimal visualization of small, low-contrast objects at varying depths in incisions and body cavities. Because hands, heads, and instruments can intrude over the surgical field, these lights are designed to reduce shadows and minimize color distortion. They are also intended to operate for extended periods of time without radiating excessive heat, which could cause discomfort or dry skin and internal tissue at the surgical site.

Manufacturers are streamlining their lighthouse design to minimize turbulent airflow above the surgical field, as well as minimize the risk of trapping surgical smoke in the clinicians' breathing zones.

A typical surgical light should have a minimum illumination level of 120,000 lux, a color temperature in the range of 3,000-5,000 K, be vertically adjustable through a range of at least 80 cm (31.5 in) and rotate at least 270°.

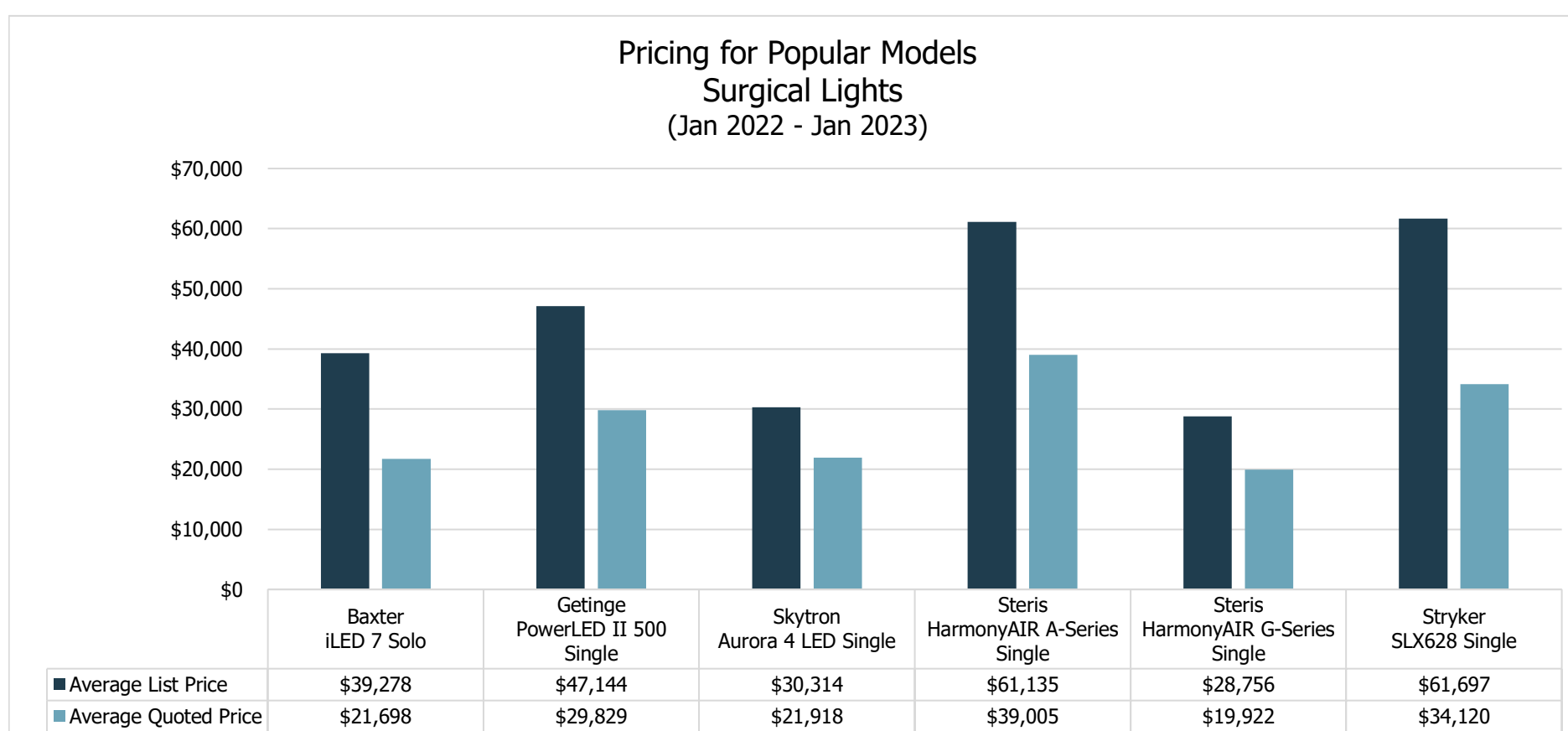
However, ECRI prefers 360 degrees or infinite rotation about the light head to avoid any rotational stops during a procedure.

Sterilizable handles with controls for light intensity level and spot size or focus are also preferred. All surgical lights must be kept very clean to prevent accumulated dust from falling onto the surgical field when they are moved.

