

P R A C T I C E G R E E N H E A L T H

2012 Sustainability Benchmark Report

A Practice Greenhealth Member Benefit

AUGUST 2012



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Executive Summary

Insights for Goal Setting and Success

As sustainability in the health care community continues to evolve and expectations rise, health care organizations are becoming more strategic in the implementation of environmentally friendly practices. It's no longer enough to highlight a specific singular effort—today it is vital to demonstrate sustainability throughout everyday operations.

Each Sustainability Benchmark Report presents data building on the past several years to identify sustainability trends in the health care sector. Practice Greenhealth's *2012 Sustainability Benchmark Report*:

- Examines specific sustainable activities performed within health care organizations and within the local community;
- Presents detailed waste generation and recycling data, waste generation data normalized by different factors, and cost of waste data;
- Presents, for the first time, specific data on sustainable activities and identification of opportunities within the operating room (OR), based on metrics of Practice Greenhealth's Greening the OR[®] Initiative;
- Analyzes millions of dollars in savings from single-use devices, reusable sharps container programs, solvent distillation, energy efficiency, water conservation and associated reductions in CO²;
- Presents detailed green procurement data on green cleaning, reusable products, energy efficient lighting and equipment, and more;
- Examines recent trends in sustainable practices in food services;
- Analyzes energy use by temperature zone;
- Looks at other trends in *specific* sustainable activities performed in Award winning hospitals.

The Collective Experience of Leading Hospitals

For the fourth consecutive year, Practice Greenhealth presents comprehensive data illustrating the progress of sustainability across the health care sector as health care facilities navigate their path toward better patient and staff wellness, a healthier environment, and a better bottom line. This one of a kind report provides the information needed to benchmark each hospital's practices against the collective progress of leading hospitals and can help identify areas to address to increase green activities. The report is comprehensive, presenting organized information based on the best practices of the healthcare community in one place to serve as a vital reference guide.

The Practice Greenhealth Sustainability Benchmark Report provides health care professionals the comprehensive data and insights needed to evaluate a facility's performance against sector standards to guide strategic planning and execution of sustainability programs.

Key Savings from this Year's Report

Additionally, compelling findings have been called out to highlight interesting trends. This year, the 149 Award winning hospitals in our data set **saved \$55 million** through recycling, energy and water conservation and avoided waste generation. A summary of results include:

Savings from:	Amount of Waste Prevented	Dollars Saved	Table in Report
Recycling	64,800 tons	\$16.8 million	Text above Table 13
SUD Reprocessing	333 tons	\$18.3 million	Table 17
Reusable Sharps Container Programs	1,656 tons	\$749,000	Table 18
Solvent Distillation	39,510 gal distilled 37,725 gal reused	\$494,000	Table 29
Efficiency			
Electricity	72 million kWh =50,000 metric tons CO ₂	\$14.3 million	Table 57, 58
Natural Gas	—	\$1.4 million	Table 57
Fuel Oil	200,000 gallons	\$165,000	Table 57
Steam	7 million pounds	\$975,000	Table 57
Water	150 million	\$1.3 million	Table 63
TOTAL	—	\$55 million	Table 67

This detailed information can help green teams assess the quality and measurement of sustainability programs, resulting in action plans that will provide results. Practice Greenhealth is dedicated to embedding sustainability into daily operations to advance the environmental responsibility of the health care sector. We are all one team, and succeeding independently is as important as succeeding as an enterprise. Practice Greenhealth hopes this report will inspire all hospitals to engage to their fullest extent in sustainability and will help each hospital set goals.

1.0 Introduction

Practice Greenhealth is proud to present its **fourth annual Sustainability Benchmark Report**, which documents the advancement of sustainability in healthcare for its 2012 Award-winning facilities. This report illustrates not only a snapshot in time of the progress Practice Greenhealth Award winners have achieved relative to the integration of sustainable practices into their operations, but the overall progression of our members' journeys as they incorporate sustainable practices into so many different areas of their operations. This progress is reflected in healthcare facilities all across the country, as many hospitals who started with several "greening" projects a few years ago are now implementing comprehensive sustainability programs that institutionalize sustainability in their organization, and across entire health systems. The benefits of these programs are far reaching—and impact patients, staff, the local community, the environment and the organization's bottom line.

The 2012 Sustainability Benchmark Report includes activities reported by 171 winners of the **Partner for Change (PFC)**, **Partner for Change with Distinction (DIST)** and **Environmental Leadership Circle (ELC)** Awards won in Practice Greenhealth's 2012 Environmental Excellence Awards Program. These Awards were presented at CleanMed in Denver, Colorado in May of 2012 with the celebration of the Awards program's tenth anniversary! The Awards program has significantly advanced its reporting capabilities since its inception in 2002, and we are excited to provide even better data analysis of sustainability trends and benchmarks with this report. We would like to thank all of the Practice Greenhealth members who participated in completing the lengthy PFC Award application, upon which this report is based.

New this year, the data has been reviewed and presented by a statistical firm using the Statistical Package for the Social Science (SPSS) for increased validation of the data. The data set is larger than that presented in last year's report, which consisted of 141 Award winners. Also new this year, a subset of 14 clinic and 8 long term care (LTC) data has been analyzed and is presented in Appendix 1; these facilities are part of health system that are Practice Greenhealth members.

Because Practice Greenhealth's electronic Award submission capabilities began in 2009 and were significantly expanded in 2010, most of the tables presented herein provide data beginning in 2009 or 2010. Each year the application is improved and new additions are made, so some tables will begin with data from 2011 or even 2012. All of the 2012 data presented in the tables is in bold for ease of review.

We hope you find the 2012 report useful in your pursuit for greater organizational sustainability.

Sincerely,

Lin Hill
Director of Awards
Practice Greenhealth

2.0 THE DATA SET

The Partner for Change Award application is used to determine Partner for Change (PFC), Partner for Change with Distinction (DIST) and Environmental Leadership Circle (ELC) winners. The following analyses have been done using data provided by the 171 PFC Award applicants who received a PFC or higher Award (a number of the PFC applicants receive Partner Recognition, which is not included in these results). The PFC application is designed for hospitals, but has been used by larger clinics and long term care facilities (LTCs) if they are members of health systems that have system memberships with Practice Greenhealth. This year, 149 hospitals, 14 Clinics and nine LTCs applied for Partner for Change Award. The data in the main body of this report represent the **hospital data only**, while the clinic and LTC data is reported in Appendix 1. Eighty-two percent (82%) of the hospitals in this data set are acute care. (A shorter more specific application for clinics and LTCs will be available in the future). As you can see in **Table 1**, 99 of the 171 PFC applicants received PFC, 44 received DIST and 28 received ELC. Note that because the DIST and ELC groups are small, just a few answers can change the percentages reported in the tables significantly. For ELCs, each facility represents about 3.5% of that data set, for DISTs, each represents 2.3%.

Please note that some of the sample sizes by facility type are rather small, particularly the clinic and long term care groups. Assessment between these smaller groups is not recommended. Hospitals comprise the majority of the facility types. PFC winners comprise the majority of the Award winners. More detailed information on the data set (range of APD, Square footage, etc) is presented in Appendix 2.

Table 1: The Data Set

PFC applicants represented by type of facility:	Sample Size
Hospitals (82% are acute care)	149
Clinics ¹	14
Long Term Care Facilities (LTC) ¹	8
Total PFC, DIST and ELC winners	171
Hospital applicants presented by Award won:	Sample Size
PFC	80 (54%)
DIST	41 (27%)
ELC	28 (19%)
Total hospital PFC, DIST and ELC winners	149
1) presented in Appendix 1	

Award Types

A brief description of the three Award types is presented here, but for a more detailed description please visit our website at: <http://practicegreenhealth.org/awards/award-types>.

The **Partner for Change Award** recognizes health care facilities that have established environmental programs and continuously improve and expand upon these programs on the path to sustainability.

Minimum qualifications for the PFC Award include:

- Recycle 15% or more of their total waste stream
- Have a mercury eliminate on program in place with a plan for total elimination, and
- Have implemented of a number of successful pollution prevention projects or sustainability programs.

The **Partner for Change, with Distinction Award** is a competitive Award that recognizes healthcare facilities that have well established environmental programs and are the cream of the PFC crop.

Minimum qualifications for the PFC with Distinction Award include:

- A 20% or greater recycling rate with an RMW generation of 10% or less
- Demonstrate progress in the basics, such as an EPP policy, RMW reduction techniques, green cleaning, and IPM.
- Describe specific progress in a number of less “basic” categories such as food, Greening the OR®, Greening the Supply Chain®, energy and water, or other real innovation.
- A show of leadership in the local community and/or in the health care sector

The **Environmental Leadership Award** is the premier Award recognizing health care facilities that exemplify environmental excellence and are setting the highest standards for environmental practices and sustainability in health care. This is our most competitive Award.

Minimum qualifications for the ELC Award include:

- Meet all of the criteria for the mercury-free Award, (or won MMMF in the past)
- Achieve a 25% or greater recycling rate, with an RMW generation rate of 8% or less
- Made significant Progress in just about every area on the application
- Lead the health care sector in innovation and sustainability, and
- Demonstrate leadership in the local community

Statistical Methodology

Data analysis was completed using SPSS (Statistical Package for the Social Sciences). SPSS is a good tool in the management and reduction of data because it allows you to create new variables, modify old and new ones, and provide special treatment for certain cases with missing data. The statistical techniques employed include univariate, descriptive statistics and frequency distributions along with multivariate techniques of cross tabulation, comparative means and multiple regression.

Data Cleaning and Identification of Outliers

The distributions of the continuous measures collected in the questionnaire are mostly skewed toward the higher values. That is to say there are fewer large and very large facilities and many smaller facilities. Facility size and work volume are also reflected in the facilities’ inputs of the environmental resources of energy and water and the outputs of the various waste streams and thus, these measures too are skewed. Such non-normal distributions may evidence extreme values which are legitimate. For example: If one were to undertake a study of human settlement size in Mexico, one might be inclined to remove an exceptionally extreme case with a population of nearly 20 million. A settlement of this size would comprise close to 20% of the entire population of the nation and one might reasonably deem this as unrealistic and remove it as an errant case. However, with cautious examination of the data, one would learn that this is Mexico City—a large city in a developing country—and that the value for population size is not errant.

Social organizations like cities and healthcare facilities, as well as biological organisms, are less numerous as their size increases. Moreover, bigger places tend to consume more resources and create more waste. Therefore, extreme cases for all of the continuous

measures were examined on a case-by-case basis. If an extreme value was observed for a case which had no other measures with extreme values, this was considered an errant value for that measure and was suppressed from further analysis. However, when extreme values on one measure were partnered with extreme values on the other, these were taken as valid since large is large.

From the original measures, many new variables were created with the division of the waste and environmental resource measures by various normalizing factors such as adjusted patient day (APD) and square footage. These ratios were then assessed for extreme values. Unlike the original, skewed measures, these newly computed ratios may be expected to be distributed more normally. If a case's value for a particular measure was over four standard deviations beyond the mean, these values were deemed errant and suppressed from further analysis. (Four sigma units approximate a one in one thousand chance of being correct or a 99.99% chance of being wrong.) If a case was three standard deviations beyond the mean, around a 99% chance of being wrong, graphic inspection of box plots was undertaken to observe whether the case was truly an outlier in its distribution or if it might be accompanied by other extreme values. Solitary outliers were deemed errant and suppressed from future analysis.

DISCLAIMER

Please note that all of the data contained in this report is taken directly from Award applications, and has been analyzed by an outside statistical firm, and reviewed by Practice Greenhealth staff. A thorough statistical review increases the quality of the data presented, but Practice Greenhealth cannot guarantee the accuracy of the data. Accidental errors may occur by applicants, or during analysis and review. Overall, however, Practice Greenhealth feels the data presented in this report is adequately sound and represents the best sampling of sustainability benchmarks, specific activities, trends and identification of growth opportunities available anywhere in the sector today.

3.0 RESULTS

I. SUSTAINABILITY AND ENVIRONMENTAL INFRASTRUCTURE

Community Benefit Reporting

Not for profit hospitals are required to defend their not for profit status to the Internal Revenue Service (IRS). Through the IRS, Form 990 Schedule H, hospitals can list their community building activities. While only some environmental stewardship activities meet the current definition of community building activity, the form, in Section 6, does offer a place to add additional information. Other environmental stewardship successes for the year could be placed in this section. This can be helpful in making the connection between environmental stewardship activities and community benefit. It is also a way to ensure that stewardship programming is included in the organization's community benefit report. This vehicle helps to educate leadership, staff and the community on the connection between human health and environmental health and the critical role environmental stewardship plays in protecting human health, mission demonstration and the future of health care.

The percent of facilities preparing community benefit reports increased for PFC and DIST winners and remained high for ELC winners. An impressive increase in the percent of facilities that include sustainability in these reports was also observed and is represented in **Table 2**, with PFC and DIST winners growing from 50% in 2010 to 69% and 79% in 2012, respectively. Eighty percent of ELCs also include sustainability activities in their community reports.

Table 2: Community Benefit Reporting

Community Benefit Reporting	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
PFC winners who have won PFC previously	46%	64%	58%	98%	—	—	89%
Facilities that are non-profit	90%	92%	94%	100%	96%	100%	93%
Facilities that prepare a community benefit report	81%	86%	89%	93%	92%	100%	93%
Facilities that include sustainability activities in their community benefit report	50%	59%	69%	79%	79%	70%	80%

Table 3 depicts progress in sustainability infrastructure within Award-winning facilities. This infrastructure supports a sound sustainability program and will facilitate success of the sustainable activities in presented in **Table 4**. The data strongly suggest that in order to have a successful environmental program, a facility must have a Green Team or equivalent—one person cannot do this on their own. Our hospitals report broad representation from many different departments within the facility as expressed in detail in **Table 5** below. Fully 100% of the winners have a green team. The data also indicate that the most successful programs are more likely to have a designated sustainability office, and have that position be full time.

TREND: Almost every hospital winning PFC or higher has a Green Team, and more facilities reported calculating payback periods for projects that require capital funding and more reported that they presented that information to upper administration.

Table 3: Sustainability Infrastructure

Sustainability Infrastructure	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have an overall environmental policy that guides your sustainability efforts.	—	—	—	48%	51%	—	—	86%
Have a “Green Team”	97%	96%	84%	100%	100%	96%	100%	100%
Team has mission statement or charter	—	—	—	78%	85%	—	—	86%
Are part of a larger system and have a corporate level greening oversight committee	—	—	—	84%	83%	—	—	86%
Have oversight committee (above) and report Green Team metrics	—	—	—	79%	83%	—	—	71%
Part of a System and have calls or structure to communicate with other green teams	—	—	—	84%	83%	—	—	86%
Have System wide goals	—	—	—	80%	85%	—	—	71%
Have a designated sustainability officer	33%	54%	57%	63%	76%	75%	61%	71%
Have a full time sustainability officer	—	31%	69%	41%	66%	46%	61%	57%
Have someone on staff who is responsible for sustainability within their job description (but not by title)	45%	38%	34%	31%	22%	38%	65%	46%
Track their environmental improvement initiatives in the Joint Commission structure	52%	52%	39%	33%	54%	46%	48%	57%
Provide new employee orientation on environmental initiatives	82%	78%	68%	60%	68%	75%	78%	82%
Provide annual training on environmental initiatives	—	60%	61%	58%	76%	83%	83%	82%
Clinicians involved in environmental programs	95%	90%	89%	91%	90%	96%	100%	100%
Nurses	78%	86%	95%	98%	89%	96%	96%	100%
Physicians	—	87%	79%	83%	84%	92%	100%	93%
Calculated payback period for sustainability activities that have up-front costs	—	—	58%	68%	98%	—	48%	68%
Owners, shareholders or Board has been presented with information on potential or actual return on investment (ROI) for sustainability projects	—	—	58%	61%	78%	—	57%	68%

Table 4 illustrates specific activities performed by our Award winners (within their facilities) to further sustainability. Almost all the hospitals represented in our data set reported interfacing with senior leadership or their board on sustainable activities in 2012 (98% PFC, 100% of DIST and ELC), showing an increased awareness and interest in sustainability from the C-Suite. This is quite an increase since Practice Greenhealth started tracking this data in 2010, where only 75% of PFC winner and 87% of ELC winners reported this interaction. As the sustainability “movement” matures, Award winners reported an increase in most of the in-house activities reported in this table since just last year.

Table 4: Sustainable Activities

Sustainable Activities In-house	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Shared sustainable activities with senior leadership team and/or address board of directors	75%	93%	98%	100%	87%	100%	100%
Developed an environmental commitment statement	65%	69%	73%	71%	91%	70%	64%
Integrated sustainability into at least one grand rounds event this year	39%	49%	48%	54%	43%	65%	82%
Added language to job descriptions on our commitment to the environment and the role that each employee plays.	16%	21%	29%	32%	43%	35%	43%
Added sustainability measures for leadership staff performance evaluations	25%	34%	39%	44%	35%	35%	54%
Sent at least one green team member from each site to CleanMed for Award receipt	43%	61%	55%	76%	65%	70%	68%
Developed, improved or advertised sustainability website or webpage on Intranet	47%	64%	63%	73%	61%	74%	93%
Created videos on sustainability for in-house use	18%	28%	34%	51%	61%	57%	61%
Held low or zero-waste picnic for employees	3%	10%	15%	27%	43%	48%	46%
Include questions about sustainability program in employee engagement survey	4%	7%	21%	17%	17%	30%	46%
Developed Strategic Plan around sustainability that identifies short, medium and long term goals .	45%	63%	65%	81%	35%	83%	86%
Created a healing garden for patients and staff	46%	43%	45%	59%	61%	70%	54%

Who's Who in Healthcare Sustainability

Because sustainability is so diverse and healthcare facilities are so complex, it is not surprising that one champion alone cannot “green” an entire hospital. It takes representatives from many departments throughout the facility to create a successful green program. The best green teams have broad representation from many departments throughout the hospital. **Table 5** indicates which departments were represented on award-winning hospital green teams.

