

Hospital LED Retrofit in Brazil

HOSPITAL DE CLÍNICAS DA FACULDADE DE MEDICINA DE BOTUCATU AND HOSPITAL ESTADUAL DE BOTUCATU - BOTUCATU - SÃO PAULO, BRAZIL



The **Clean Lighting Coalition (CLiC)** aims to transition global markets to safe, cost-effective, and energy-saving LED lighting by supporting the removal of fluorescent lamp exemptions under the Minamata Convention on Mercury.

Retrofitting Hospitals with Mercury-Free LEDs

CLiC partnered with organizations in Brazil, Nigeria, and the Philippines to retrofit hospitals with energy-efficient, mercury-free LEDs. **Retrofitting is the process of removing fluorescent light bulbs and installing new, higher-efficiency LEDs** into the same wiring and fixtures. The pilots aimed to demonstrate that institutional buildings can easily and cost-effectively transition to cleaner lighting.

LED Retrofits...



- lower hospital energy costs,
- provide better quality lighting, and
- reduce the risk of mercury exposure for both patients and staff.

The pilots demonstrated practical steps hospitals—and other institutional buildings—can take to switch to LED lighting with minimal effort and significant economic and safety benefits.

Our partners provided data on the actual cost of purchasing and installing the lamps in three locations. They also estimated the “pay-back” period, or the time it will take to recover the initial cost of LED purchase through long-term electricity savings.

Saving Costs & Health in Brazil

The Clean Lighting Coalition partnered with **Projeto Hospitais Saudáveis (PHS)**, a non-governmental organization dedicated to the sustainability of the health sector, to support a dual hospital retrofit at **Hospital de Clínicas da Faculdade de Medicina de Botucatu (HCFMB)** and **Hospital Estadual de Botucatu (HEBO)**.

The project demonstrates how cost savings from an LED transition can be reallocated to improvements in hospital function and experience for patients and staff.

Furthermore, eliminating the risk of mercury exposure from broken fluorescent protects public health.

Electricity Rate in Brazil



| BRL | USD |
|----------|------------|
| 0.72/kWh | \$.014/kWh |

Initial Bulb Costs



| | BRL | USD |
|------|-----|--------|
| LFL | 15 | \$2.90 |
| TLED | 30 | \$5.80 |

Energy consumption cost & initial cost comparison between LFL and LED
Market data for cost collected between Q4 2021 and Q1 2022

Quick, Easy Transition Plans

Through the pilot, the two hospitals replaced **2200** fluorescents with LEDs, which will save **116,600 kWh** and **\$9,310 USD** per year. Projeto Hospitais Saudáveis (PHS) PHS worked with a technical team and the hospital staff to specify an adequate lamp in terms of ergonomics, efficiency and other relevant parameters to conduct the retrofit.

The retrofit process lasted 6 Months:

Results of the LED Retrofit

| | |
|--|-----------|
| LFL Lamps Removed | 2,200 |
| LED Lamps Installed | 2,200 |
| Payback Period (Months) | 5.8 |
| Annual Energy Savings (kWh) | 116,600 |
| Annual Financial Savings (USD) | \$9,310 |
| Annual CO ₂ Savings (MT CO ₂) | 5.85 |
| Mercury Avoided (g Hg) | 16.5 |
| Potential Water Polluted from Hg (liters) | 8,250,000 |

*MT= Metric Tons

*g Hg = grams of mercury

FEBRUARY

*Project set-up,
identify partner
clinic, meet with
stakeholders*

APRIL-MAY

*Conduct retrofit
lighting audit,
lamp selection &
purchase*

AUGUST

*Procurement
team training,
implementation &
analysis*

End Toxic Lighting Globally

For countries experiencing shortages in electricity supply and rising energy costs, switching to mercury-free LED bulbs offers a cost-effective and financially feasible solution to reduce energy.

As wealthy markets ban fluorescents, citing health risks and low-efficiency levels, un- and under-regulated countries will become targets for toxic lighting products. A global ban on fluorescents will ensure an equitable transition to mercury-free, LED lighting.

A brighter, healthier future is as simple as changing a light bulb - it's time to take action.



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