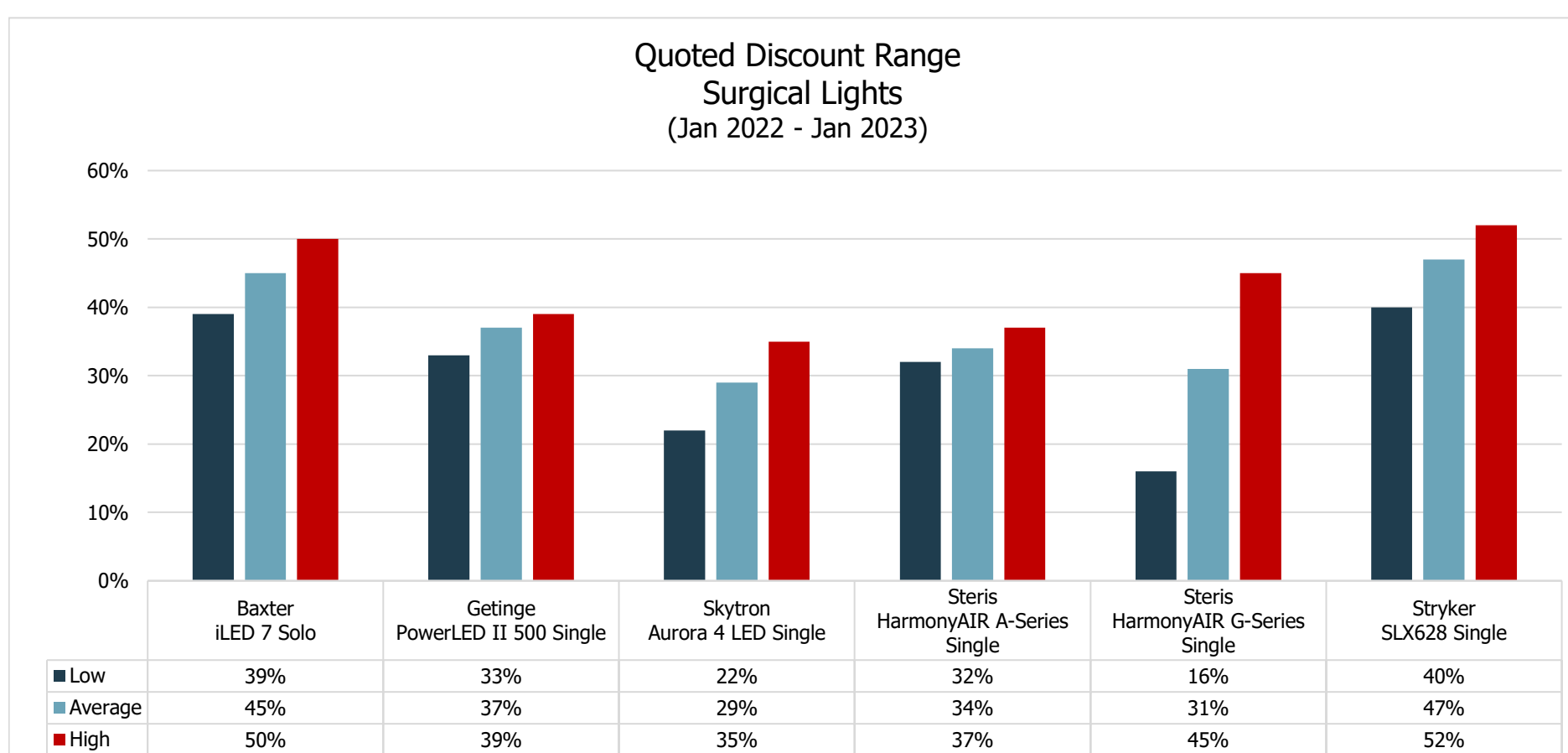
Ambient lighting, surgeons preferences, and the demands of different surgical procedures are some of the considerations to be taken into account when selecting surgical lights. Heat from surgical lights can be a factor when designing OR heating, ventilating, and air-conditioning systems. Although attempts have been made to standardize lighting performance, selection of surgical lights still tends to be subjective, and a demonstration of prospective lights in the hospital's ORs is recommended. Surgical lights should be connected to the backup emergency power system of the hospital.

Compared to light heads for diagnosis, a system of multiple surgical lights is expected to perform (i.e., deliver at least 40,000 lux of illuminance within one second) in the event of a single fault condition (e.g., any type of device failure).