TREND: Green teams at member hospitals are becoming even more diverse. Not only was there increased participation from most of the departments below, but the “other” list grew substantially from last year. This suggests that staff from all departments are becoming more interested in—and likely more educated about—sustainability.

“Other” departments represented this year include: Surgical nurses, MIS, Pharmacy, Chaplain Services, Information Technology (IT), Laboratory, Billing and Coding, Education, HR/Finance, Child Care Services, Design and Construction, CIO, Union, Community Health, Respiratory Services, Marketing, Parking and Security, Volunteer Services, Operating Room, Rehabilitation, Patient Escort, Patient Relations, Patient Education, Diagnostic, X-Ray/Medical Imaging/Radiology, Community Liaison, Legal, Parking/Transportation, Pathology, Physician Services, Mission, Operational Excellence, Laundry and Linen, Central Sterile Processing, CFO, Bio Med, Ancillary Services, Genetics, Social Services, Perioperative Services, and Clinical Engineering.

Table 5: Departmental Representation on Green Teams

Department	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Environmental Services	96%	97%	98%	98%	96%	100%	100%
Facilities	87%	96%	95%	95%	92%	91%	96%
EH & S	39%	61%	66%	51%	50%	57%	79%
Materials Management	88%	92%	95%	93%	88%	100%	96%
Engineering	80%	86%	84%	100%	63%	78%	82%
Safety	78%	79%	86%	78%	71%	70%	79%
Administration	86%	86%	93%	93%	67%	83%	89%
Nutrition	72%	81%	80%	71%	50%	83%	93%
Nursing	90%	92%	90%	93%	83%	91%	96%
Infection Control & Prevention	46%	50%	53%	37%	46%	48%	50%
Physicians	34%	45%	41%	42%	33%	35%	50%
Communications/Marketing	65%	81%	75%	78%	58%	74%	93%
Food Services	87%	90%	89%	88%	79%	96%	100%
Risk Management	26%	25%	38%	20%	25%	22%	25%

II. A CULTURE OF SUSTAINABILITY

As a complement to in-house sustainable activities reported in Table 3 above, **Table 6** illustrates hospitals' specific activities to share sustainability with their local community, while **Table 7** illustrates hospitals' specific activities to spread sustainability throughout the healthcare sector.

TREND: Although only two years of data has been collected for these measures, many of the numbers have increased—some notably. Note the rise in the creation of sustainability reports as part of community benefit reporting, creation of sustainability webpages, and display of signage on environmental programs to patients. As facilities increase their level of engagement on sustainability, they are more likely to make the effort to work with city government or local organizations (43% of PFC vs. 68% of DIST vs. 93% of ELC winners met with city or local representatives; 60% of PFC vs. 88% of DIST vs. 96% of ELC shared information on sustainability programs with local businesses, community groups or schools). In addition, ELC winners were about twice as likely as PFC winners to include environmental sustainability in advertising campaigns. Percent of winners using local media to celebrate sustainability activities or receipt of their Award also rose steeply.

Table 6: Leadership within the Local Community

Leadership within the Local Community	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2011 ELC Winners	2012 ELC Winners (Performed Previously/ Performed In 2012)
Held thermometer swap	4%	4%	7%	9%	21%
Held pharmaceutical take-back event	18%	20%	32%	39%	54%
Held electronics collection event	28%	29%	39%	26%	29%
Handed out or collected compact fluorescent lamps	19%	24%	17%	17%	25%
Held Earth Day Event for patients and staff	81%	78%	83%	83%	86%
Created a sustainability report as part of the community benefits report	39%	45%	71%	65%	75%
Developed a sustainability webpage for the public on facility website	38%	34%	54%	52%	68%
Displayed signage visible to patients describing recycling or other environmental programs	48%	59%	81%	95%	93%
Used local media to communicate sustainability activities to the community	60%	61%	85%	74%	89%
Received media attention /local press around PGH Award	29%	38%	61%	83%	82%
Met with city government reps or local organizations to promote sustainability locally or plan local events (like Clean Air days)	44%	43%	68%	83%	93%
Shared information on sustainability programs with local businesses, community groups, schools etc.	57%	60%	88%	96%	96%

Educated community on environmental topics (example: provide information on proper medication disposal when issuing prescriptions)	46%	55%	61%	78%	93%
Include sustainability in advertising campaigns	20%	26%	34%	39%	50%
Highlight PGH membership to employees and/or visitors	55%	69%	66%	83%	86%

Table 7 presents sustainable activities performed in the Health Care Sector. Predictably, once a facility has a well-established sustainability program, they are more able and more likely to share their experiences within their own health systems and make presentations outside their own organizations, mentoring facilities in different ways. The DIST winners clearly outperformed the PFC winners in this category, and were themselves outperformed by ELC winners. This makes sense, as the more advanced winners share their knowledge as they mentor the rest of the sector along their respective “green” journeys.

Table 7: Sustainability in the Healthcare Sector

Sustainability in the Health Care Sector	2011 PFC Winners	2012 PFC Winners	2102 DIST Winners	2011 ELC Winners	2102 ELC Winners
Presented at a state-wide Meeting	41%	30%	66%	78%	79%
Presented at a national meeting (AHE, ASHE, CleanMed, etc.)	34%	33%	68%	48%	75%
Presented at a health system meeting	58%	56%	76%	83%	82%
Mentored another hospital <i>within</i> same health system	63%	66%	85%	74%	89%
Mentored another hospital <i>outside</i> its health system	53%	44%	85%	83%	93%
Was interviewed by local TV or Radio for broadcast	31%	31%	42%	57%	64%
Signed on to Healthier Hospitals Initiative’s™ Healthier Hospital Agenda (www.healthierhospitals.org)	19%	25%	42%	26%	36%
Engaged in socially responsible investing	27%	29%	42%	17%	29%

III. NORMALIZATION OF DATA

Data must be “normalized” in order to compare metrics among facilities or even for measuring one’s own progress. No two hospitals are exactly alike, even within the same health system, and Practice Greenhealth is comparing hospitals of all types and sizes located across the country. In addition, each hospital will vary in how busy they are from year to year. Thus, there is a need to be able to normalize the data to make accurate comparisons.

For example, if a hospital notes an increase or decrease in one of its waste streams, it needs to be able to determine if the change was due to a particular program (such as implementation of a new waste minimization project) or if the hospital had a higher patient volume (or census) than the year prior.

A search for the best normalization factors was undertaken using multiple regression techniques correlating sets of normalization factors with selected waste stream and environmental resource variables and through latent factor analysis among just the normalizers. Consistently, it was learned that while all of the normalization factors are rather strongly related to each other, each of them may offer some uniqueness depending upon the waste stream or environmental resource variable being considered. Rather

than offering an ideal, the appropriate normalization factor should be selected according to three considerations – meaningfulness, comparability, and availability.

Some factors are simply more intuitively meaningful for certain measures than others. Square footage of the facility when normalizing electricity consumption exemplifies this consideration of *meaningfulness*. As for *comparability*, only certain factors were used historically so contemporary comparisons will always need to employ factors such as number of staffed beds. The *availability* consideration is related to the idea that some facilities may not maintain or collect information on certain factors, such as APD, or the data set may have too many errant values for a particular factor, such that another normalization factor must be used.

Normalization factors

Below are ten normalizing factors considered by Practice Greenhealth within this data analysis. Although these factors are commonly found in health care, a description of how each is determined and some pros and cons of the particular factor are presented immediately below. Detailed information on the range of normalization factors for this data set is presented in Appendix 2.

- **Adjusted Patient Days:** Some variation of adjusted patient days (which takes into account inpatient and outpatient activity) is often a very good normalization factor. Many hospitals use Adjusted Patient Days (APD), which are generally calculated as:

$$\text{APD} = (\text{Total Patient Days}) * (\text{Total Patient Revenue} / \text{Inpatient Revenue});$$

where total patient revenue = inpatient + outpatient revenue.

- **Patient or Inpatient Days:** to be used only if a facility does not use Adjusted Patient Days.
- **Licensed and Staffed beds:** Many hospitals use daily beds or patient/inpatient days to track internal activity. These types of normalization factors change daily. While “staffed beds” is a more accurate normalization factor than “licensed beds,” by definition it changes daily, which makes it harder to obtain and use; licensed beds remain constant, which increases ease of use, but often exceeds the more “real” staffed bed numbers. Practice Greenhealth uses staffed beds for ease of comparison in this report, but remember to note that it does not take into account outpatient activity.
- **Employees:** Practice Greenhealth uses the term “full time equivalents” or “FTEs” in the report to designate the number of staff at a facility. This is a good normalization factor because it takes into account inpatient and outpatient staff. It is also a number that every facility can easily determine. Practice Greenhealth uses this factor in the waste analyses.
- **Outpatient Visits:** For facilities that have a lot of clinics, outpatient visits may be a useful number to use. Clinics and university hospitals generally have a higher proportion of outpatient visits than a typical hospital. However, since there is no accounting for inpatient activity in these numbers, using outpatient visits alone to normalize hospital waste data does not provide very useful information. Practice Greenhealth will not be using these numbers for normalization in this report.
- **Operating Rooms and Number of Surgical Cases Performed:** For some of the waste generated, such as Regulated Medical Waste, the number of operating rooms or number of surgical cases performed (a new variable collected this year) could be a good normalizing factor.
- **Number of ER Visits:** This is a new variable collected this year and tracks visit to the Emergency Room.
- **Square Footage:** Square feet can be an excellent normalization factor when looking at energy data. Square footage also indirectly takes into account inpatient and outpatient activity.

In past Benchmark reports, Practice Greenhealth has relied primarily on **adjusted patient days** as the normalization factor of choice, since this number accounts for both **inpatient and outpatient activity**. This report will also use other normalization factors, for the reasons discussed herein. **The number of employees, expressed as full time equivalences (FTEs) and operating rooms (ORs) were this year’s best predictors of total waste generation.**

There are a number of tables within this report that use “percentage of the data set” to report data; for example percent of applicants participating in a specific greening activity. This helps to trend sustainability activities in the sector and does not require any normalization factors.

IV. WASTE PROFILING

How to Interpret the Data Tables

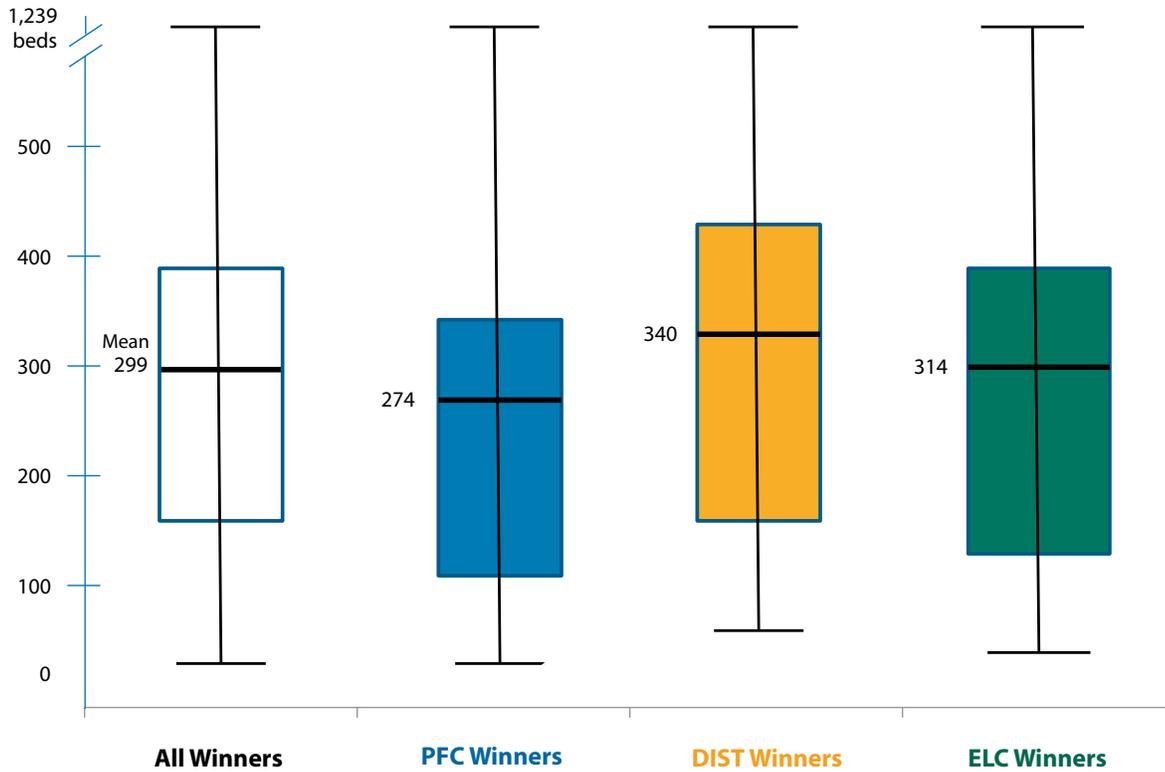
Electronic data submission began with the 2009 Awards program cycle, allowing the creation of the 2009 Metrics Benchmark Report. ELC data was not included in that report because ELC winners were, at that time, filling out a different Award application. The 2009 Award application was significantly shorter, so many of the tables presented here do not have 2009 data. The DIST Award category was created in 2010. In the 2010 and 2011 Sustainability Benchmark Reports, Practice Greenhealth combined the Partner for Change (PFC) and Partner for Change *with Distinction* (DIST) Awards data for simplicity of representation and to compare these winners to the top performing ELC hospitals. This year, however, as each Award category continues to grow, we have presented the PFC, DIST and ELC data separately for a more detailed comparison. Data is collected and presented in the tables and figures on an average annual basis, unless otherwise noted. As noted above, all 2012 data is in bold.

How to Interpret Box and Whisker Plots

Box and whisker plots are simple graphic devices used to display the distribution of a single, continuous variable. Such plots require only five points to be constructed, and illustrate the minimum and maximum values of that variable, the mean, and the two inter-quartiles (the 25th and 75th percentiles) across its range. We have used a vertical orientation of the box plot in this report (when drawn horizontally, the cat's "whisker" analogy is more obvious). The bottom of the box indicates where the 25th percentile of the distribution falls, the top of the box indicates the 75th percentile. The black horizontal line in the box represents the mean. The whiskers extend out beyond the box to indicate where the top and bottom 25% reside. Where the whisker line terminates with a cross bar or "T" represents the absolute minimum or maximum for the range of the plotted variable.

For example, in **Figure 1**, the white box depicting staffed beds for all Award winners, shows that the mean, or average, was 299 staffed beds. The white box illustrates the 25th quartile to the 75th quartile (the bulk of the data), with the lowest value around 20 and the highest value of 1,239 staffed beds. If the data were exhibited using bell curves, the more common values show up under the tallest part of the bell curve; here the more common values for each Award level are represented by the colored boxes, blue for PFC, orange for DIST and green for ELC winners, respectively.

Figure 1: Box and Whisker Plot of Staffed Beds



Waste and Recycling Data

Table 8 illustrates the Award winners' **waste profiles**. The four waste types are presented as a percentage of total waste stream (or "what percent of a hospital's total waste is solid waste, recycling, Regulated Medical Waste (RMW) or hazardous waste?"). Because each waste stream is presented as an average percentage of a facility's total waste stream, no normalization factors are necessary. The Reduce, Reuse, Recycle numbers includes recycling and prevented or diverted waste for 2009, 2010 and 2011, but only recycling for 2012. Average waste distribution profiles are presented in **Figure 2** and average waste cost profiles are presented in **Figure 3**.

TRENDS: Even when eliminating diversion from Recycling, the recycling percentages remained fairly steady, illustrating an actual increase in recycling, since diversion was removed but the numbers remained relatively constant. As exhibited in previous reports, ELC winners have slightly higher recycling rates, and lower solid waste and RMW generation. PFC winners exhibited a decrease in solid waste generation and an increase in RMW generation from 2009 to 2012. Hazardous waste percentages remain low for all winners over time, with percentages slightly increasing from PFC, to DIST to ELC, which most likely represents more advanced identification and handling of pharmaceutical wastes. An increase in hazardous waste percentage can also be caused when a hospital disposes of non-RCRA regulated waste pharmaceuticals as hazardous because they have been recognized to be problematic when released to the environment.

Table 8: Waste Distribution as Percent of Total Waste Stream

Waste Type	Average % of Total Waste Stream							
	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Solid ¹	68%	66%	64%	63%	64%	56%	56%	56%
RRR ²	24%	24%	25.5%	25%	27%	36%	38%	37%
RMW	8%	9%	9%	11%	8%	7%	5%	7%
Hazardous ³	<1% (0.46)	1% (1.1)	0.5%	0.5%	0.6%	1% (0.6)	1% (0.9)	0.7%

1) Some of the **solid waste** numbers may contain treated **RMW** (e.g. when treated onsite by autoclave before being land filled), which drives the solid waste percentages up and the RMW percentages down.
 2) The **Reduce, Reuse, Recycle** numbers includes recycling and prevented or diverted waste for 2009, 2010 and 2011, but only recycling for 2012.
 3) The **hazardous** waste percentages were generally reported as less than 1 percent, but this number should not be zero for any hospital. This number may actually increase at a facility as their awareness for identifying and properly handling RCRA hazardous pharmaceutical waste increases.

Figure 2 uses a bar chart to represent the average waste profile data from **Table 8**, while **Figure 3** presents the associated average cost profile for these waste streams. Solid waste and RMW tend to eat up the vast majority of the waste disposal budget, but in different proportions than the amount of waste generated. Of note, but no surprise to waste managers, is the tiny amount of hazardous waste generated by our winners in 2012 (less than 1%) takes about a tenth of their waste handling budget (on average, from 8% to 12%). Similarly, the 7-11% of RMW generated eats up a large percentage of the waste handling budget (on average, between 35% and 41%). Solid wastes, of course, are cheaper to dispose, but still take up nearly half (around 45%) of the waste disposal budget because of its large volume and weight. Average disposal costs for the different waste streams will be discussed in the next section, II. Costs of Health Care Waste Streams.

