TAIYO CORPORATION

The Light That Keeps Healthcare Moving

In July 2026, Taiyo Corporation surveyed domestic and international humanitarian organizations—including disaster response, conflict, and refugee relief teams—on the practical value of the OPELA III Cx wearable surgical light. Conducted under a Japanese Ministry of Health initiative to promote WHO prequalification and listing for developing nations, this report compiles key feedback from those field interviews.


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1 Quality and Efficiency of Care

This is not merely a lighting device. It saves lives and improves medical outcomes.

Key Values

- Improving visibility of fine details and deep structures. It is particularly valuable for hemostasis and debridement in trauma cases.
- Since the surgeon can freely illuminate the desired area at will, surgical procedure times can be shortened significantly – enough to save extra lives.
- Distinctly reducing the resources and costs (personnel and time) required for setting up, preparing, and adjusting the position of a surgical light, allowing for the treatment and surgery of more patients.

See clearly. Stop bleeding. Save lives

Hospital Director, Orthopedic Surgeon,
Yamagata-Dhaka Friendship General Hospital,
Bangladesh

In regions with limited medical infrastructure, such as Bangladesh, frequent power outages can delay treatment and allow bleeding to worsen before backup power starts. In these moments, lighting that clearly reveals nerves, blood vessels, and tumor margins is critical. Hemostasis saves lives by reducing mortality and transfusion needs. This product is not simply convenient; it is lighting that enables hemostasis and directly supports patient survival.

Improving surgical efficiency when every resource counts

Doctor,
International Medical Humanitarian Aid Organization

In vascular trauma cases common in conflict zones and refugee camps, visualizing deep structures is critical to surgical success. This product enables surgeons to illuminate bleeding sites directly along their line of sight, eliminating repeated light repositioning by staff. In Gaza's overstretched field hospitals, where dozens of trauma surgeries were performed daily, some patients classified as "yellow" (requiring elective treatment) died before they could even reach the operating room. In such personnel- and time-constrained settings, this product can accelerate treatment and hemostasis.

Improved visibility could mean saving 10 people instead of just 6. In disaster medicine, not only the quality but also the speed of treatment is critical, and this product contributes to both.

— CEO, Physician, LotusLink Co., Ltd., Japan

To perform debridement in the correct position with minimal intervention, appropriate lighting—such as that provided by this product—is essential. In the treatment of contaminated wounds, lighting quality is directly linked to the quality of medical care.

— Executive,
Trading Company for Disaster and Emergency Medicine, Japan







Iraq: A sudden power outage occurs, and surgery continues in the dark using only the OPELA III.

2 Resilience of Medical Infrastructure

Supporting medical settings in normal times, ensuring continuity of care in emergencies.

Key Values

- Optimizing the use of limited electricity and fuel.
- Maintaining a critical healthcare delivery environment even during emergencies (especially at night). The time previously required for generators to start up during a power outage could potentially be used to save more lives.
- Creating an environment for procedures and surgeries regardless of the condition of the hospital's infrastructure (enabling treatment in outpatient areas, the ER, hallways, etc., during large-scale accidents or disasters).
- Independent power source unaffected by the status of the electrical grid.

A game changer for surgical lighting in low-resource settings.

CEO,
Physician, LotusLink Co., Ltd. Japan

In regions prone to power outages, this product is more than emergency backup lighting. As a battery-powered, surgery-grade light, it serves as a primary lighting source during routine care and maintains continuity of treatment during emergencies. It is a game-changing solution that redefines the role of surgical lighting.

Power Triage - Optimizing use of limited power resources in emergencies.

Clinical Engineer,
Disaster-Designated Hospital, Japan

During blackouts, emergency power cannot support all hospital equipment, making power allocation critical. Because this product provides independent, surgery-grade illumination, electricity normally consumed by large surgical lights can be redirected to essential equipment such as ventilators and air conditioning systems, enabling effective "power triage." It also allows treatment to continue in entrance halls or corridors immediately after a disaster when patients must be treated wherever space is available.

When a power outage occurred due to a missile attack, we were able to continue surgery using only this product until the generator started up. It enables the best possible medical environment under any circumstances.

— Pediatric Surgeon, Lviv Regional Children's Hospital, Ukraine

In conflict zones such as Syria, as well as in Africa and the Middle East, power outages occur multiple times a day. When surgical lights and room lighting go out, leaving only the light from flashlights or smartphones, battery-powered lighting that ensures an adequate surgical field becomes crucial for continuing surgeries.

— Representative, Plastic Surgeon, Emergenza Sorrisi, Italy

In field tent hospitals, it is necessary to efficiently utilize limited power generation capacity and fuel to maintain medical care, so we prioritize the use of equipment with low power consumption. This battery-powered product provides a stable lighting environment even under power constraints, supporting the continuity of medical care.

— Supply Chain Manager,
International Humanitarian Aid Organization











Ukraine: Medical station of the 1st Mechanized Batallion Military Unit A4123 in the Eastern front

3 Rapid Response Anywhere

Portable, Impact-Resistant, and Approved for Air Travel.

