



# SUSTAINABLE HEALTH HOSPITAL GUIDE

## TABLE OF CONTENTS

1. Conservation of Water
2. Proper Waste Disposal
3. Alternative Energy Sources

### ➤ CONSERVATION OF WATER

ON AVERAGE, 43 GALLONS OF WATER IS USED PER SQUARE FOOT ON HOSPITAL SPACE

That's around 298,013 gallons of water per year

### ➤ PROPER WASTE DISPOSAL

U.S. HOSPITALS CREATE 5.9 MILLION POUNDS OF WASTE ANNUALLY

That's 6 pounds of waste per day

### ➤ ALTERNATIVE ENERGY SOURCES

NATURAL GAS IS EXPECTED TO RUN OUT IN LESS THAN 100 YEARS AND MOST HOSPITALS RELY ON IT AS THEIR MAIN FUEL SOURCE

[sustainable-health.org](http://sustainable-health.org)  
[sustainablehealth.info@gmail.com](mailto:sustainablehealth.info@gmail.com)

## Conservation of Water

Hospitals have extremely high water consumption and it's easy to see why- water is essential to the care they provide. On average, a hospital uses 43 gallons of water every square foot.<sup>1</sup> It was even calculated that a single hospital can use up to 298,013 gallons of water per bed, each year. Hospitals have already been successful in saving up to \$100,000 per year in implementing small, yet effective changes to decrease water consumption.<sup>2</sup> You can take action big or small - simply putting up signs around hospitals can make an impact!

Much of a hospital's water consumption originates from their bathrooms. The average bathroom has three different sources of water consumption: the toilet, sink, and shower/bath. All three of these are prone to leaks, therefore regularly monitoring to ensure there are no leaks will not only save the extra water from leaking out, but also keep the bathroom much safer. On older toilets that use more water per flush, installing a water displacement device inside the toilet tank will lead to less water used per flush. For sinks and showers, installing flow reducers that have less than 2.5 gpm can save the water flowing out of a faucet by at least 30%.<sup>3</sup> In addition, installing automatic shut off valves, or motion sensor-activated faucets can also prevent water waste.

The bathroom isn't the only facility draining unused water, so do outdoor sprinklers, dishwashers, laundry machines, and more. Installing soil moisture controllers will automatically stop the sprinklers when there is the perfect amount of water within the soil, preventing excessive water usage and property damage from the soil. For dishwashers and laundry machines, operating them at a full load, instead of a half load can reduce water usage. In a typical household, there is the potential of saving up to 3,400 gallons of water per year by using the laundry machine when it is full.<sup>4</sup> Just imagine how much water an entire hospital can save.

Finally, simple one time changes such as installing valves that have a higher than 60 psi to change water pressure systems, replacing different appliances that are air-cooled or "water-saving" (this is important to remember as most appliances wear out every few years), and installing a water softener within your buildings boiler can once again save more water than you may think. Implementing one of the numerous water conservation methods can make an extreme impact on your hospital, your patients, employees, and the planet!

---

<sup>1</sup>*Healthcare Environmental Resource Center (HERC)*, <https://www.hercenter.org/>.

<sup>2</sup>*Saving Water in Hospital - US EPA*.  
<https://www.epa.gov/sites/default/files/2017-01/documents/ws-commercial-factsheet-hospitals.pdf>.

<sup>3</sup>Morales, Maggie. "Ways Medical Facilities Can Reduce Water Consumption: Waterless Co Inc.." *Waterless Co. Inc.*, Waterless Co. Inc., 24 May 2018,  
<https://www.waterless.com/blog/ways-medical-facilities-can-reduce-water-consumption>.

<sup>4</sup>HealthTrust. "Blue Wrap Recycling - HealthTrust - Performance Improvement for Healthcare." *HealthTrust*, 4 Feb. 2020, <https://healthtrustpg.com/theforce/healthcare-innovation/blue-wrap-recycling/>.

## The Importance of Proper Disposal of Waste

U.S. hospitals create 5.9 million tons of waste annually.<sup>5</sup> That's about 6 pounds of waste daily. Of those 6 pounds, 1 pound of it is considered hazardous with potent chemicals, infectious materials, and radioactive material.

Anywhere between 70%-90% of the waste produced from hospitals originates from the operating room.<sup>6</sup> The operating room in conjunction with the rest of the hospital maintains high single use medical equipment usage which is predicted to have caused an 8-10% increase in national greenhouse gasses.

Certain pieces of medical equipment have the ability to be reused, but they aren't. Medical equipment including surgical forceps, endoscopes, and laryngoscopes<sup>7</sup> are never used again and thrown away after each patient. The consequence of the accumulation of medical waste like this is its destruction on the environment and public health. Medical waste contributes to carbon dioxide emissions as well as other poisonous toxins being released into the earth's atmosphere.