Figure 2: Average Waste Distribution for Award Winners by Category

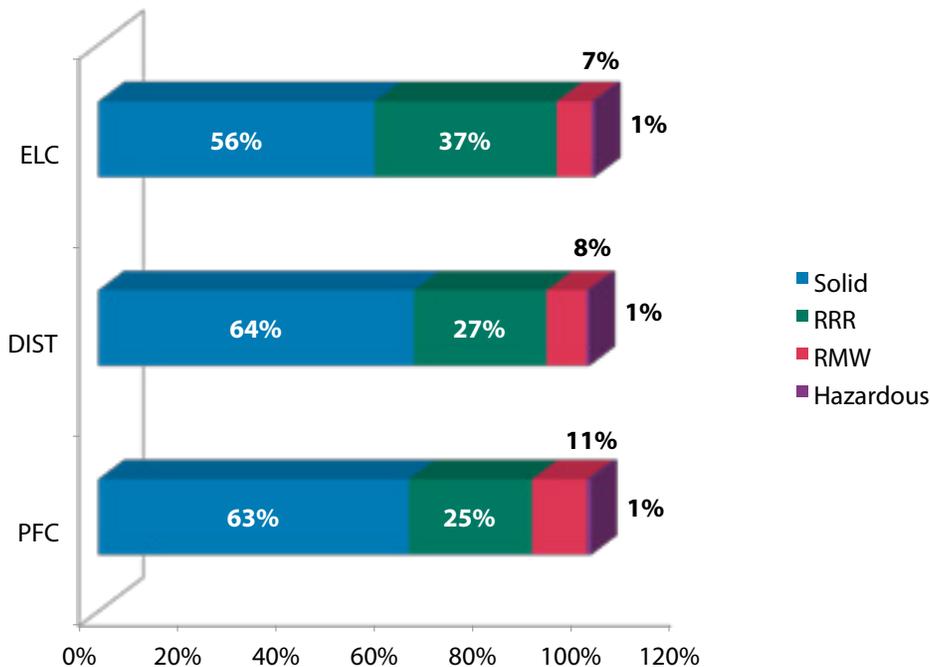
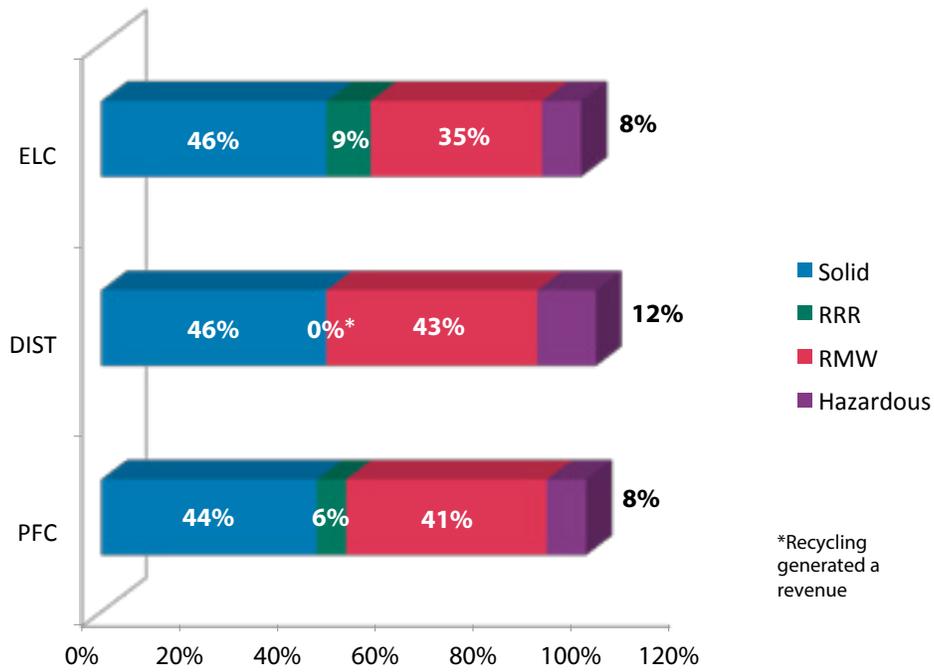


Figure 3: Average Cost of Waste Distribution for Award Winners by Category



Total Waste Generation

As discussed in last year's Benchmark Report (under "Total Waste and Recycling Data"), Practice Greenhealth has begun to measure total waste per APD, where total waste is defined as all solid waste, recycling, RMW and hazardous waste. Waste diversion is not included in this number, but source reduction activities will be measured indirectly by this number. Hospitals that have the more advanced environmental programs will have lower total waste per APD numbers. Practice Greenhealth fully acknowledges that diversion is true source reduction, and should be *celebrated* as preferred over recycling since diversion prevents waste upstream, before it is created. This is our ultimate goal.

Normalized Waste Generation

Figure 4 gives a graphical representation of total waste in tons versus APD, with a fairly good correlation ($R^2=0.706$; a perfect correlation would give an R^2 value of 1.0). **Table 9** presents total waste normalized by a host of different metrics. This is a somewhat tricky number to normalize and compare. **The data indicates that PFC winners are generating on average 29 lbs/APD, DIST winners 24 lbs per APD and ELC winners 23 lbs per APD.** These are excellent numbers to benchmark against.

Figure 4: Annual Total Waste (in pounds) per Adjusted Patient Day (APD)

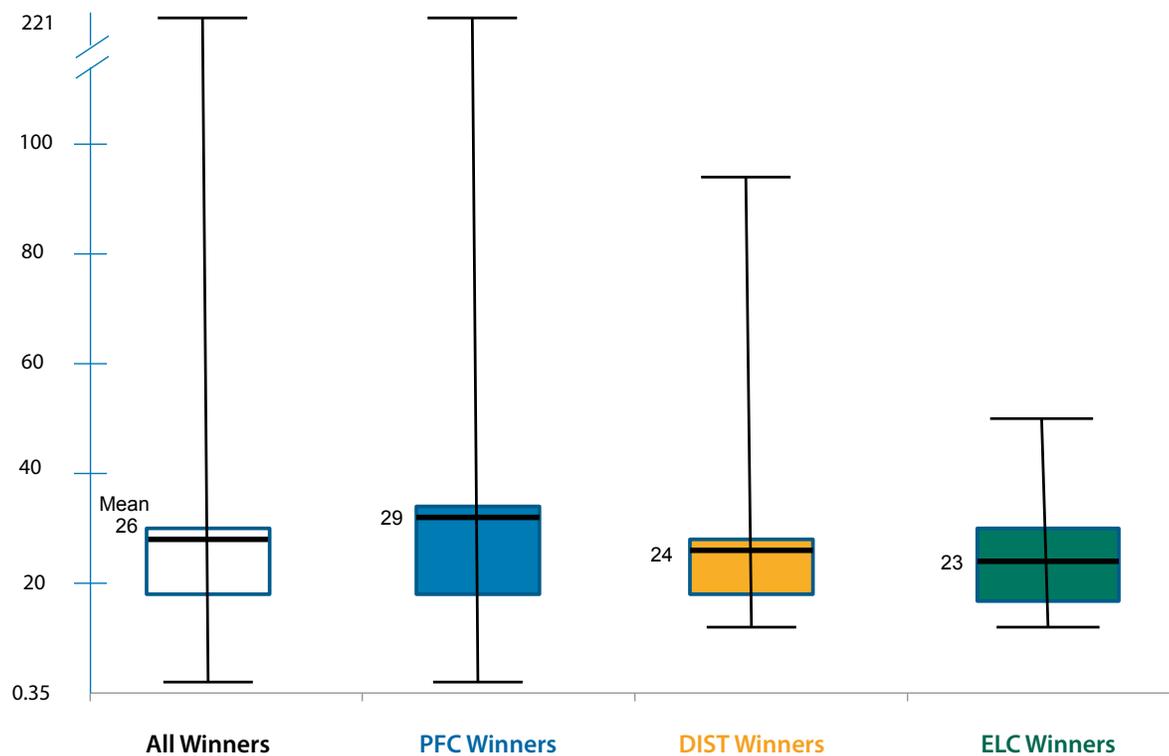


Table 9: Average Annual Total Waste Generation Normalized by Different Factors

Total Annual Waste Generation (Solid, Recycling*, RMW and Hazardous Wastes)	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2011 ELC Winners	2012 ELC Winners
Pounds/APD	25.1	28.8	24.0	25.1	23.4
Pounds/Square foot/year	3.8	5.2	5.0	3.3	5.0
Tons/Staffed bed/year	4.8	5.4	4.7	5.0	5.6
Pounds/Staffed bed/day	26.1	29.7	25.6	26.3	30.9
Pounds/FTE/year	1302	1427	1411	1207	1326
* No Diversion					

Waste Generation Normalized by Adjusted Patient Day (APD)

As mentioned above, APD is often a good normalization factor because it is based on both inpatient and outpatient activity. **Table 10** presents waste generation normalized by adjusted patient day (APD).

When looking at waste generation per APD, ELC winners generate less solid waste per APD and less RMW per APD than other winners, generate more hazardous waste per APD (an increase in hazardous waste may be due to better identification and proper disposal of hazardous pharmaceutical waste), and recycle significantly more per APD.

TREND: Solid waste generation per APD has increased for PFC winners 2009 to 2012, but decreased for DIST and ELC Award winners. For 2012 we changed the definition of recycling to exclude diversion and not surprisingly, recycling rates per APD dropped from 2011, but are still above the 2009 and 2010 levels. Compared to 2011 data, RMW generation per APD increased slightly for PFC, decreased slightly for DIST winners and remained relatively constant for ELC winners. Hazardous waste generation per APD decreased for all hospital Award winners.

Table 10: Average Annual Waste Generation Normalized by Adjusted Patient Day¹

Waste Type	Average lbs. per APD							
	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Solid Waste	16.0	16.9	16.9	17.7	15.6	13.3	15.0	13.1
Recycling ²	5.6	5.7	7.2	7.2	6.4	8.6	10.2	8.7
RMW ³	1.9	1.9	2.6	3.3	2.2	1.6	1.5	1.5
Hazardous Waste ⁴	0.14	0.14	0.19	0.10	0.18	0.13	0.20	0.15

1) Adjusted Patient Days = Total Patient Days x (Total Patient Revenue/Inpatient Revenue) Where Total Patient Revenue = Inpatient Revenue + Outpatient Revenue.
 2) RRR includes recycling, diversion and universal waste for 2009, 2010 and 2011, but no diversion for 2012.
 3) RMW includes regulated medical waste and non-hazardous pharmaceutical waste.
 4) Hazardous waste includes RCRA regulated waste and RCRA-regulated pharmaceutical waste.

Regulated Medical Waste

Because RMW is such a large part of the hospital waste stream, more detail is provided for regulated medical waste generation in **Table 11**, which looks at different normalization factors. No matter which normalization factor you use, DIST winners generate less RMW than PFC winners, and ELC winners generate less than either of the other winners. RMW reduction techniques will be discussed in Section VII.

Table 11: Average Annual Regulated Medical Waste Generation

Average Annual RMW Generation	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2011 ELC Winners	2012 ELC Winners
Pounds RMW per APD	2.6	3.3	2.2	1.5	1.5
Tons RMW per Staffed Bed	0.5	0.6	0.4	0.3	0.4
Pounds RMW per FTE	141	143	113	71	85
Pounds RMW per square Foot	0.4	0.4	0.3	0.2	0.2
Tons RMW per O.R.	10.3	11.1	8.6	4.9	5.6

V. COSTS OF HEALTHCARE WASTE STREAMS

While **Figure 3** presented the distribution of waste costs by Award category, **Table 12** presents average costs of waste disposal across the country. Box and whisker plots are used as a visual representation of the cost of each waste type and are presented in Appendix 3. The data in this table is for total annual disposal costs as reported by our winners, and may include hauling fees, tipping fees, disposal fees, surcharges, etc.

Recycling costs and revenue varied, as 34% of facilities reported that their programs generate a savings, and 27% reported a cost for their programs. Seven percent (7%) reported breaking even, and 32% reported that they don't track or can't calculate recycling costs or revenue.

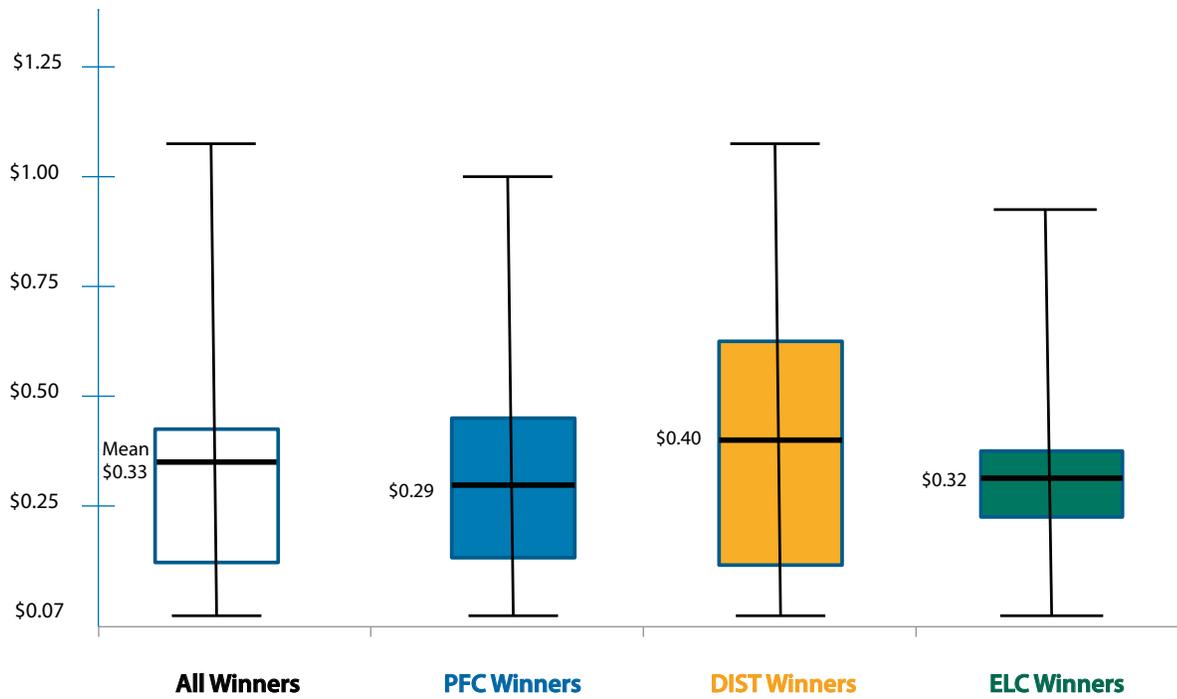
TREND: Cost per ton of solid waste and RMW decreased, while hazardous waste disposal increased slightly (by about 3%).

Table 12: Average Costs of Waste Streams

Waste Stream	Solid Waste Cost per <i>Ton</i>	Recycled Cost per <i>Ton</i> ¹	RMW Cost per <i>Ton</i> ²	Hazardous Waste Cost per <i>Pound</i> ³
Average of all hospital winners 2011	\$126	\$90	\$1015	\$3.1 (\$6200/ton)
Average of all hospital winners 2012	\$105	\$113 for hospitals reporting costs \$109 for hospitals reporting savings	\$905	\$3.2
1) RRR includes recycling, diversion and universal waste. 2) RMW includes regulated medical waste and non-hazardous pharmaceutical waste. 3) Hazardous waste includes RCRA regulated pharmaceutical waste.				

The **total annual waste cost per square foot** for all Award winners averaged **\$0.33 per square foot** of facility. Total annual waste cost per square foot by Award level is displayed in the box and whisker plot in **Figure 5**. The blue box illustrates PFC winners spend an average \$0.29 per square foot; DIST winners spend an average of \$0.40 per square foot and ELC winners spend an average of \$0.32 per square foot.

Figure 5: Total Annual Waste Costs per Square Foot



VI. SOLID WASTE: REDUCE, REUSE, RECYCLE

Donations

Health care donations benefit the recipient and keep waste out of solid waste landfills. For an excellent discussion of the complex issues around donations to developing countries with very different healthcare infrastructures than the US, see the 2011 Catholic Health Association-commissioned Medical Surplus Donation Study: How Effective Surplus Donation Can Relieve Human Suffering (see [the 2011 CHA-commissioned study](#)).

Table 13 summarizes donations healthcare facilities made to developing countries and other needy hospitals through non-profit organizations. The biggest jump in donations was seen in linens for the ELC group.

TREND: Donations in most areas increased, as hospitals strive to get medical supplies to needy facilities and decrease their solid waste streams. The biggest jump was seen in furniture donation (73% of PFC winners, 81% of DIST winners and 86% of ELC winners reported donating furniture). This is a good example of waste reduction/diversion that would decrease a hospital's **total waste per APD** data because solid waste disposal tonnage would decrease. Award applicants would get "credit" for this reduction, even though most facilities do not weigh furniture donations.

Table 13: Donations

Donated Item	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Clinical Items	62%	77%	68%	85%	88%	83%	96%
Medical Equipment	68%	77%	71%	78%	88%	87%	89%
Furniture	59%	64%	73%	81%	83%	78%	86%
Linens	25%	22%	23%	44%	46%	70%	54%
Books	20%	32%	26%	49%	33%	35%	32%
Other Supplies	32%	38%	25%	37%	38%	52%	57%

Recycling

Award winners reported **recycling 64,800 tons of materials** (equivalent to over 130 million pounds) from their waste streams in 2012! Based on the average price of solid waste disposal reported above (\$105 per ton for solid waste and \$6,400 per ton for hazardous waste), these recycling programs saved our winners over \$16.8 million in avoided disposal costs.

Table 14 presents a list of materials recycled as reported in the Appendix A of the PFC Award application, organized from the highest to lowest *occurrence* based on **2012 PFC recycling** efforts. In other words, the materials are ranked from the most frequently to the least frequently recycled items.

