

Pilot Study on Medinas's Environmental Benefits

By Daniel Brian

Medinas was founded with a single goal. We wanted to lower healthcare costs by helping hospitals reduce wasteful spending. And we've succeeded quickly. Over the past year we have saved hospitals over \$50 million in sales equivalency.

But the advantages of partnering with Medinas don't stop at cost savings. One additional side-benefit we're extremely excited about is how we've helped hospitals reduce their environmental footprint.

We piloted an environmental impact tracking program in Arizona over twelve months to quantify the environmental benefits of working with Medinas. What we found was that partnering with Medinas provides significant downstream and upstream environmental benefits to partner hospitals. Downstream, Medinas prevented toxic and radioactive e-waste from entering landfills. Upstream, Medinas helped prevent the unnecessary manufacture of new hospital equipment by ensuring the beneficial reuse of that equipment. The net benefits to natural resource preservation, greenhouse consumption, and a reduction to human health impacts are significant.

Downstream Environmental Benefits

When waste isn't recycled or reused, it usually ends up in landfills. Electronic waste like laptops or cell phones, commonly referred to as e-waste, is especially problematic in landfills because it contains multiple heavy metals, such as lead, that can lead to human health, groundwater, and soil impacts. Hospital e-waste poses the same heavy metal concerns as regular e-waste, with additional environmental impacts and human health risks caused by radioactive materials.

In our pilot hospitals, Medinas instituted a program to beneficially reuse hospital equipment that would otherwise end up in landfills. The numbers speak for themselves. For the 6 hospitals involved in the pilot:

- Over 33,000 lbs of equipment was diverted from landfills;
- Over 96% of the waste diverted was e-waste containing PCBs (Poly-Chlorinated Biphenyls), as well as heavy metals such as lead, mercury, and cadmium
- One quarter of all diverted waste contained radioactive materials, including Cobalt 60, which has a half-life of over 5 years.

We believe that the pilot is just the beginning. As we continue to bring the Medinas program to the remaining 6,200 hospitals in the United States, the downstream benefits of reducing waste-stream size and toxicity will scale accordingly.

Upstream Environmental Benefits

The environmental benefits of partnering with Medinas continue upstream as well. Because the equipment Medinas helped divert from landfills was all beneficially reused in clinical applications, each pound of waste diverted from landfills equals a pound of new electronic equipment that does not need to be manufactured. According to prevailing environmental literature, reuse is one of the only viable ways of reducing the lifecycle impact of electronics such as those used in hospitals, as recycling unfortunately does very little to reduce those impacts.¹ As a result, the reduction in manufacturing requirements led to the following environmental savings for our Arizona pilot partners:

- An over 60% reduction in greenhouse gas emissions as compared to purchasing new equipment, which is especially notable because a full 59% of hospital greenhouse gas emissions come from equipment procurement.²;
- A 50% reduction in human health impacts from manufacturing processes using radioactive materials and toxic metals; and
- A 42-50% reduction in metal, semimetal, and rare earth element usage as compared to purchasing new equipment.³

Conclusion

Medinas helps hospitals reduce their environmental footprint by both minimizing their downstream waste and preventing upstream manufacturing impacts. The combined impact cannot be overstated. With over 6,200 hospitals in the United States, our pilot program represented only 0.1% of all potential hospitals. And that isn't factoring in the over 9,280 ambulatory surgical clinics and 11,000 imaging centers who would also reduce their environmental impacts by partnering with Medinas.

At scale, Medinas will help hospitals alone divert over 17,000 tons of e-waste from landfills annually, moving them instead into beneficial reuse programs. Once we reach that scale, Medinas will be responsible for greenhouse gas reduction of over 1.042 billion kg of carbon dioxide each year from upstream impacts alone⁴, which is the equivalent of taking 221,000 cars off the road for one year.⁵

¹ <https://www.sciencedirect.com/science/article/pii/S0956053X19301825>;
<https://www.forbes.com/sites/viannevvaute/2018/10/29/recycling-is-not-the-answer-to-the-e-waste-crisis/#33bd6737381c>;

² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6465872/>

³ See Note 1.

⁴

<https://www.networkworld.com/article/2229029/computer-factories-eat-way-more-energy-than-running-the-devices-they-build.html>

⁵ <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>