As another example, most hospitals utilize surgical blue wrap to help sterilize all their medical equipment. Not only is the tape an excess waste that hospitals don't need, it is also much more costly than other alternatives. Blue wrap is not reusable; it requires immediate disposal and hospitals have to regularly pay to replace it whenever it runs out. As a result, 225 million pounds of blue tape are disposed annually by the U.S alone.<sup>8</sup> In comparison to all of the other extreme expenses hospitals have, blue wrap is one that can be cut down significantly. It is also inefficient during transportation and handling. It often forms a hole or rips holes in surgical wraps causing more canceled surgeries, increased anesthesia times, and costly resterilization.<sup>9</sup>

Thankfully there are alternatives; rigid sterilization containers. They are much easier to transport, have no risk of tearing, work for continuous years without the need to replace it, and are much more cost efficient.<sup>10</sup>

---

<sup>5</sup>The Ohio State University College of Medicine. "What's Important: Operating Room Waste: Why We Should Care : JBJS." *LWW*,  
[https://journals.lww.com/jbjsjournal/Fulltext/2021/05050/What\\_s\\_Important\\_\\_Operating\\_Room\\_Waste\\_\\_Why\\_We.13.aspx?WT.mc\\_id=HPxADx20100319xMP](https://journals.lww.com/jbjsjournal/Fulltext/2021/05050/What_s_Important__Operating_Room_Waste__Why_We.13.aspx?WT.mc_id=HPxADx20100319xMP).

<sup>6</sup>"Health-Care Waste." *World Health Organization*, World Health Organization,  
<https://www.who.int/news-room/fact-sheets/detail/health-care-waste>.

<sup>7</sup>Center for Devices and Radiological Health. "Reprocessing of Reusable Medical Devices." *U.S. Food and Drug Administration*, FDA,  
<https://www.fda.gov/medical-devices/products-and-medical-procedures/reprocessing-reusable-medical-devices>.

<sup>8</sup> "25 Hospitals Setting the Standard for Sustainability in Health Care." *Practice Greenhealth*,  
<https://practicegreenhealth.org/about/news/25-hospitals-setting-standard-sustainability-health-care>.

<sup>9</sup> HealthTrust. "Blue Wrap Recycling - HealthTrust - Performance Improvement for Healthcare." *HealthTrust*, 4 Feb. 2020, <https://healthtrustpg.com/thesource/healthcare-innovation/blue-wrap-recycling/>.

<sup>10</sup> "5 Reasons to Not Use Surgical Blue Wrap for Sterilization." *Jewel Precision*, 21 Mar. 2022,  
<https://jewelprecision.com/blue-wrap-waste-reduction/>.

But what about all the tools hospitals use? Did you know most of it ends up in landfills? It's time to take advantage of the advances in healthcare that's been created to be able to sterilize medical equipment. Dry heat and wet heat are 2 ways that at extreme temperatures are able to properly sterilize contaminated equipment. In the long run these sterilization options will be much more efficient and cost-effective. Instead of hospitals having to purchase new surgical wrap or tools every month, they can purchase a set amount of rigid sterilization containers and dry/wet heat sterilization machines at once. The benefit ranges from financial savings as well as preventing the release of toxic chemicals from hospital's medical waste broken down in landfills which degrades the air we breathe. These toxins' effect on air quality can generate cancer, birth defects, and diseases which threatens public health and increases patient mortality thus adding to hospital burden.

## **Alternative Energy Sources**

Hospitals need to use a substantial amount of natural gas daily to be able to power the entire hospital each day. However this reliance is neither healthy nor viable especially taking into account that in less than 100 years all the natural gas on Earth is expected to be exhausted. Alternatives to natural gas such as solar and geothermal energy will not run out, produce no greenhouse gasses, and do not pollute the environment

Solar energy has environmental and public health benefits. Solar energy has been shown to reduce cardiovascular and respiratory issues amongst people by eliminating toxic smog within our air.<sup>11</sup> We recognize that solar panels aren't implemented due to not having enough room on the roof of a hospital, yet there are likely more places than you might think where they can be installed. Simply put, any square footage with even the slightest access to sunlight will be enough for a solar panel to work, even hospital parking lots.<sup>12</sup>

Hospitals unable to use solar energy might consider geothermal energy. Geothermal energy keeps our environment healthy and is reliable by constantly being able to provide the energy and sort of building, home, or place needs. The only downside is that it can be difficult to initially install. It requires digging extremely deep holes and it is recommended to have 1 hole per each ton of the building it is providing energy to.<sup>13</sup> However, the advantages received in return for installing geothermal energy pumps outweigh these costs especially in hospitals where it is exceptionally important to have energy 24/7.

Although we only mentioned two, there are numerous renewable energy sources. Solar and geothermal are two which can be installed directly at the location of the hospital. It's extremely important for hospitals to begin installing alternative energy providers before it is too late.

---

<sup>11</sup> "Incorporate Solar PV on Your Healthcare Facilities." *Incorporate Solar PV on Your Healthcare Facilities | Better Buildings Initiative*,

<https://betterbuildingssolutioncenter.energy.gov/toolkits/incorporate-solar-pv-your-healthcare-facilities>.

<sup>12</sup> "How Solar Panels for Hospitals NJ Are Powering the Healthcare Industry." *Infinity Energy*, 4 June 2021, <https://thenewutility.com/blog/solar-panels-for-hospitals-nj/>.

<sup>13</sup> "Solar Panels for Hospitals: Low Carbon Energy Co." *Low Carbon Energy Company*, 1 Dec. 2021, <https://www.lowcarbonenergy.co/solar-panels-sectors/hospitals/>.