As noted above in the discussion of waste disposal costs, 34% of Award winners indicated that their **recycling programs saved** them money, 27% reported that their programs **lose** money, 7% indicated that they **break even**, and 32% indicated that they don't track or **can't calculate** the financial implications of their recycling program.

TREND: Most Award winning hospitals use commingled or single stream recycling, with 79% of PFC, 90% of DIST and 82% of ELC winners reporting this type of collection. The top five most highly recycled materials in 2012 were batteries, computers/electronics, fluorescent lamps, HIPPA paper, and cardboard. If you look at materials that are *not* considered universal waste, the highest five are: HIPPA Paper, cardboard, cooking oil, ink jet and toner cartridges, and mixed paper. This data highlights the

efforts hospitals are making to segregate their Universal Wastes in order to reduce their hazardous waste stream and associated costs.

Table 14: Recycled Materials Sorted by Occurrence (highest to lowest)

Recycled Materials	% of 2009 PFC Winners	% of 2010 PFC Winners	% of 2011 PFC Winners	% of 2012 PFC Winners	% of 2012 DIST Winners	% of 2010 ELC Winners	% of 2011 ELC Winners	% of 2012 ELC Winners
Commingled Recycling or Single Stream	—	63	71	79	90	71	87	82
Batteries	90	90	87	78	90	92	100	100
Computers/Electronics	82	80	81	71	78	92	100	86
Fluorescent Lamps	92	88	82	69	80	92	100	100
Paper, HIPPA	—	—	—	68	63	—	—	57
Cardboard	92	— ¹	70	65	59	— ¹	91	86
Oil (cooking)	<78 ²	73	70	63	68	75	91	82
Ink Jet and Toner Cartridges (formerly separate items)	—	—	66	48	51	—	78	82
Paper (mixed)	75	84	75	45	41	92	100	86
Food waste (composting)	17	25	32	41	49	71	74	71
Wood	17	24	25	40	20	50	48	50
Cans (aluminum)	65	69	55	38	20	75	83	46
Steel	47	47	36	36	27	88	74	68
Plastic (mixed)	57	46	37	31	27	58	70	43
Oil (motor)	<78 ²	46	42	29	17	71	83	54
X-ray film	37	27	27	28	24	58	61	36
Plastic, #5 (blue wrap and polypropylene)	27	31	31	28	22	50	65	29
Paper (white)	78	61	60	27	17	79	65	32
Cans (steel)	47	51	37	25	15	75	78	43
Shrink Wrap (if separate)	22	28	31	22	22	38	57	32
Plastic, #1 PET	40	41	44	19	15	67	65	29
Plastic, #2 HDPE	40	42	43	19	15	63	52	18
Glass (mixed)	27	41	39	15	17	58	65	43
Boxboard	20	40	36	15	12	67	65	43
Plastic, #3 PVC	—	—	—	15	10	—	—	14
Plastic, #4 LDPE	—	—	—	14	10	—	—	14
Plastic, #6 PS	28	29	25	13	7	46	57	14

1) There was an error on the 2010 Appendix A application which would not allow data to be entered for cardboard.
2) Cooking oil and motor oil were combined in the 2009 application.

The same recycling information is presented in **Table 14**, but the data has been sorted alphabetically.

Table 15: Recycled Materials Sorted Alphabetically

Material Recycled	% of 2009 PFC Winners	% of 2010 PFC Winners	% of 2011 PFC Winners	% of 2012 PFC Winners	% of 2012 DIST Winners	% of 2010 ELC Winners	% of 2011 ELC Winners	% of 2012 ELC Winners
Batteries	90	90	87	78	90	92	100	100
Boxboard	20	40	36	15	12	67	65	43
Cans (aluminum)	65	69	55	38	20	75	83	46
Cans (steel)	47	51	37	25	15	75	78	43
Cardboard	92	— ¹	70	65	59	— ¹	91	86
Commingled Recycling (2012 commingled or single stream)	—	63	71	79	90	71	87	82
Computers/Electronics	82	80	81	71	78	92	100	86
Fluorescent Lamps	92	88	82	69	80	92	100	93
Food Waste (composting)	17	25	32	41	49	71	74	71
Glass (mixed)	27	41	39	15	17	58	65	43
Ink Jet and Toner Cartridges (formerly separate)	—	—	66	48	51	—	78	82
Oil (cooking)	<78 ²	73	70	63	68	75	91	82
Oil (motor)	<78 ²	46	42	29	17	71	83	54
Paper (mixed)	75	84	75	45	41	92	100	86
Paper (white)	78	61	60	27	17	79	65	32
Paper, HIPPA	—	—	—	68	63	—	—	57
Plastic, #1 PET	40	41	44	19	15	67	65	29
Plastic, #2 HDPE	40	42	43	19	15	63	52	18
Plastic, #3 PVC	—	—	—	15	10	—	—	14
Plastic, #4 LDPE	—	—	—	14	10	—	—	14
Plastic, #5 (blue wrap and polypropylene)	27	31	31	28	22	50	65	29
Plastic, Blue Wrap (listed separately prior to 2012)	12	34	46	—	—	58	70	—
Plastic, #6 PS	28	29	25	13	7	46	57	14
Plastic, mixed	57	46	37	31	27	58	70	43
Shrink Wrap (if separate)	22	28	31	22	22	38	57	32
Steel	47	47	36	36	27	88	74	68
Wood	17	24	25	40	20	50	48	50
X-ray Film	37	27	27	28	24	58	61	36

1) There was an input error in the application; no data could be entered on some applications.

2) 2009 PFC oil recycling numbers were combined for cooking and motor oil.

VII. REGULATED MEDICAL WASTE (RMW) REDUCTION

Table 16 illustrates the use of specific RMW reduction techniques, while **Tables 17** and **18** present data on savings and waste avoidance from single-use device reprocessing and reusable sharps container programs. Fully 100% of ELCs have RMW education and reduction programs and have segregation posters mounted near disposal areas. DIST and ELC winners were more likely to have fluid management systems than PFC winners, and have a higher percentage of single-use device (SUD) reprocessing and reusable sharps container programs.

TREND: Implementation of RMW reduction techniques remains high at Award-winning facilities and growth was observed once again. Award winners are educating their staff on proper segregation, and implementing techniques to reduce their red bag waste streams. Since Practice Greenhealth began tracking fluid management systems in 2009 (47% for PFC winners), installation of these systems has grown to 51% in PFC hospitals, 78% in DIST and 89% in ELC hospitals. The majority of winners do not use these fluid management systems *exclusively* in the orthopedic ORs.

OPPORTUNITY: Surprisingly, there remains an opportunity for more ELC winners to implement reusable sharps container programs. DIST winners (85%) outpaced both PFC (70%) and ELC (75%) winners with reusable sharps container programs.

Table 16: RMW Reduction Techniques

These facilities reported that they:	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have engaged in an RMW education and reduction program	82%	78%	81%	81%	93%	100%	100%	100%
Have posted waste segregation posters at red bag collection areas	—	73%	76%	64%	85%	92%	96%	100%
Use a fluid management system in the OR	47%	50%	59%	51%	78%	79%	96%	89%
Use the fluid management system exclusively in orthopedic ORs	—	11%	10%	4%	12%	38%	17%	18%
Use single-use device (SUD) reprocessing	68%	74%	79%	75%	88%	92%	96%	96%
Have implemented a reusable sharps container program	57%	58%	65%	70%	85%	75%	74%	75%
Have implemented one of the new programs to recycle medical sharps such as needles and syringes.	—	—	—	6%	2%	—	—	11%

Single-use Device Reprocessing

As reprocessing of single-use devices (SUDs) continues to grow (as exhibited in the **Table 16**), associated savings from reprocessing also continues to grow. Award winners are leading the way in the sector, with a summary of the data presented below in **Table 17**. A detailed list of reprocessed items is presented in **Appendix 4**.

In 2010, our data set winners saved over \$10.8 million through SUD reprocessing.

In 2011 savings rose to over \$11.8 million and by 2012 savings increased to **\$18.3 million!** In 2012 these facilities diverted over **512 tons** of waste from entering the RMW or solid waste stream.

Implementation of these programs at any facility may yield different results than the averages presented below, but some savings and reduction in waste can be expected. Vendors are a good source to calculate potential savings.

TREND: Savings from SUD reprocessing increased significantly from 2010 to 2012. To compare 2010 and 2011 PFC winners to 2012 PFC winners, one needs to add the 2012 PFC and 2012 DIST winner data together, as these groups were combined in 2010 and 2011. Thus, PFC winners saved \$6.4 million in 2010, 8.1 million in 2011, and savings grew quickly to \$18.3 million in 2012- almost doubling in only two years! ELC winners were able to save more per staffed bed and more per OR procedure than other winners.

Table 17: Single-Use Device Reprocessing Savings

SUD Reprocessing	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Total annual savings (sum of facilities)	\$6.4 million	\$8.1 million	\$5.4 million	\$7.3 million	\$4.4 million	\$3.7 million	\$5.6 million
Average annual savings per staffed bed	\$500	\$440	\$610	\$735	\$750	\$775	\$853
Average annual savings per APD	\$ 1.40	\$1.40	\$1.43	\$1.85	\$ 3.51	\$2.10	\$1.98
Average annual savings per O.R.	—	\$9,435	\$10,485	\$13,460	—	\$11,980	\$12,705
Average annual savings per O.R. procedures	—	—	\$13.71	\$19.13	—	—	\$22.25
Tons of waste diverted annually from landfill	38	258	182	63	41	63	76
Average annual lbs. of waste diverted from landfill per staffed bed	16	26	47	23	21	24	24
Average annual pounds of waste diverted per APD	0.04	0.1	0.11	0.07	0.05	0.1	0.05
Average annual pounds of waste diverted per O.R.	—	395	804	455	—	424	382
Average Annual pounds of waste diverted per O.R. procedure	—	—	1.08	0.39	—	—	0.71

Reusable Sharps Container Programs

Award winners saved **nearly \$800,000** and diverted over **1800 tons** of waste **through reusable sharps container programs** as shown here in **Table 18**. All Award levels reported a consistent average of **0.3 pounds of waste diverted per APD**.

Other benefits from reusable sharps container programs may include reduced incidents of overfilled containers and associated worker exposure risk (needle sticks), reduced staff time, and fewer staff handling sharps containers. As noted above for SUDs, implementation of these programs at any facility may yield different results than the averages presented below, but some savings and reduction in waste can be expected. Vendors are a good source to calculate potential savings.

Table 18: Reusable Sharps Container Program Savings

Reusable Sharps Containers	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Total annual savings (sum of facilities)	\$1,351,450	\$1,685,180	\$231,260	\$380,850	\$503,950	\$352,020	\$181,600
Average annual savings per staffed bed	\$140	\$100	\$35	\$65	\$90	\$105	\$70
Average annual savings per APD	\$ 0.41	\$0.40	\$0.07	\$0.33	\$ 0.35	\$0.24	\$0.16
Tons of waste diverted annually from landfill (sum all facilities)	640 tons	1345 tons	830 tons	660 tons	70 tons	280 tons	320 tons
Average annual pounds of waste diverted per staffed bed	145	140	140	125	90	125	145
Average annual pounds of waste diverted per APD	0.5	0.4	0.3	0.3	0.3	0.3	0.3

Greening the Operating Room

As the healthcare sector continues to explore the benefits of environmental sustainability it makes sense to focus on those departments with the highest costs, greatest inefficiencies and/or largest volumes of waste. Operating rooms (ORs) and surgical suites use significant amounts of energy, generate some of the largest volumes of waste across the entire organization (an estimated 20-33% of total hospital waste) and are the largest users of medical supplies across the organization—making them a key target for greening efforts in many facilities. In 2010, Practice Greenhealth launched their Greening the OR™ Initiative in an effort to coalesce the body of knowledge around sustainable interventions in the OR, substantiate it with data and case studies, and develop best practices for implementation that can be shared across the sector. To date, more than 200 hospitals across the country have committed to endorse the Greening the OR Initiative, with many more Award-winning hospitals taking on some or all of the different sustainable activities focused on perioperative services.

Table 19, Greening the OR® presents data that was collected for the first time in the 2012 Awards cycle. The operating suite is one of the most energy and resource-intensive departments in the hospital, and the data suggests Award winners are initiating and implementing a variety of sustainable activities within their ORs in an effort to reduce waste and cost while at the same time increasing efficiency. Sustainable activities in the OR with the highest implementation rate include:

- Ensuring non-hazardous waste is going to solid waste or recycling;
- Segregating non-infectious from infectious waste; and
- Purchasing reprocessed medical devices from third-party reprocessors.

OPPORTUNITY: **Table 19** identifies areas of possible focus for hospital programs to green the OR, such as increasing the use of reusable items, sterilizing reusable surgical instruments and tracking energy use within the OR.

Table 19: Greening the OR®

Waste Reduction and Prevention in the OR	2012 PFC Winners	2012 DIST Winners	2012 ELC Winners
Track waste volumes from the OR	15%	15%	18%
Ensure non-hazardous OR waste is going to solid waste or recycling	74%	85%	82%
Segregate non-infectious from infectious waste in the OR	70%	88%	86%

	2012 PFC Winners	2012 DIST Winners	2012 ELC Winners
Waste Reduction and Prevention in the OR			
Recycle medical plastics from the OR	73%	83%	88%
Recycle overwraps	40%	51%	50%
Recycle rigid trays	51%	59%	79%
Recycle blue wrap	50%	63%	61%
Recycle saline bottles	54%	66%	75%
Purchase reusable rigid cases for sterilization in OR	64%	85%	71%
Environmentally Preferable Purchasing in the OR			
Reformulate OR kits to reduce excess supplies and overage currently going to trash or donation	65%	68%	71%
Purchase reprocessed medical devices from third party reprocessor for use in OR	64%	81%	82%
Replace disposable items with reusable items in OR kits where demonstrated safe and economically viable	48%	73%	54%
Utilize reusable surgical gowns for staff	34%	37%	50%
Utilize reusable back table covers	15%	17%	11%
Utilize reusable mayo stand covers	15%	15%	14%
Utilize reusable surgical towels	53%	63%	68%
Utilize reusable basins	45%	42%	54%
Sterilize reusable surgical textiles in-house or using third party contractor for cleaning, repair and sterilization			
In-house	15%	24%	44%
Third party	42%	27%	32%
Both	9%	21%	16%
Use reusable grounding pads in the OR	8%	17%	7%
Use reusable patient warming devices in the OR	29%	20%	39%
Built Environment			
Track energy use specifically in surgical services/OR	1%	12%	21%
Utilize occupancy sensors for lighting to reduce energy use in unoccupied ORs	26%	37%	36%
Program HVAC system to reduce air changes when ORs are unoccupied to reduce energy use	31%	44%	46%
Utilize LED surgical lighting to reduce energy use and increase thermal comfort	33%	54%	61%
Use rubber flooring or other non-PVC flooring in the OR	36%	49%	71%

VIII. CHEMICAL USE AND WASTE MANAGEMENT PROGRAMS

Mercury

Data presented in **Table 20** illustrates that over 96% of all Award winners have reduced or eliminated mercury-containing thermometers. Seventy-one percent (71%) of DIST winners and 38% of PFC winners have achieved Making Medicine Mercury Free (MMMF) status, which requires mercury elimination and establishment of policies to prevent mercury from coming back into the hospital through new purchases. One hundred percent of ELCs have achieved MMMF status, as this is a requirement for induction into the Circle. While DIST winners (71%) are ahead of PFC winners (38%) in achieving a mercury-free facility, both groups have made major strides in becoming mercury free, as exhibited in Table 20.

OPPORTUNITY: As new Practice Greenhealth members and PFC winners continue work on becoming mercury-free, they can work toward MMMF status.

Table 20: Making Medicine Mercury Free

Mercury Free Program Elements	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2012 ELC Winners
Won the MMMF Award ¹	53%	38%	71%	All ²
Established and implemented a mercury-free purchasing policy	83%	81%	85%	All ²
Performed a facility-wide inventory for mercury containing items	83%	85%	98%	All ²
Labeled all remaining mercury-containing items	68%	71%	73%	All ²
Inventoried all mercury-containing chemicals in the laboratory	82%	87%	88%	All ²
Eliminated or reduced mercury-containing thermometers	97%	96%	98%	All ²
Eliminated or reduced mercury-containing sphygmomanometers	96%	93%	98%	All ²
Eliminated or reduced mercury-containing lab thermometers (5 grams mercury)	92%	97%	95%	All ²
Eliminated or reduced B5 and Zenker stains	92%	80%	85%	All ²
Use low mercury (green tip) lamps	88%	80%	83%	96%
Handle fluorescent lamps				
Ship to recycler	—	73%	81%	93%
Lamp crusher		9%	12%	0%
Other		13%	7%	7%
Have onsite dental chairs	—	11%	20%	21%
Installed amalgam separators for all dental chairs	—	78%	88%	100%
Include mercury-free requirements in requests for proposals (RFPs) and contract language	64%	54%	73%	64%
Held a thermometer swap for employees	19%	15%	32%	36%
Held a thermometer swap for the community	11%	10%	15%	39%
1) Making Medicine Mercury Free (MMMF) is Practice Greenhealth's Award for virtually eliminating mercury from a facility.				
2) Prerequisite for winning the ELC Award.				

DEHP and PVC

Table 21 illustrates the progress that Award winners are making to reduce the use of Di(2-ethylhexyl) phthalate (DEHP) and polyvinyl chloride (PVC) in their facilities. About half of PFC and DIST winners have DEHP and PVC reduction programs, while 71% of ELC winners reported having these programs.

In general, about half of PFC and DIST winners have implemented the reduction activities listed below for DEHP and PVC, while ELC facilities scored somewhat higher in each category. Of note is a DEHP-free program in the **NICU (neonatal intensive care unit)**, where 58% of PFC and 61% of DIST winners answered affirmatively, and 79% of ELC facilities confirmed having a DEHP-free NICU. These programs reduce DEHP exposure to one of the most vulnerable and highly affected populations.

TREND: DEHP- and PVC-reduction programs are becoming more standard at healthcare facilities.