Key Values

- Free from lithium-ion transport restrictions, its nickel-metal hydride (NiMH) power source allows rapid deployment—carry-on or checked—in emergency scenarios.
- Overcomes traditional stand-type surgical light challenges—offering enhanced portability, effortless assembly, and field-ready durability.
- Ideal for space-limited environments like medical tents and containers, seamlessly replacing traditional surgical lights.

A practical alternative or complement to conventional surgical lights.

CEO,
NexGen MediQ AB, Sweden

In military field tests, the product operated normally even at –30°C. It can supplement or replace surgical lights in field and tent hospitals where fixed lighting is unavailable. Compact enough to fit in a small bag and suitable for air transport, it supports both battery and AC power, making it ideal for rapid deployment and continuous operation.

Designed for air transport, ready for humanitarian response.

Supply Chain Manager,
International Humanitarian Aid Organization

Modular surgical lights used in international aid are often air-freighted fully assembled because on-site setup is difficult, resulting in inefficient use of transport space. This compact product uses nickel-metal hydride batteries, enabling safe air transport with minimal space requirements. Easy to carry after arrival, it is also well suited for mobile medical clinics.

It is expected to be utilized in pop-up hospitals as well. Mobile medical units perform surgeries inside vehicles, but because space is limited, this product—which does not require space for ceiling lighting—is particularly useful.

— Partnerships,
Business Development and Procurement,
Unimed Procurement Services Ltd (Unimed),
United Kingdom

In medical missions to conflict zones and resource-poor countries, critical medical equipment is often carried on board aircraft. This product is compact, highly portable, and ready for use immediately upon arrival, making it a valuable tool for rapid medical deployment.

— Representative, Plastic Surgeon,
Emergenza Sorrisi, Italy

At a post-earthquake debris disaster site, handheld lights left both hands occupied, but this product made treatment much easier. The fact that anyone can wear it and use it immediately when needed is extremely useful in the field.

— Registered Physician, Medical Team,
Japan Disaster Relief Team

4 Sustainability

Low power consumption helps reduce environmental impact.

Ni-MH

Uses nickel-metal hydride batteries

-96%

Significantly reduced power consumption
(Compared to a stand-mounted shadowless lamp)

-93%

CO_2 Emissions Reduction*
(Compared to a compact floor lamp)

Equipment	Power Consumption
OPELA III Cx	Approx. 8 W
Compact Table Lamp	Approx. 36–45 W
High-intensity shadowless desk lamp	Approx. 108 W

* Calculated based on the International Civil Aviation Organization (ICAO) Carbon Emissions Calculator. Assuming the small stand lamp weighs 14 kg and the OPELA III Cx weighs 990 g, the CO_2 emissions during transport from Haneda Airport to Geneva Airport were calculated and compared.

Key Values

- Low environmental impact during manufacturing and disposal, easy to recycle.
- Requiring less energy to ensure the necessary surgical field illumination (lower power consumption compared to large lighting systems).
- Generating little heat during use, helping to reduce energy consumption by air conditioning equipment. This offers significant benefits, particularly inside medical tents and medical containers in hot and humid environments.
- Compared to freestanding surgical lights, it is compact and lightweight, significantly reducing transportation space and leading to lower shipping costs and CO_2 emissions.

Beyond environmental sustainability, enabling sustainable logistics and operations.

Supply Chain Manager,
International Humanitarian Aid Organization

As a battery-powered device, this product provides reliable lighting in environments with limited energy resources. Because disaster response depends heavily on air transport, battery type is a key consideration. Its nickel-metal hydride batteries offer advantages in transportability, operability, and sustainability, while also reducing environmental impact.

Built for circular resources. Designed for sustainable disaster response.

Partnerships, Business Development and Procurement, Unimed Procurement Services Ltd (Unimed), United Kingdom

In international aid and humanitarian assistance, sustainability factors such as environmental impact, battery recyclability, and disposal methods are becoming as important as product performance in procurement decisions. This product delivers value as disaster medical equipment by supporting resource recycling and sustainable operations.

— Our Approach to Sustainability —

- It provides the lighting environment necessary for surgery at an affordable price—not only in developed countries, but also in developing countries, disaster-stricken areas, and conflict zones.
- It is meticulously designed with long-term use, refurbishment, and resale in mind. As a result, rather than being based on the premise of heavy-maintenance or early disposal, it contributes to the realization of a sustainable product lifecycle.
- Unlike lithium-ion batteries—whose lithium and cobalt mining causes water depletion, hazardous waste, human rights issues, and faces recycling gaps—NiMH batteries are easily recycled to efficiently recover nickel and rare earth elements.



[Manufacturer]

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Wearable Surgical Lighting

OPELA III™ Cx

Wearable OR Lighting System
OPELAIII™:
Born From Surgeon's Experience



Product website

MADE IN JAPAN

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