## Pricing Information



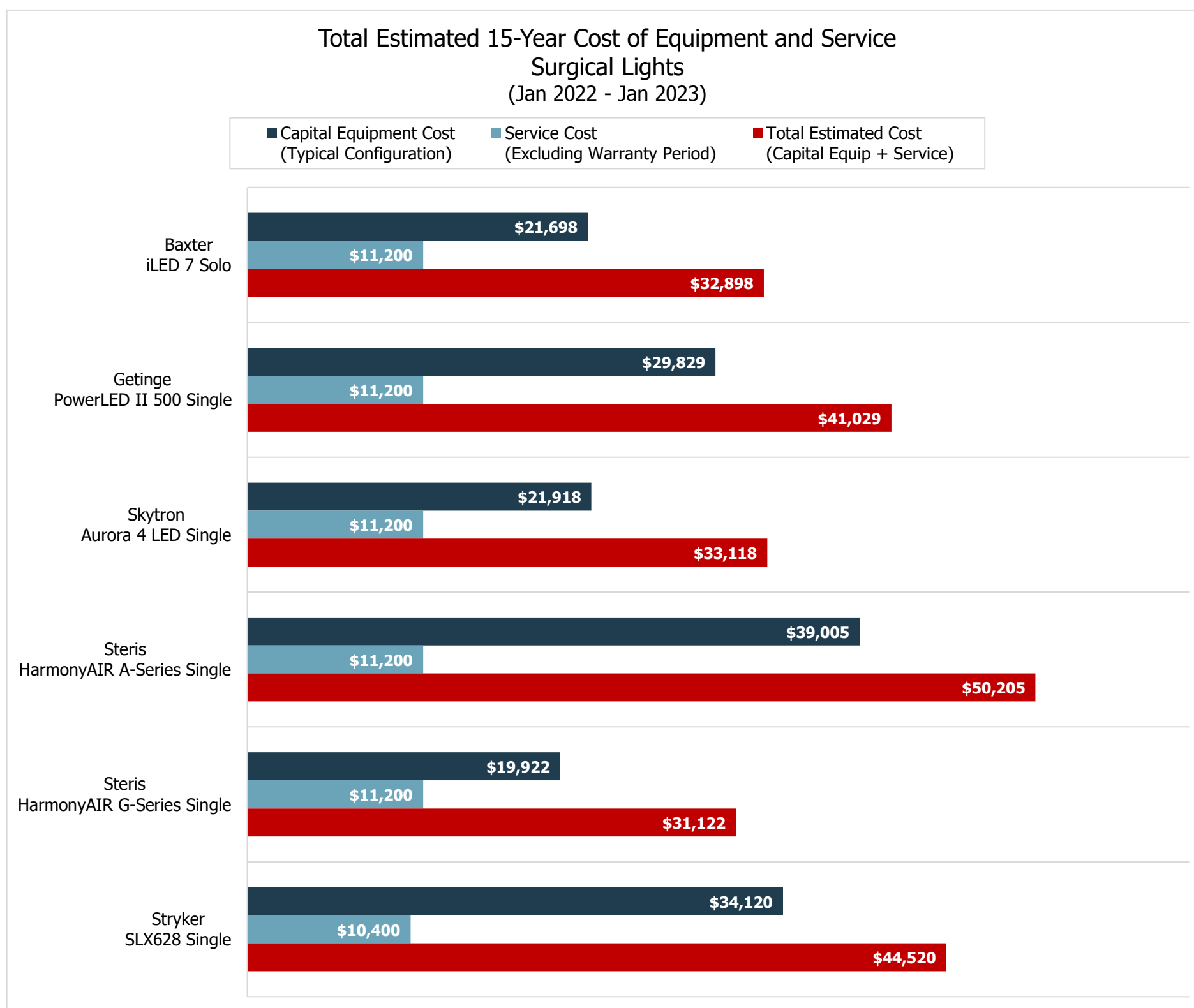
## Typical Discounts Seen by Capital Guide Members



## Service and Support Information

Surgical Lights	Model	Warranty	Est. Annual Service Cost
<ul style="list-style-type: none"> <li><b>Estimated Service Life: 15 Years</b></li> </ul> <p>We have estimated the annual service cost to be approximately \$800 across all vendors.</p>	Baxter iLED 7 Solo	1	\$800
	Getinge PowerLED II 500	1	\$800
	Skytron Aurora 4 LED Single	1	\$800
	Steris HarmonyAIR A-Series Single	1	\$800
	Steris HarmonyAIR G-Series Single	1	\$800
	Stryker SLX628 Single	2	\$800

## Total Estimated Cost



## Additional Information

*For updated information on Pricing, Vendor Discounts, Equipment Specifications, or to request a **Custom Report** on this technology, Click Here: [CapitalGuide@ecri.org](mailto:CapitalGuide@ecri.org)*

***Want to know more?** Go to [LED Surgical Lights: The Essentials](#) to access **Product Ratings, Selection Guidance, and other vital information on this technology.***

### Disclaimer

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