Table 21: DEHP and PVC Reduction

DEHP & PVC Reduction	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have a general DEHP reduction program	45%	55%	48%	51%	54%	52%	71%
Have a program to reduce DEHP-containing products in the NICU	50%	59%	58%	61%	58%	70%	79%
Have a PVC-reduction program	46%	49%	48%	49%	75%	61%	64%
PVC-education program includes medical products and supplies	43%	49%	41%	49%	71%	57%	57%
PVC-reduction program includes construction and renovation materials	36%	49%	45%	49%	54%	61%	64%

Nicotine

The vast majority of Award-winning facilities consider themselves smoke free (100% ELC), and allow smoking only in limited areas (**Table 22**). None of the DIST winners allow smoking anywhere in their buildings.

Table 22: Nicotine Reduction

Nicotine	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Entire facility is smoke free	89%	93%	94%	95%	100%	100%	100%
Entire campus is smoke free	76%	89%	93%	93%	92%	100%	100%
We allow smoking in the following areas:							
Smoking lounge	6%	0%	0%	0%	4%	0%	4%
Chemical dependency unit	2%	3%	4%	0%	4%	4%	7%
Psychiatric unit	2%	3%	1%	0%	4%	4%	7%
Outdoors	48%	46%	21%	22%	25%	39%	25%

Pharmaceutical Waste Management

Practice Greenhealth winners strive to increase their knowledge and expertise in the complicated area of pharmaceutical waste handling.

TREND: The majority of winners sort their pharmaceutical waste at the point of generation (74% of PFC, 88% of DIST and 86% of ELC winners), and have used a combination of internal and external expertise to review their pharmacy formularies. Hospitals are using a number of different techniques in different areas of their institutions to handle this waste stream, thus the numbers for handling these wastes in **Table 23** add up to more than 100%. A significant number of winners, particularly ELCs (43%) recognize that not all pharmaceutical waste that is dangerous to the environment or human health is classified as RCRA-regulated hazardous waste, and are choosing proactively to handle all of their pharmaceutical waste at some facilities as hazardous. This goes well beyond the law, and can save in segregation and training costs, but can ring up some costly disposal bills. And about a third of hospitals reported collecting all pharmaceutical waste at a collection point and sorting in a satellite accumulation area, which saves training dollars since fewer staff need to be trained in proper segregation.

Table 23: Pharmaceutical Waste Management Programs

Process	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have implemented a pharmaceutical waste management program	65%	79%	91%	85%	88%	96%	91%	89%
Hired an outside vendor to help set up this program	77%	67%	58 % internal <u>analysis</u> 58% <u>waste</u> <u>vendor</u> 31% other outside vendor	55% internal analysis 59% waste vendor 33% other outside vendor	61% internal analysis 63% waste vendor 24% other outside vendor	65%	65% internal <u>analysis</u> 61% <u>waste</u> <u>vendor</u> 39% other outside vendor	57% internal analysis 71% waste vendor 25% other outside vendor
Separate pharmaceutical waste at the point of generation	—	66%	84%	74%	88%	67%	83%	86%
Send pharmaceutical waste back to pharmacy for proper segregation	—	29%	36%	39%	22%	42%	45%	46%
Collect all pharmaceutical waste and sort in a satellite accumulation area	—	29%	29%	30%	24%	21%	26%	29%
Treat all pharmaceuticals as hazardous waste	—	30%	29%	29%	20%	38%	30%	43%

Ethylene Oxide (EtO) and Glutaraldehyde Reduction and Elimination

Tables 24 illustrates that most of the winners have reduced EtO (91% PFC, 95% DIST and 96% ELC winners) but that a smaller percent have eliminated it completely. Please note that the totals for the list of alternatives in these two tables add up to more than 100% because hospitals often use more than one type of sterilization or high-level disinfection technique in their facilities.

TREND: More hospitals every year are moving away from ethylene oxide where possible and seeking alternative methods for sterilization and high-level disinfection of medical instruments. Seventy-nine percent of ELCs have totally eliminated EtO (along with about 60% of other winners). Steam sterilization continues to be the alternative of choice, with low temperature hydrogen peroxide gas plasma the second choice.

Table 24: EtO Elimination

EtO	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Reduced the use of EtO	72 ¹ %	74%	88%	91%	95%	88%	96%	96%
Completely eliminated onsite use of EtO	—	47%	59%	63%	59%	54%	74%	79%
Alternative		% using	% using	% using		% using		% using
Steam sterilization	—	63%	86%	91%	95%	79%	96%	96%
Low temperature hydrogen peroxide gas plasma	—	49%	72%	75%	78%	71%	87%	79%
Ozone plasma	—	—	11%	13%	22%	—	22%	18%
Peracetic acid	—	—	48%	59%	68%	—	57%	64%

1) In 2009 the question combined reduction or elimination EtO, so this number is artificially high.

See **Table 25** presents data on the success Award winners have had in reducing or eliminating Glutaraldehyde.

TREND: The percentage of PFC and DIST winners that reduced or eliminated the use of glutaraldehyde continues to grow, with the most impressive growth in these Award groups. Only 39% of PFC facilities had eliminated this chemical of concern in 2011, but 54% of PFC and 59% of DIST winners eliminated EtO completely in 2012; an impressive gain in one year. Ortho-phthalaldehyde (OPA) clearly remains the alternative of choice, but over half of the winners also use hydrogen peroxide.

Table 25: Glutaraldehyde Elimination

Glutaraldehyde	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Reduced glutaraldehyde	68	80%	88%	94%	93%	79%	96%	89%
Completely eliminated glutaraldehyde	—	35%	39%	54%	59%	63%	61%	61%
Alternative		% using	% using			% using	% using	% using
Ortho-phthalaldehyde (OPA)	—	—	81%	79%	93%	—	91%	100%
Hydrogen peroxide	—	38%	51%	60%	59%	38%	61%	61%

Green Cleaning

The purchase of environmentally preferable cleaners and cleaning equipment is one of many opportunities in greening a facility's supply chain, and it offers facilities a chance to purchase products which reduce chemical exposure to patients and staff, reduce hazardous waste disposal, save energy and water, and reduce greenhouse gas emissions. In addition, noise, vibration and particulate emissions can be reduced from powered cleaning equipment that meets advanced environmental attributes.

An emphasis on green cleaning remains strong at the Award-winning facilities, illustrated by the breadth of products purchased and techniques used that are presented in **Table 26** below. For example:

- 88%-100% of winners utilize some environmentally preferable chemicals at their facilities.
- 93% of DIST and ELC winners reported working with Infection Control to optimize the use of disinfectants.
- 91% - 100% of all winners use a dilution control system to reduce chemical use and limit exposure to staff and patients.
- 80% of PFC, 68% of DIST and 96% of ELC winners installed flooring that does not require regular stripping and/or polishing. Source reduction strategies such as these are the most environmentally preferable strategy.

TREND: Most green cleaning metrics on **Table 26** saw continued growth, with the vast majority of winners reporting the use of green cleaning chemicals and a reduction in chemical use at their facilities. An increase in almost every metric for greener paper and bathroom products and for flooring was observed in **Table 26**.

Ninety-six percent (96%) of all winners worked on minimizing chemical use, remaining one of the strongest attributes for all of the Award winners.

For information on Practice Greenhealth's work with businesses, GPOs and hospital members on Greening the Supply Chain[®] Initiative, visit www.practicegreenhealth.org/gsc.

Table 26: Green Cleaning

Green Cleaning	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have a building-specific green cleaning plan for their facility, such as the one outlined in the Green Seal Certification Checklist, standard GS-42	54%	68%	61%	68%	67%	83%	79%
In-house EVS or housekeeping staff performs their cleaning	84% ¹	88%	89%	81%	96% ²	83%	89%
Use contracted or outsourced EVS or housekeeping for some or all of facility cleaning	13% ¹	12%	11%	20%	8% ²	17%	11%
Use some green cleaning chemicals or products at their facility	90%	96%	88%	100%	92%	96%	93%
Use some techniques to minimize chemical use	71%	95%	96%	95%	92%	100%	96%
Cleaners							
General purpose (hard surface) cleaners	75%	79%	65%	81%	83%	83%	75%
Glass cleaners	77%	83%	60%	81%	75%	87%	68%
Carpet and upholstery cleaners	46%	51%	37%	63%	54%	43%	46%
Cleaning and Degreasing Compounds	39%	46%	33%	63%	54%	61%	54%
Floor cleaners, strippers, waxes	56%	55%	39%	51%	71%	78%	54%
Metal Polish	19%	21%	18%	24%	29%	30%	14%

	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Green Cleaning							
Drain/Grease trap additives	15%	22%	15%	37%	25%	48%	14%
Fragrances/Odor control additives	21%	35%	21%	44%	25%	48%	14%
Laundry Soaps/Cleaners	18%	32%	17%	24%	29%	35%	29%
Liquid or foam hand soap	—	35%	23%	27%	—	26%	25%
Other	13%	12%	8%	10%	33%	35%	14%
Cleaners – Have you:							
Collaborated with the Infection Control Committee to identify areas where use of disinfectants can be minimized or eliminated	83%	86%	80%	93%	96%	96%	93%
Used a dilution control system for chemicals	89%	94%	91%	93%	92%	100%	100%
Disposable Products- Do you:							
Select bathroom paper products with a preference for recycled content	82%	82%	83%	83%	92%	91%	96%
Select bathroom paper products with a preference for chlorine-free products	60%	56%	49%	68%	83%	78%	82%
Use fragrance free products	70%	78%	83%	83%	83%	91%	89%
Avoid aerosolized cleaning products	86%	90%	90%	98%	100%	91%	100%
Avoid fragrance-emitting devices , e.g. air fresheners, fragrance or deodorizer sprays and urinal blocks	44%	61%	55%	63%	54%	78%	82%
Have you evaluated paper dispensing systems to ensure optimal product efficacy	80%	92%	88%	98%	79%	96%	96%
Powered Cleaning Equipment²							
Do you use, or specify, powered cleaning equipment (scrubbers, burnishers, extractors, vacuums, or power washers) that is tested by the CRI Green Label Plus program or is otherwise certified	54%	75%	76%	76%	54%	83%	89%
Is this equipment designed to minimize vibration, noise, and user fatigue	75%	79%	84%	88%	92%	96%	96%
Is this equipment operated with a sound level of less than 70 db	66%	68%	76%	83%	75%	91%	100%
Does this equipment capture fine particulate matter	65%	80%	80%	88%	71%	83%	93%
Flooring							
Do you use micro fiber mops	84%	90%	93%	93%	96%	96%	100%
Has your facility installed flooring that does not require regular stripping and/or polishing	64%	69%	80%	68%	96%	100%	96%
1) Please note that these numbers do not add up to 100 because they are not mutually exclusive, a few facilities reported outsourcing some of their cleaning.							
2) Green Seal does not certify powered cleaning equipment, however the Carpet and Rug Institute has a Green Label program for vacuums and carpet cleaning equipment.							

Integrated Pest Management (IPM)

Pest management in hospitals is absolutely imperative, both from a health and perception perspective. **Table 27** presents incredibly encouraging data showing that Award-winning hospitals employed even more integrated pest management techniques this year, despite temptation to resort to other less environmentally friendly methods in the war against pests.

Facility management teams continue to use innovative and sometimes simple but effective techniques to fight intruders. Based on their testimonials, hospital staff are taking the *time* to thoroughly investigate pest issues reported in their buildings, and are identifying the *underlying cause* of the unwanted intruders. The solution is often relatively simple, eliminating moisture or access for instance, and without the use of pesticides, the pests habitat is eliminated which in turn eliminates that pest.

Here is a list of pests found *inside* Award-winning hospitals in 2012: bed bugs, clover mites, ants, water bugs, palmetto bugs, centipedes, flies (fruit, scuttle, cluster, and drain/phorid), cockroaches, wasps, lady bugs (good outside—not so good inside), pigeons and birds, squirrels, mice, rats, chipmunks and rodents, bats, mosquitos, and gnats. A number of facilities employed bed bug sniffing dogs, and treated the bugs with heat, but at least one facility reported “freezing” them with a dry ice technique.

TREND: Impressively, growth was observed for *every single area* reported in Table 26. IPM programs continued to grow, with 88% of PFCs, 95% of DIST and 96% of ELCs reporting reducing chemical use through an IPM program. Also of note is that 81% of PFC, 93% of DIST and 89% of ELCs *formalized* their programs through the development of an IPM Plan for their facility—impressive.

Table 27: Integrated Pest Management

Integrated Pest Management	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Has reduced the use of chemical pesticides through the implementation of an integrated pest management (IPM) program	82%	84%	88%	95%	79%	91%	96%
Developed an IPM plan for the facility	77%	77%	81%	93%	71%	87%	89%
Designated an IPM coordinator to supervise all pest elimination activity	75%	74%	79%	85%	67%	87%	93%
Developed a plan for training all hospital staff on pests, pesticides, and their role in the facility IPM program	33%	36%	44%	46%	29%	61%	64%
Inspected facility for signs of pest activity and conditions that may lead to pest infestation	86%	88%	91%	100%	88%	87%	96%
Facilitated removal of food waste consistent with IPM	77%	81%	81%	98%	79%	83%	93%
Inspected building roofs , checked bird netting, sealed roof parapets and caps	89%	89%	90%	100%	75%	83%	89%
Used and regularly checked bait stations (as a last resort) instead of sprays	89%	92%	94%	98%	79%	83%	89%
Ensured that devices such as bait stations placed in outside areas were locked, secured, clean and in good working order.	88%	90%	91%	98%	71%	78%	89%
Eliminated cracks and holes to keep pests out	88%	94%	98%	100%	83%	78%	86%
Installed door sweeps to keep pests out	83%	94%	95%	95%	79%	70%	82%

	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Integrated Pest Management							
Implemented and enforced sanitation procedures to limit pests' access to food and drink (address leaky faucets, condensation on pipes, and all edibles.)	89%	93%	93%	100%	79%	87%	93%
Fixed moisture problems (leaks and condensation on pipes)	84%	92%	95%	95%	88%	83%	89%
Used physical barriers to block pest entry and movement (such as door sweeps, screens at chimneys and air intakes, window screens).	80%	92%	94%	98%	79%	78%	89%
Minimized the entry of contaminants into the building from pesticides	77%	87%	86%	95%	63%	74%	86%
Ensured mulch is not used immediately next to building façade	50%	66%	73%	73%	63%	70%	82%
IPM Policy							
Ensured IPM policy is included in all pest control bid specifications when outsourcing pest elimination contracts	61%	65%	65%	78%	50%	83%	86%
Contracted with pest control companies that meet 100% of the requirements for IPM certification.	64%	76%	75%	90%	54%	78%	79%

Solvent Distillation

Tables 28 illustrate the percentages of Award winners that are distilling solvents, alcohol, or other chemicals and **Table 29** presents waste avoidance and financial benefits. Approximately half of all hospital winners that have a lab onsite reported recycling or distilling solvents, but approximately 40% of hospitals that do *not* have an onsite lab, also reported this activity. Award-winning facilities saved **\$494,000** in avoided virgin solvent purchase and spent solvent disposal costs. Also of note is that almost all of the distilled solvent was reused.

If hospitals have an onsite laboratory or use solvents in other areas at threshold quantities (to be determined by a potential vendor) they may want to consider investing in solvent distillation equipment. There are many different sizes of stills available, and some are even portable. Payback periods tend to be very short for these types of projects because a facility saves both the cost of the virgin solvent *and* the cost of disposing the spent solvent as hazardous waste. Payback periods as short as six months are not uncommon.

TREND: The percent of ELC winners distilling solvents remained constant at 61%, while the percent of other Award winners using these systems declined slightly.

OPPORTUNITY: It appears that more PFC and ELC winners could save money and reduce waste by considering solvent distillation.

Table 28: Solvent Distillation

Solvent Distillation	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have an onsite laboratory	—	—	—	78%	83%	—	—	82%
Have a program to recycle or distill solvents, alcohols or other chemicals from the lab	52%	46%	51%	50%	49%	71%	61%	61%
Distill xylene	—	32%	37%	40%	39%	63%	61%	57%
Distill alcohol	—	29%	34%	35%	27%	58%	43%	43%
Distill formalin	—	22%	24%	30%	27%	29%	22%	21%

Table 29: Savings from Distilling Solvents

Solvent Distillation	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Annual savings from reduced purchase costs	—	\$556,465	\$159,159	\$151,919	—	\$142,015	\$98,424
Annual savings from reduced disposal costs	—	\$96,980	\$18,517	\$44,213	—	\$63,510	\$82,983
Combined annual savings	\$290,000	\$653,444	\$121,462	\$191,132	\$120,000	\$205,525	\$181,324
Average savings per facility	\$12,660	\$5,540	\$8,676	\$23,892	\$12,000	\$8,805	\$18,132
Average savings per staffed bed	\$44.50	\$82	\$45	\$77	\$38.50	\$91	\$84
Average savings per APD	\$0.08	\$0.17	\$0.04	\$0.09	\$0.28		\$0.19
Gallons distilled	—	25,290	16,272	13,974	—	26,520	9,261
Gallons reused	—	18,730	15,990	13,070	—	19,490	8,665

IX. ENVIRONMENTALLY PREFERABLE PURCHASING (EPP) PRODUCTS AND PRACTICES

In August 2011, Practice Greenhealth launched its **Greening the Supply Chain® Initiative**. The Initiative is intended to provide a common set of tools and resources for purchasers, suppliers and manufacturers and help drive a sector wide market shift towards the availability of environmentally preferable products (EPP) and services that are cost competitive and of comparable quality to competing products and services.

A significant part of this initiative is development of a tool, the **Standardized Environmental Questions for Medical Products - Version 1.0**, which can be used to guide the identification, selection, and purchase of environmentally preferable medical products. This tool is a result of a collaborative effort among five of the largest Group Purchasing Organizations – Amerinet, HealthTrust Purchasing Group, MedAssets, Novation, LLC, and Premier Healthcare Alliance – to standardize environmental questions to help educate the health care supply chain on environmental priorities. Purchasing practices are a strategic way to influence and improve the environmental performance of medical products and supplies. Hospitals and health systems are pledging to support their GPOs and drive environmentally preferable purchasing by committing to utilize the standardized environmental questions.

EPP Purchasing Practices

TREND: Table 30 illustrates EPP practices at Award-winning facilities. Nearly all the PFC and ELC winners are working with their GPOs to procure greener products. A growing number of winners are formalizing their commitment to EPP in a policy—an increase was observed for all Award winners! A strong signal for market demand, over 87% of all Award-winning facilities consider the environmental impacts of products and services in their purchasing selection process.

Table 30: EPP Purchasing Practices

EPP Practices	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have communicated a desire for environmentally preferable products with their GPO	—	89%	92%	88%	93%	92%	91%	96%
Has an environmentally preferable purchasing policy (EPP)	68%	70%	68%	66%	78%	71%	87%	93%
Product evaluation committee considers environmental impacts in its selection process	77%	82%	87%	—	—	92%	96%	—
Product evaluation committee considers environmental impacts in selection of general products and services ¹	—	—	—	85%	93%	—	—	93%
Product evaluation committee considers environmental impacts in selection of medical devices ¹	—	—	—	59%	56%	—	—	71%
In purchasing contracts, ask suppliers to track and provide EPP purchasing reports	—	—	36%	34%	29%	—	52%	54%
1) 2012 wording separated general products from medical devices.								

Table 31a presents data on which chemicals of interest winners are evaluating and avoiding in their purchasing decisions. While some hospitals may not yet have a formal environmentally preferable purchasing policy, many are screening for certain chemicals. Significant increases are documented in this table, particularly for ELC winners. In 2012, there was a significant increase in the percent of ELC winners screening for **phthalates**. Other notable increases included volatile organic compounds (VOCs), latex and halogenated compounds.

TREND: Practice Greenhealth continues to note an increase by Award winners, in evaluation and formal elimination (through policy), of most of the chemicals listed in the tables below.

OPPORTUNITY: There is still room for formalizing the minimization or elimination of these chemical compounds through formalizing purchasing policies, and in evaluation in the supply chain process.

Table 31a: Chemicals of Interest Evaluated or Avoided in Purchasing

Material/ Chemical	Evaluated in Purchasing	Evaluated/ Avoided in Purchasing	Evaluated/ Avoided in Purchasing	Evaluated/ Avoided in Purchasing	Evaluated in Purchasing	Evaluated/ Avoided in Purchasing	Evaluated/ Avoided in Purchasing
	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Mercury	89%	89%	88%	93%	71%	100%	100%
Lead	54%	59%	65%	71%	50%	74%	71%
PBTs (persistent bioaccumulative toxic substances)	29%	42%	57%	50%	29%	43%	64%
DEHP (di-2-ethylhexyl- phthalate)	61%	69%	65%	84%	58%	74%	79%
PVC (vinyl, polyvinyl chloride plastics)	56%	65%	59%	64%	58%	87%	89%
Halogenated, chlorinated or bromated flame retardants	43%	46%	47%	43%	38%	57%	64%
Phthalates	27%	45%	47%	43%	25%	48%	71%
Carcinogens, mutagens, reproductive toxicants	48%	54%	55%	59%	50%	65%	64%
Bisphenol A	37%	52%	51%	61%	33%	57%	68%
VOCs (volatile organic compounds)	58%	65%	53%	73%	67%	74%	82%
Latex	76%	75%	81%	82%	83%	83%	93%
Halogenated plastics	19%	33%	37%	27%	29%	22%	32%
Perfluorinated compounds	11%	32%	37%	32%	29%	26%	25%
Benzidine dyes and pigments	18%	31%	25%	23%	33%	22%	21%
Lubricant paraffins	11%	27%	25%	18%	25%	17%	18%

Table 31b presents which chemicals of interest Award winners have included in their EPP policies. More facilities are including an increasing number of chemicals in their EPP policies, and are formalizing their EPP programs with written policies. More facilities mention mercury in their EPP policies than any other chemical of concern.

Table 31b: Chemicals of Concern Specifically Included in EPP Language

Material/ Chemical	Included in Policy						
	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Mercury	50%	74%	69%	82%	58%	78%	93%
Lead	16%	32%	32%	36%	25%	35%	39%
PBTs (persistent bioaccumulative toxic substances)	28%	36%	43%	46%	25%	48%	57%
DEHP (di-2-ethylhexyl-phthalate)	25%	42%	41%	48%	21%	52%	54%
PVC (vinyl, polyvinyl chloride plastics)	26%	42%	43%	48%	38%	57%	68%
Halogenated, chlorinated or brominated flame retardants	18%	34%	31%	36%	33%	35%	43%
Phthalates	18%	32%	32%	43%	25%	30%	43%
Carcinogens, mutagens, reproductive toxics	20%	40%	34%	48%	25%	52%	54%
Bisphenol A	19%	33%	34%	41%	8%	26%	39%
VOCs (volatile organic compounds)	16%	36%	28%	46%	17%	39%	43%
Latex	22%	63%	56%	73%	25%	61%	75%
Halogenated plastics	4%	22%	25%	23%	8%	13%	11%
Perfluorinated compounds	2%	19%	23%	27%	8%	13%	11%
Benzidine dyes and pigments	2%	15%	9%	21%	8%	9%	11%
Lubricant paraffins	2%	14%	12%	21%	13%	13%	7%

EPP Purchasing Practices and Policies Expanded

An increase was seen in evaluating almost all of the attributes listed in **Table 32a**. These increases are significant. While measuring water or energy use can be relatively straight-forward, measuring attributes such as life cycle analysis can be tricky and time-consuming.

TREND: Not only are hospitals looking at water and energy efficiency, many winners are also considering life cycle analysis for at least some of their purchases. The top priorities for all Award-winning hospitals include energy and water efficiency, and are followed by excessive packaging, durability/expected length of service, and whether a product becomes or generates hazardous waste.

OPPORTUNITY: Less than half of Award-winning hospitals are incorporating a life cycle analysis in purchasing practices; a tool that, while time-consuming, can be very useful in identifying more environmentally friendly products. A second opportunity exists to reduce the purchase of plastics that are not easy to recycle by asking suppliers for recyclable plastics.

Table 32a: Attributes Evaluated or Avoided in Purchasing

Attribute	Evaluated in Purchasing	Evaluated/Avoided in Purchasing	Evaluated/Avoided in Purchasing	Evaluated/Avoided in Purchasing	Evaluated in Purchasing	Evaluated/Avoided in Purchasing	Evaluated/Avoided in Purchasing
	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Energy efficiency	76%	79%	85%	93%	83%	87%	89%
Water efficiency	65%	72%	75%	93%	79%	87%	79%
Excessive packaging	52%	66%	72%	71%	54%	78%	89%
Reducing plastics that are not easy to recycle	34%	35%	41%	41%	50%	43%	32%
Durability/expected length of service	61%	73%	71%	80%	75%	83%	86%
Life Cycle Analysis/ Environmental footprint*	44%	51%	40%	41%	38%	57%	46%
Whether the product becomes or generates hazardous waste	61%	72%	69%	84%	58%	83%	89%

Encouragingly, as depicted in Table 32b, more hospitals are *formalizing* their review of environmental attributes in the purchasing process by incorporating specific wording in their purchasing policies. An increase was seen in almost every area for all Award levels.

Table 32b: Attributes Specifically Included in EPP Language

Attribute	Included in Policy						
	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Energy efficiency	35%	54%	69%	75%	33%	57%	64%
Water efficiency	32%	43%	56%	68%	25%	48%	54%
Excessive packaging	31%	41%	48%	43%	25%	43%	50%
Reducing plastics that are not easy to recycle	8%	19%	27%	30%	13%	17%	18%
Durability/ expected length of service	10%	35%	33%	36%	25%	48%	54%
Life Cycle Analysis/ Environmental footprint*	10%	18%	17%	21%	25%	26%	25%
Whether the product becomes or generates hazardous waste	18%	44%	47%	52%	33%	48%	61%

Electronics

In the U.S., reportedly less than 15% of electronic waste is sent to recyclers; the rest is dumped or burned. Even electronic waste (such as computers, monitors and medical devices) that is sent for recycling may not be properly handled. According to e-Stewards (an organization working towards responsible handling of waste electronics; <http://e-stewards.org/about/>) recyclers send an estimated 70-80% of their electronic waste to less developed countries where they are burned for metals, exposing people and the environment to a host of toxicants. To avoid improper disposal, ask for e-waste recyclers (or ask your GPO for e-waste recyclers) who have taken additional steps to be environmentally responsible. Practice Greenhealth suggests asking for recyclers who are involved in the e-Stewards® program (<http://e-stewards.org/find-a-recycler/>).

Table 33 reports on how facilities are handling electronic waste and demonstrates that many facilities are utilizing EPEAT[®] (the global registry for greener electronics) standards to purchase more environmentally preferable electronics, and better recycle used electronic equipment. The percent of facilities using EPEAT standards for purchasing increased to 81% for DIST winners and 75% for ELC winners. When it comes time to dispose of electronics, 75% to 90% of Award winners handle and recycle their electronic wastes as Universal Waste. Impressively, 79%-100% of winners reported that they have made information technology (IT) energy efficiency upgrades this year.

TREND: PFC and ELC winners are finding ways to protect the environment and human health from electronic wastes. There was an increase in all activities listed in **Table 33**.

OPPORTUNITY: More healthcare facilities could formalize their policies to require or prefer the purchase of EPEAT-registered products, and the use of certified recyclers for electronic waste. More information can be found at <http://e-stewards.org/about> and <http://www.epeat.net>.

Table 33: EPEAT and Waste Electronics

Activity	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Use EPEAT standards for purchasing electronic equipment (Purchase EPEAT-registered products) ¹	41%	48%	55%	81%	63%	70%	75%
Have a policy requiring or preferring the purchase of EPEAT-registered products	28%	27%	26%	29%	54%	52%	64%
Manage old computers and E-Wastes as Universal Waste	61%	65%	75%	90%	79%	91%	82%
Performed information technology (IT) energy efficiency upgrades	—	70%	79%	90%	—	—	100%
Use rechargeable batteries	—	—	65%	73%	—	—	64%

¹) 2012 wording.

Table 34 presents data regarding purchasing decisions involving lighting and other equipment for 2011 and 2012. There are two numbers in each column, the first represents what percent of winners ranked the importance of energy efficiency in purchasing this item as “very” or “extremely” important; the second number indicates that the facility paid more for an energy efficient version of this item. For example, in the first row of **Table 34**, in 2011, 86% of PFC winners considered energy efficiency in electronic ballasts to be very or extremely important, and 58% paid more for energy efficient ballasts.

TREND: Hospitals are considering energy efficiency when purchasing electronic products and many are willing to pay more for that item. Energy efficiency was reported to be considered most frequently when purchasing lighting items and building systems equipment.

Table 34: Energy Efficiency Rankings

How important is energy efficiency in the purchase of this item?	2011 PFC Winners Very or Extremely Important/ Paid More for this Item	2012 PFC Winners Very or Extremely Important/ Paid More for this Item	2012 DIST Winners Very or Extremely Important/ Paid More for this Item	2011 ELC Winners Very or Extremely Important/ Paid More for this Item	2012 ELC Winners Very or Extremely Important/ Paid More for this Item
Lighting (electronic ballast)	86%/58%	95%/58%	98%/81%	96%/57%	93%/68%
Lighting (energy-efficient lamps)	86%/59%	96%/63%	95%/85%	96%/70%	100%/79%
Lighting (LED exit signs)	79%/52%	91%/48%	93%/83%	83%/65%	82%/68%
Lighting (other)	73%/42%	94%/45%	95%/73%	65%/52%	78%/57%
Diagnostic imaging equipment	30%/19%	45%/16%	37%/17%	48%/26%	75%/43%
Anesthesia/monitoring equipment	29%/12%	38%/11%	39%/10%	26%/17%	57%/29%
Building systems equipment	75%/53%	85%/48%	98%/73%	74%/35%	92%/64%
Laboratory equipment	31%/15%	48%/16%	46%/20%	43%/30%	67%/39%

Reusable Linens

Table 35 presents data from facilities that are using reusable linens, and use more than 50% of each reusable linen type. The first row of the table can be read as follows: Twenty-one percent (21%) of PFC winners were using reusable drapes in 2010 and by 2012 this number had doubled to 45%! The table also shows a growing trend in reusable isolation gowns which doubled from 32% in 2010 for PFCs to 64% in 2012. The use of reusable incontinence products also nearly doubled for PFC winners.

TREND: There is a steady increase in reusable linen use, with impressive gains by PFC winners, who increased reusable linen use in every single linen type. The most popular reusable item continues to be reusable scrubs (at nearly 100% for all award winners) but, reusable isolation gowns, incontinence products and surgical gown numbers are notables. There is a growing demand for reusable surgical packs and drapes.

OPPORTUNITY: There is still room for growth in the reusable linen arena.

Table 35: Reusable Linens

Are you using these reusable items at your facility?	More than 50%	More than 50%	More than 50%	More than 50%	More than 50%	More than 50%	More than 50%
	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Surgical Drapes	21%	19%	45%	36%	13%	35%	28%
Surgical Gowns	28%	35%	55%	56%	54%	65%	67%
Incontinence Products (underpads & briefs)	38%	33%	64%	56%	50%	52%	45%
Isolation Gowns	32%	32%	64%	64%	38%	43%	53%
Scrubs	85%	91%	98%	97%	100%	100%	100%
Surgical Packs (sterile and non-sterile)	22%	24%	43%	38%	46%	35%	42%

Reusable Products

One key to reducing solid waste is to purchase more reusable products. **Table 36** presents data on the percentage of facilities that have switched to specific reusable products.

TREND: Over the last three years, there has been a steady increase in use of reusable items for all winners, with the exception of surgical basins. Since 2010, there has been a big increase in reusable totes for internal deliveries among PFC and DIST winners and a significant increase of 21% in the use of reusable shipping containers among ELC winners. Over 95% of DIST winners use reusable, rigid sterilization containers for surgical items, greatly reducing the volume of blue wrap purchased and disposed of at those facilities.

Table 36: Reusable Products

Reusable Products	Reuse this Item 2010 PFC Winners	Reuse this Item 2011 PFC Winners	Reuse this Item 2012 PFC Winners	Reuse this Item 2012 DIST Winners	Reuse this Item 2010 ELC Winners	Reuse this Item 2011 ELC Winners	Reuse this Item 2012 ELC Winners
Have you switched any of the disposable products below to reusable products?	—	—	70%	78%	—	—	75%
Totes for <u>internal</u> deliveries	60%	81%	86%	76%	83%	87%	86%
Shipping containers (totes)	45%	54%	59%	66%	50%	65%	71%
RMW shipping	41%	64%	61%	78%	75%	78%	89%
Rigid sterile cases for surgical items	50%	75%	84%	95%	63%	61%	82%
Pharmacy waste containers	36%	58%	59%	71%	42%	61%	61%
Surgical basins/biowaste tubs	29%	23%	31%	34%	58%	35%	43%
Trocar (tubing)	20%	19%	23%	32%	17%	26%	43%

X. FOOD

Would you rather have lunch at a fancy restaurant where they are serving sustainably raised, local, organic fare carefully prepared by an experienced chef, or eat at your local hospital? Well, it turns out if you're eating at one of Practice Greenhealth's Award-winning hospitals, you may not have to choose. Hospitals continue to sign onto Health Care Without Harm's (HCWH) Healthy Food Pledge, and demonstrate a serious commitment to sustainability in their cafeterias and food service programs.

Table 37 illustrates that 66% of PFC and DIST winners and 79% of ELC winners have signed the [Healthy Food in Health Care Pledge](#). Fewer Award winners have tackled the [Balanced Menus challenge](#). A significant number of winners (345 to 44%) have created a sustainable food service policy—an excellent tool to formalize goals and establish metrics.

In addition, about half of PFC and ELC winners and nearly 60% of DIST winners implemented some programs or steps to reduce red meat. The hospitals that tracked those purchases have reduced their meat purchases on average from 12 to 17%. Individual facilities reported reduction of red meat up to 70%. These accomplishments make food offerings healthier and can decrease purchasing costs.

TREND: **Table 37** illustrates the impressive growth in the number of PFC and ELC winners who have signed Health Care without Harm's (HCWH) [Healthy Food in Health Care Pledge](#), increasing from 47% in 2010 to 66% of PFC and DIST winners in 2012, and from 54% in 2010 to 79% for ELC winners in 2012.

Table 37: Sustainable Food Practices

Food Pledges	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have signed the Healthy Food in Healthcare Pledge ¹	47%	55%	66%	66%	54%	83%	79%
Have implemented a " Balanced Menus " program ² /Accepted "Balanced Menus" challenge ³	37%	50%	19%	20%	29%	61%	39%
Have reduced the use of red meat ⁴	—	—	46%	59%	—	—	50%
Average reduction in red meat procurement			13%	12%			17%
Created a sustainable food service policy	—	—	34%	44%	—	—	36%

1) Healthy Food in Healthcare Pledge: (http://www.noharm.org/lib/downloads/food/Healthy_Food_in_Health_Care.pdf)
 2) HCWH Balanced Menus Program: (http://www.noharm.org/lib/downloads/food/Balanced_Menu.pdf)
 3) A change in the 2012 wording may explain a decrease in the numbers presented here.
 4) Have implemented the Balanced Menu Program, or accepted the Balanced Menu Challenge, or have other programs in place to reduce red meat.

Additional questions about meat and food procurement were asked in the 2012 PFC application and data is presented in **Table 38**. About a quarter of PFC and ELC winners and almost 40% of DIST winners reported purchasing sustainably raised meat in 2012. This was much more than a token effort, as those that tracked their procurement of meat reported purchasing 20% to 46% of their meat from sustainable sources.

Over half of all PFC and DIST winners and 79% of ELC winners are working with GPOs on healthy food initiatives. Considering not many hospitals were looking at these issues even a few years ago, the numbers presented here show an attention to—and a growing awareness of—sustainable food issues.

The last line of the table below is an impressive indicator of sustainability in food services for Practice Greenhealth Award winners, with 75% of PFC, 90% of DIST and 96% of ELC winners reporting communication with a distributor or vendor about interest in including more healthy, sustainable and local foods.

Table 38: Sustainable Food Procurement Initiatives

	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Made direct purchases from local farmers, ranchers or local cooperatives	—	—	36%	41%	—	—	75%
Worked with vendors or suppliers to indirectly purchase locally grown food	—	—	68%	76%	—	—	82%
Purchased sustainably pro-duced meat where meat is used	—	—	24%	39%	—	—	25%
% of meat purchased that is sustainably produced	—	—	29%	46%	—	—	20%
Working with GPO on any healthy food initiatives	—	—	53%	51%	—	—	79%
Communicated with distributor or vendor about interest in including more healthy, sustainable and local foods	—	—	75%	90%	—	—	96%

In 2012, Practice Greenhealth also gathered detailed information about farmers’ markets. Forty one percent (41%) of PFC, 76% of DIST and 64% of ELC winners hold farmers markets. Interestingly, there were many variations on the farmers market theme. On average, the winners hold the farmers markets for about 6 months of the year. Twenty-five percent (25%) hold the markets weekly, while 12% hold them monthly, and others have more or less frequent offerings (bi-weekly was also popular). The least frequent were held only once a year, the most frequent were held more than once a week! Details of the varying criteria for these farmers markets are presented in **Table 39**. Two ELC winners hold expanded farmers markets a few times each year, with around 20 vendors attending in addition to their regular, smaller markets! Some facilities combine a pharmaceutical waste take-back with their farmers market.

Table 39: Food and Farm Linkages

Farmers Markets	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Host a farmers market	46%	51%	41%	76%	38%	43%	64%
For “x” months of the year (average)	—	—	7	5	—	—	7
This the only local farmer’s market	—	—	9%	12%	—	—	0%
Take food stamps (such as WIC)	—	—	4%	12%	—	—	11%
Farmers pay to participate in the Farmer’s Market	—	—	0%	7%	—	—	14%
Farmers must be local to participate in market	—	—	30%	56%	—	—	43%
Farmers must be organic to participate	—	—	8%	5%	—	—	11%
Farmers must be certified organic to participate	—	—	4%	5%	—	—	7%

Reusable and Biodegradable Food Service Items

Data in **Table 40** indicates that three quarters of PFC, 95% of DIST and 93% of ELC winners are using **reusable service** ware in patient food services. Thirty-four percent (34%) of PFC, 27% of DIST and 61% of ELC winners are using reusables in the cafeteria. Practice Greenhealth understands that there are issues of space (footprint), water and energy use, and volume when looking at switching back to reusable dishware. Approximately 69% to 89% of Award winners have **reduced or eliminated polystyrene in patient food services** and 68 to 82% have accomplished this difficult task in the cafeteria.

Looking at patient food services and cafeterias for all Award winners, about a quarter of patient food services reported using some **compostable or biodegradable products** (about 27% of products are compostable), while 45% of cafeterias use these items (about 45% of products are compostable).

Another opportunity for sustainability in the cafeteria and food services lies in reducing the tons of solid waste generated from disposable products. Useful information on [Choosing Environmentally Preferable Food Service Ware](#) is presented by HCWH.

Reusable Ware and Polystyrene Elimination

Table 40: Food Service Ware

	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Our Food Services program has:							
Switched to reusable food service ware in patient food services	—	—	76%	95%	—	—	93%
Switched to reusable food service ware in cafeteria	—	—	34%	27%	—	—	61%
Switched to reusable food service ware in other areas	—	—	30%	37%	—	—	68%
Polystyrene (Styrofoam)							
Reduced	—	—	51%	39%	—	—	54%
Eliminated	—	—	23%	37%	—	—	36%
Reduced or eliminated Polystyrene in patient service	—	—	69%	73%	—	—	89%
Reduced or eliminated Polystyrene in cafeteria	—	—	70%	68%	—	—	82%
Our Food Services program has:				Patient Food		Cafeteria	
Used compostable/biodegradable (BPI) products				24%		45%	
% of food service ware that is compostable/biodegradable				27%		45%	
Composted these items				12%		15%	

Food Service Waste Reduction and Composting

Table 41 presents detailed information on food service waste and composting. The data presented below suggest that hospitals are getting serious about reducing costly food waste, as 80% to 97% of winners have strategies to address this issue. Many are composting trim and/or food waste. While some hospitals compost onsite using traditional methods or sophisticated methods like digesters, composting is typically performed offsite due to limitations of space and other issues. While not all hospitals track the weight of the waste they compost, **2460 tons of composting** were reported.

Half of ELCs donate leftover food and about 20% of other winners do as well. While some hospitals donate food but do not track the weight of the donations, winners reported over **400 tons** of food going to the needy. Other hospitals donate pre-consumer food waste to local pig farms or other venues.

Table 41: Food Service Waste Reduction and composting

Food Service Programs:	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Use strategies to reduce food waste	—	—	80%	97%	—	—	92%
Donate leftover food	—	—	20%	22%	—	—	54%
Average annual tons of food donated per facility	—	—	3	3	—	—	72
Sum of tons of food donated annually	—	—	29	19	—	—	360
Have program to compost food waste	25%	29%	36%	39%	58%	48%	57%
Have a program to compost trim waste	—	—	41%	54%	—	—	50%
Have a program to compost compostable paper	—	—	31%	29%	—	—	32%
Compost food waste onsite	4%	5%	—	—	8%	13%	—
Compost on-site using traditional methods	—	—	9%	7%	—	—	18%
Compost on-site using equipment/technology that reduces food waste	—	—	9%	2%	—	—	14%
Compost off-site	—	—	25%	39%	—	—	43%
Average annual tons composted (per facility)	—	—	26	59	—	—	58
Sum of tons composted annually (many facilities donate food but do not track that donation)	—	—	600	940	—	—	920

Local and Organic Food Procurement

Winners continue to purchase local and organic foods to offer to patients, staff and the local community, as presented in **Table 42**. Sixty-eight to 82% of hospitals work with vendors and suppliers to indirectly purchase locally grown food, but 36% to 75% directly buy locally grown food. While some numbers rise or dip from year to year, all of the percentages in this category have increased since 2010. Locally grown and/or organic produce is the most frequent item purchased in Table 42. Milk that is locally produced, often organic, and hormone-free is the second most frequently purchased item. While hospitals may have started out by purchasing just one or two items locally or organic, many hospitals are now looking at much larger sustainable procurement initiatives in food services, and some even pledge to spend a certain percentage of their procurement dollars on local purchases. Additional items not shown on this table include items like baked goods or yogurt.

Table 42: Local and Organic Food Procurement

Local and Organic Food	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have established relationships with local farmers /buy locally*	64%	71%	36%	42%	88%	91%	75%
Have worked with vendors or suppliers to indirectly purchase locally grown food	—	—	68%	76%	—	—	82%
Buy local and/or organic:							
Chicken	28%	31%	23%	37%	58%	61%	54%
Eggs	33%	36%	26%	37%	58%	57%	50%
Meats	29%	36%	24%	42%	58%	52%	54%
Milk	52%	63%	49%	73%	75%	61%	86%
Fish	29%	23%	26%	32%	33%	26%	29%
Produce	75%	73%	68%	83%	92%	83%	96%
* 2012 wording.							

Beverages and Vending

Table 43, reporting on beverages and vending, illustrates Award winners' advances in reducing sugar sweetened beverages (SSBs) and bottled water. One 400-bed ELC winner recently **eliminated SSBs** at their hospital and tracked their results using beverage invoices for the first quarter. Amazingly, this one 400 bed hospital will eliminate nearly **20 million calories** from community consumption this year, preventing the possible creation of about **5400 pounds** of human fat. That is one big step towards making a community healthier.

TREND: Hospitals continue to work on reducing SSBs and eliminating bottled water. The biggest accomplishment in eliminating bottled water was seen in the patient services group in ELC-winning hospitals, which doubled their water bottle elimination from 39% in 2011 to 86% in 2012. The data suggest that patient services might be a good area to focus initial bottled water reduction efforts.

Table 43: Beverages and Vending

Beverages and Vending	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Offered employees reusable water bottles, coffee or travel mugs	76%	83%	73%	71%	83%	87%	93%
Offered fewer sugar-sweetened beverages in the cafeteria and food services	—	74%	71%	68%	—	91%	75%
Offered fewer sugar-sweetened beverages in vending machines	—	63%	56%	54%	—	57%	54%
Provided healthier food in vending machines	—	81%	58%	51%	—	91%	71%
Provided access to free sources of drinking water	—	99%	94%	98%	—	100%	96%
Have eliminated bottled water in:	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Cafeteria	6%	12%	16%	10%	17%	26%	39%
Patient services	22%	31%	43%	51%	38%	39%	86%
Meeting rooms	25%	26%	51%	51%	46%	65%	71%
Vending machines	4%	8%	9%	0%	8%	17%	25%
Other	8%	19%	26%	34%	21%	39%	29%

Healthier Food Choices

With guidance from Health Care Without Harm, the healthier food choices section of the Awards applications was expanded to collect a wider breadth of information and to differentiate exactly where those menu and product changes were being made—in the cafeteria, patient food, or both. Award winning hospitals are making real inroads in making their food offerings healthier. Of note is that most hospitals implemented each sustainable food program in both patient services and the cafeteria. Details are presented in **Table 44**.

TREND: **Table 44** shows that the majority of winners have moved beyond the basics of reducing fat and salt, to more advanced projects such as increasing nutritionally dense and minimally processed foods, protein-balanced vegetarian and vegan options, and creating soups from scratch. The 2012 application asked for more detail, breaking out implementation in the cafeteria, patient food services, or both.

OPPORTUNITY: The data indicates winners are still having trouble eliminating their deep fat fryers. One food services manager feared she would get ‘hate mail’ when she removed the chicken fingers from the menu, but that deep fried entree was very successfully replaced with grilled salmon.

Table 44: Healthier Food Choices

Healthier Food Choices	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have reduced use of:							
Salt							
Cafeteria	75%	86%	1%	0%	71%	87%	0%
Patient Food			10%	8%			18%
Both			70%	75%			61%
High Fructose Corn Syrup							
Cafeteria	52%	68%	4%	0%	71%	70%	11%
Patient Food			4%	5%			7%
Both			44%	75%			39%
Portion Sizes							
Cafeteria	60%	75%	8%	5%	58%	87%	25%
Patient Food			3%	5%			4%
Both			51%	63%			39%
Have eliminated use of:							
Trans Fats/Hydrogenated oil¹							
Cafeteria	76%	85%	1%	0%	79%	91%	4%
Patient Food			3%	5%			4%
Both			81%	90%			82%
Deep Fried Foods							
Cafeteria	12%	11%	1%	0%	25%	22%	0%
Patient Food			15%	10%			11%
Both			28%	27%			32%
Have increased use of:							
Fruits and Vegetables							
Cafeteria	—	—	9%	5%	—	—	4%
Patient Food			1%	3%			0%
Both			85%	90%			89%

Healthier Food Choices	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Nutritionally Dense & Minimally Processed Foods							
Cafeteria	—	—	5%	5%	—	—	11%
Patient Food			5%	3%			0%
Both			72%	83%			79%
Protein Balanced Vegetarian and Vegan Options							
Cafeteria	—	—	14%	8%	—	—	7%
Patient Food			2%	3%			4%
Both			73%	83%			82%
Creating Soups from Scratch							
Cafeteria	—	—	10%	5%	—	—	4%
Patient Food			1%	5%			7%
Both			67%	73%			82%
Whole Grains							
Cafeteria	82%	89%	3%	5%	88%	96%	11%
Patient Food			3%	0%			0%
Both			60%	58%			68%
Address good infant and child nutrition (outside the cafeteria)							
By Promoting Breast Feeding							
Cafeteria	—	—	1%	0%	—	—	0%
Patient Food			37%	22%			46%
Both			19%	37%			32%
By Eliminating Standard Practice of Free Formula Giveaways							
Cafeteria	—	—	1%	0%	—	—	4%
Patient Food			20%	15%			29%
Both			9%	17%			11%

1) 2012 wording asked for eliminated, prior years asked for reduced or eliminated.

Table 45 provides good indicators that illustrate hospitals’ commitment to providing healthier food, awareness of issues surrounding food, and demonstrates how hospitals are educating the community on healthier food and cooking techniques. The data illustrates that 75% of PFCs, 90% of DIST and 96% of ELC winners have communicated an interest in procuring healthier and more sustainable foods to their distributor or vendor. Seventy-nine (79%) of ELCs and half of all other winners are working with their GPO on healthy food initiatives. To get the word out to the community, 71% of PFC, 73% of DIST and 82% of ELC winners are educating their community members via healthy cooking classes.

“Other” activities submitted but not listed in **Table 45** include: implementing a healthy food code system for the cafeteria offerings to make it easier for customers to identify and choose healthier options; offering a “Flavors 450” station where food is measured and prepared in front of clients according to specific recipes that provide 450 calories or less; providing healthier snacks or portion controlled baked goods at meetings, making nutritional information easily accessible for customers by using a digital menu board, tours of the cafeteria, and promoting child nutrition and breastfeeding.

Other innovative ideas included a health system that held local food cook-offs for employees that required at least two ingredients grown locally, and hosted a CEO Celebrity Chef Cook-Off featuring CEOs from their different hospitals. Additional noteworthy projects included following purchasing guidelines published by the Marine Stewardship Council (MSC) and Monterey Bay Aquarium Seafood Watch, and supporting the Community Alliance with Family Farmers (CAFF).

TREND: Purchasing fair trade coffee, holding farmers markets, and offering CSAs and healthy cooking classes increased for DIST and ELC winners. A majority of hospital winners are now using a contracted food service provider, but appear to be working with these providers to implement more sustainable food practices.

Table 45: Other Food Projects

Other Food Projects	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have a fast food restaurant on your campus	6%	11%	5%	11%	17%	9%	18%
Offer Fair Trade coffee	63%	66%	58%	76%	75%	74%	86%
Host a farmers market	46%	51%	41%	76%	38%	43%	64%
Offer an employee CSA (community supported agriculture) program	11%	10%	11%	24%	29%	35%	46%
Grow vegetables onsite for use in the kitchen	—	8%	8%	12%	—	26%	29%
Offer garden space for employees and/or surrounding community	—	5%	8%	5%	—	17%	18%
Educate via healthy cooking classes	—	73%	71%	73%	—	78%	82%
Working with a GPO on any healthy food initiatives	48%	61%	53%	51%	67%	74%	79%
Communicated with distributor or vendor about interest in including healthier and sustainable foods	—	81%	75%	90%	—	91%	96%

XI. FACILITIES AND CONSTRUCTION

Energy and the Build Environment (EBE): Green Building and Sustainable Design

Award-winning hospitals are increasingly including green aspects in new building design and renovations. Between 36% and 61% of Award winners were building or planning renovation projects in 2011, and of these, fully half of DIST and ELC winners reported that the project would include green aspects. Fifty-eight percent (58%) to 82% of winners were planning or building renovation projects in 2011 and of this group, approximately 70% of DIST and ELC winners indicated that the renovation would include green aspects.

Evidence based design, LEAN principles, LEED, GGHC and green building standards are all tools that can be employed to create high performance healing environments. Note the varied approaches to green and sustainable building utilized by Award winners and exhibited in **Tables 46** and **47**.

Table 46: Green Building

Green Building	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2011 ELC Winners	2012 ELC Winners
Facility has been LEED certified	5%	5%	2%	13%	11%
Currently building or planning any new building projects	44%	36%	61%	57%	54%
Yes, and the new building project will incorporate some green aspects	—	29%	51%	—	50%
Currently building or planning any new renovation projects	65%	58%	76%	83%	82%
Yes, and the renovation project will incorporate some green aspects	—	39%	71%	—	68%
Involved in a Pebble Project with The Center for Health Design	1%	3%	2%	13%	4%
Practice evidence-based design	52%	45%	71%	70%	75%
Have a green or living roof	13%	8%	29%	43%	39%
Utilized the Green Guide for Health Care					
Renovation	11%	11%	15%	30%	21%
New Construction	32%	9%	17%	35%	21%
Following LEED guidelines but do not plan on certification					
Renovation	15%	11%	29%	26%	21%
New Construction	21%	8%	10%	48%	18%
Following LEED guidelines and applying for LEED certification					
Renovation	8%	3%	2%	9%	0%
New Construction	25%	11%	24%	22%	29%
High-efficiency HVAC					
Renovation	10%	15%	5%	13%	11%

Green Building	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2011 ELC Winners	2012 ELC Winners
New Construction	14%	6%	7%	22%	21%
Both	52%	58%	81%	61%	57%
High-efficiency building controls					
Renovation	11%	14%	5%	17%	14%
New Construction	14%	6%	10%	9%	11%
Both	53%	61%	81%	70%	64%
Low-flow water fixtures					
Renovation	11%	11%	5%	13%	21%
New Construction	8%	4%	7%	17%	14%
Both	58%	69%	83%	70%	61%
Low-emissivity glass for windows					
Renovation	7%	4%	5%	0%	0%
New Construction	18%	10%	27%	43%	36%
Both	36%	45%	51%	39%	36%
Increased day lighting					
Renovation	6%	5%	0%	4%	7%
New Construction	24%	21%	29%	57%	50%
Both	31%	38%	44%	30%	29%
Sustainable wall covering, paints and finishes with low VOCs					
Renovation	—	10%	5%	—	18%
New Construction	—	6%	5%	—	11%
Both	—	69%	76%	—	71%

Table 47: Sustainable Design and Construction

Sustainable Design and Construction	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2011 ELC Winners	2012 ELC Winners
Use of physical and mechanical design and materials to improve indoor air quality					
Renovation	10%	10%	7%	0%	0%
New Construction	8%	3%	5%	17%	4%
Both	54%	69%	73%	78%	89%
Optimize layout and orientation of building to optimize energy performance					
Renovation	3%	9%	2%	0%	0%
New Construction	17%	29%	44%	48%	43%
Both	32%	29%	27%	39%	39%
Reuse/recycle demolition materials					
Renovation	11%	11%	5%	4%	4%
New Construction	3%	4%	2%	9%	7%
Both	54%	66%	85%	87%	86%
Minimize site development footprint					
Renovation	5%	6%	5%	4%	4%
New Construction	15%	16%	34%	35%	29%
Both	29%	35%	44%	43%	46%
Add language to contract specifications that constructor will follow LEED or GGHC requirements					
Renovation	3%	4%	0%	0%	0%
New Construction	14%	5%	22%	17%	14%
Both	24%	41%	44%	43%	54%
Specify cogeneration, fuel cells, renewable energy systems and other alternative energy resources as feasible					
Renovation	3%	4%	2%	0%	0%
New Construction	8%	5%	27%	22%	18%
Both	21%	34%	12%	30%	29%

Leadership in Energy and Environmental Design (LEED)

Developed by the U.S. Green Building Council (USGBC) in 2000, LEED certification provides third-party verification that a building was designed and built using strategies to achieve high performance in:

- human and environmental health
- sustainable site development
- water savings and energy efficiency'
- materials selection and
- indoor environmental quality.

Alternatively, the Green Guide for Health Care (GGHC) is a self-certifying toolkit that steers facilities through green design, construction and operations. Framing the goals around health implications, the Green Guide helps to connect sustainability with the ultimate goal of healthy people on a healthy planet. Valuable resources help point towards additional support and guidance. Learn more at www.gghc.org.

Table 48 presents data collected for the first time on Award winners' LEED certified building and renovation projects. The table presents a summary of new LEED-certified building and renovation projects in 2011, those LEED-certified prior to 2011, and presents a summary of projects built or renovated following GGHC or LEED guidelines that did *not* pursue certification in 2011 and prior.

Table 48. LEED Building and Certification

All Award levels	Certified	Silver	Gold	Platinum	Total
Certified in 2011					
# of New Builds	6	6	0	0	12
Square Feet built	1.492 million	741,475	0	0	2,233,475
# of Renovations	3	3	3	0	9
Square Feet renovated	57,900	43,200	107,500	0	208,600
Certified Prior to 2011					
# of New Builds	8	7	2	0	17
Square Feet built	2,084,099	2,356,856	417,489	0	4,858,444
# of Renovations ¹	0	2	0	0	2
Not Certified					
Used LEED or GGHC in 2011 with no certification ²	40	13	0	0	53
Used LEED or GGHC prior to 2011 with no certification ³	20	12	0	0	32
<p>1) Square footage was not provided in the Award applications.</p> <p>2) Built or renovated following LEED or Green Guide for Health Care (GGHC) guidelines in 2011, but did not pursue certification: 18 new, 40 renovations.</p> <p>3) Built or renovated following LEED or Green Guide for Health Care (GGHC) guidelines prior to 2011, but did not pursue certification: 20 new, 22 renovations.</p>					

XII. ENERGY

Hospitals use an enormous amount of energy at a huge financial cost. Assuming Practice Greenhealth awards data is a representative cross section of hospitals across the country, and noting that there are about 5800 hospitals in the United States, one can roughly estimate that U.S. hospitals will use around 167 billion kWh and spend \$17 billion on energy, but have the potential to save \$725 million on energy-saving projects. Reducing energy use and the associated costs is a priority for businesses today, and healthcare is no exception.

Analyzing energy use and conservation can be extremely complex. Reporting energy data is complicated, and can provide misleading results when not carefully qualified. In addition, the type of energy used and associated pricing is dependent on the geographic location, and Award winners are spread from coast to coast. With that disclaimer, Practice Greenhealth's statisticians have analyzed the energy data submitted by its Award applicants and the data is provided below. This section will present Energy Characteristics, Energy Use Data, Energy Cost Data, and Energy Efficiency Data, in that order.

The 171 Award winners studied in this report are responsible for 955 buildings. These buildings consumed 4.5 billion kilowatt hours of electricity, large quantities of natural gas, and 3.5 million gallons of fuel oil, at **a cost of nearly \$453 million**. This year, conservation projects **saved winning hospitals \$18.6 million**. Award winners can celebrate these monetary savings, as well as reduced greenhouse gas (GHG) emissions. An executive summary and details of energy use and energy savings are presented in **Table 49** immediately below.

Table 49: Energy Executive Summary

Energy	2011 All Winners	2012 All Winners
Total Energy Costs	\$460 million	\$453 million
Total Energy Savings	\$8.6 million	\$18.6 million (4%)

Energy Characteristics

Table 50 presents some characteristics of Award winners' energy programs. In 2009, only 38% of PFC winners reported that they were members of U.S. EPA's Energy Star Program, but by 2012, membership has grown to 54% of PFC, 73% of DIST and 79% of ELC winners. Average EnergyStar ratings have not increased but Award winners reported EnergyStar rankings up to 98 out of a possible 100 total—an impressive feat for any building, let alone a healthcare facility. Practice Greenhealth encourages and supports the use of Energy Star's Portfolio Manager. Cost of energy will be discussed below in detail, and is also presented at the end of this table, coming in at around \$23 to \$28 per APD.

TREND: Implementation of energy efficiency projects remains high, at around 90% for ELC and DIST winners and will be discussed in more detail in the Energy Efficiency section below. Participation in Energy Star has increased among Award winners and more facilities have completed their data collection in the EnergyStar Portfolio Manager tool. The data also shows an increase in participation in the E²C program (a collaboration between EnergyStar and the American Society for Healthcare Engineering (ASHE)—see [EnergyStar's quick guide to E²C](#)).

Table 50: Energy Characteristics

Energy Characteristic	2009 PFC Winners	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Are EnergyStar Partners	38%	57%	62%	54%	73%	75%	74%	79%
Average Energy Star rating for their building	—	58	50	53	47	59	52	51
Completed data collection through Portfolio Manager	—	—	51%	40%	73%	—	43%	75%
Participate in the E²C Program (between ASHE and EnergyStar)	8%	19%	14%	13%	29%	21%	30%	39%
On-Site Data Center	—	—	70%	75%	68%	—	91%	68%
Engaged in energy efficiency projects	97%	82%	71%	76%	93%	88%	91%	89%
Total Cost of Energy per Staffed Bed ¹	—	\$13,215	\$10,661	\$10,812	\$10,913	\$12,190	\$10,661	\$11,902
Cost of all types of energy per APD ¹	—	\$31	\$27	\$23	\$28	\$33	\$27	\$25

1) The 2011 data was averaged for PFC and ELC combined.

There is a vast amount of energy information to present in this section. The section will begin by looking at energy use and costs, then present energy efficiency information. Generally, Award winners are analyzed together in this section, and may be broken out by location and relative climate rather than Award type.

Energy Use

Electricity

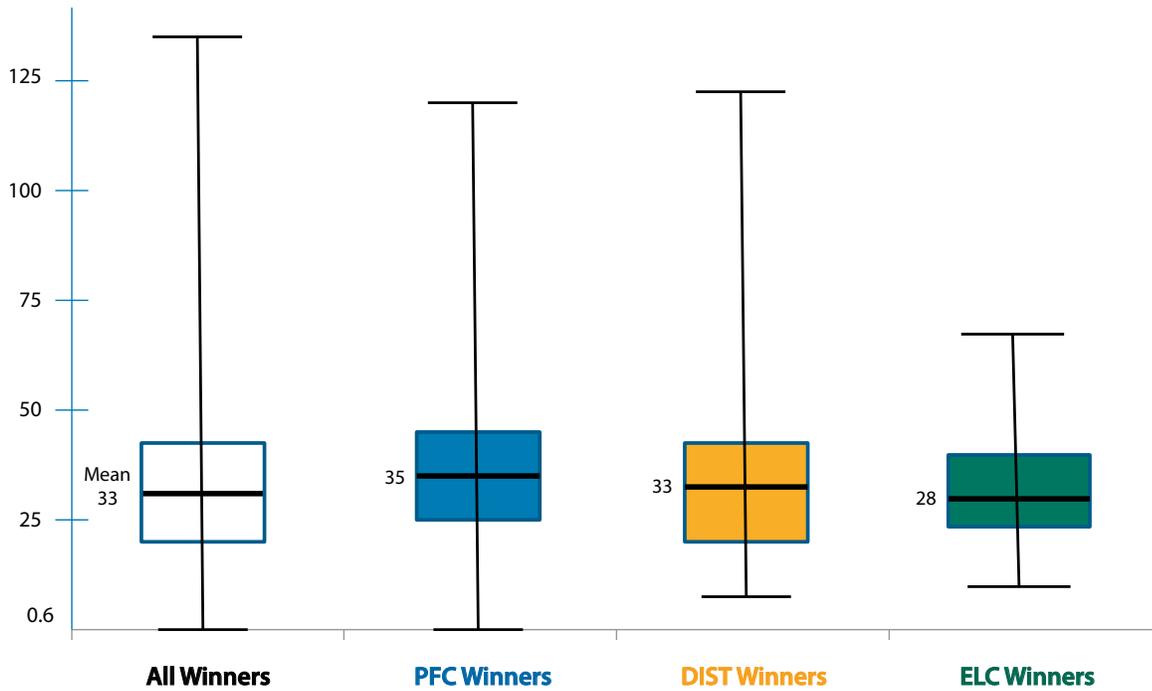
In 2012, Award-winning hospitals used 4.3 billion kilowatt hours of electricity at a rate of 33 kilowatt hours per square foot or 229 kilowatt hours per APD. **Table 51** presents a detailed breakdown of electricity use by different normalization factors. This year's report will not contain natural gas consumption data (to be included next year—when the PFC Award application will allow for better identification of units).

Table 51: Normalized Energy Use

Average Energy Use Data	2011 Hospital Winners	2012 Hospital Winners
Electricity		
Total kilowatt hours (kWh)	4 billion	4.3 billion
Energy Use Index for Electricity (EUI)	108 Kbtu per sq. foot	112 Kbtu per sq. foot
Kilowatt hours per Square Foot	31	33
Kilowatt hours per APD	225	221
Kilowatt hours per Staffed Bed per Day	246	271
Kilowatt hours per FTE	11,136	12,420
Kilowatt hours per Licensed Bed per Day	219	236
Fuel Oil		
Total gallons used by winners ¹	3.5 million ²	3.5 million²
1) This is #2 fuel oil used for heating and diesel fuel for backup generators. 2) The majority of these gallons are used by a single hospital in a northern climate that heats solely with fuel oil.		

The average energy use for all Award winners is 33 kilowatt hours per square foot as presented in Table 51 above. **Figure 6** graphically presents this data by Award category as a line representing the mean, or average, in the middle of the white box which illustrates the 25th to 75th quartile for all Award winners (the bulk of the data). The blue box in **Figure 6** illustrates average energy use for PFC Award winners at 35 kilowatt hours per square foot, the orange box illustrates an average of 33 kilowatt hours per square foot for the DIST winners and the green box illustrates an average of 28 kilowatt hours per square foot for the ELC winners. ELC winners are using less energy per square foot than other winners.

Figure 6. Average Annual Electricity Use in Kilowatt Hours per Square Foot



Alternative Energy

Table 52 presents the first ever data on hospitals that utilize alternative energy sources for some portion of their energy portfolio. Twenty-one of the Award-winning hospitals (or 14%) are using some form of alternative energy. Seven facilities are using more than one type of alternative energy. Four facilities in Washington State use 100% hydropower. (If only more hospitals had that infrastructure available)! The four facilities in Washington State were the only facilities to use hydropower certified by the Low Impact Hydropower Institute. While a number of facilities are *purchasing* alternative energy, at least one facility in Wisconsin is actively involved in the *generation* of alternative energy.

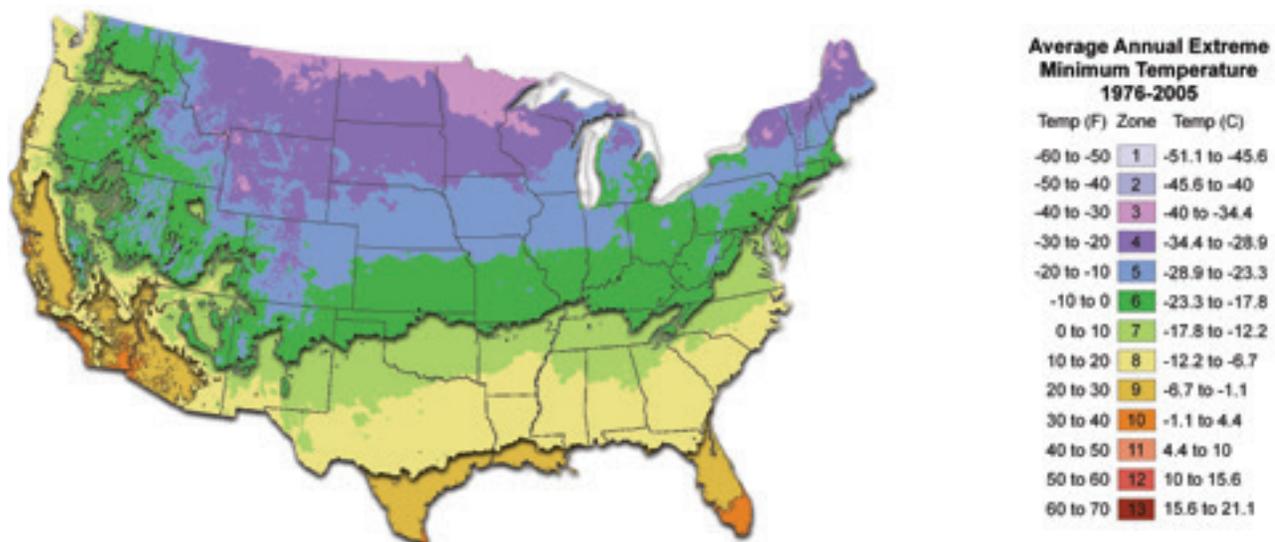
Table 52 Alternative Energy

Type of Alternative Energy	No# of facilities using	Range % renewable of this energy type
Solar	2	5-10%
Wind	10	5-40%
Geothermal	2	5-30%
Hydro	13	10%-100%
BioMass	2	10%-30%
Biogas	1	10%
Other	2	10-60%
Total	21 different facilities = 14% of winners	5-100%

Energy Use and Cost by Temperature Zones:

Because energy use and fuel type is so dependent on geographic location, the energy data is presented by temperature zone or geographic region. While last year's report used US EPA regulatory regions, Practice Greenhealth's statisticians felt it was more appropriate to utilize the USDA Hardiness Zones map, which follows temperature change across the country. **Figure 6** illustrates an adaptation of the [USDA plant hardiness zones map](#).

Figure 7. USDA Plant Hardiness Zone Map



The U.S. Department of Agriculture provides temperature zone data by zip code. These zones are defined by the average annual extreme minimum temperature for a geographic area. For clarity in analysis of health facilities' energy use and cost, these zones have been reduced to three categories of extreme temperature ranges and have been labeled simply as the Colder, Milder and Warmer zones. Energy data is presented using these three zones in the tables below. For simplicity, the key will be **-25-0° = colder, 0 to 20° =milder, 20-45° =warmer.**

Because energy use is so dependent on the region in which the hospital is located, Practice Greenhealth had Award winners energy use data analyzed by temperature zone. **Table 53** presents summary cost data for the three temperature zones defined immediately above. As one might expect, electricity usage is highest in the warmer climates due to air conditioning requirements. However, when comparing electrical to natural gas consumption, one would observe opposite patterns. As one moves from colder to warmer climates, electricity usage per square foot increases but anecdotally, natural gas usage per area (for winter heat) declines. Practice Greenhealth's next Sustainability Benchmark Report will have more detailed data on natural gas use. This year's data was unfortunately muddled by a mixture of natural gas units submitted in the applications.

Table 53. Average Annual Energy Use By Temperature Zone

Temperature Zone ¹	Colder	Milder	Warmer	Average of all Zones
Temperature range in zone	-25 to 0	0 to 20	20 to 45	-25 to 45
Average Electricity Use per Square Foot in kilowatt hours	27.0	39.0	39.6	32.9
1) Average Annual Extreme Minimum Temperature in Fahrenheit.				

For a discussion on predicting energy use, see **Appendix 3**.

Energy Costs

Energy costs for hospitals can range anywhere from 3% to 5% of a hospital's operating budget. Award winners spent nearly \$350 million on electricity last year and another \$100 million on natural gas.

Table 54 presents data on energy costs normalized by a number of different factors. The normalization factor that correlates best to electricity costs was, not surprisingly, square footage of the facility.

TREND: The average cost of **electricity** per kilowatt hour was nine cents, which was the same as last year. The average cost of electricity use decreased from \$2.78 per square foot in 2011 to **\$2.58 per square foot in 2011 (2012 report)**. Normalizing by operations, the average cost of electricity dropped from \$19 per APD in 2010 to **\$17 per APD in 2011**.

The average cost of using **natural gas** decreased from \$1.10 per square foot in 2010 to \$0.81 per square foot in 2011. Normalizing the data by operations shows natural gas costs dropping from \$8.20 per APD in 2011 to **\$4.98 per APD in 2011**. In 2011, the average cost of **fuel oil** was \$3.15 per gallon and the average cost of diesel was \$4.18.

Table 54: Average Annual Energy Costs

	2011 Winners All Facilities	2012 Winners All Facilities
Electricity Costs		
Total Cost of Electricity (sum all facilities)	\$325 million	\$330.2 million
Average Cost per kilowatt hour	0.09	0.09
Cost per square foot	2.78	2.62
Cost per APD	\$19	\$17
Cost per staffed bed	\$7,694	\$7,854
Cost per licensed bed	\$6,520	\$6,652
Cost per FTE	\$972	\$997
Natural Gas Costs		
Total Cost of Natural Gas (sum all facilities)	\$127 million	\$100.5 million
Cost per square foot	\$1.10	\$0.84
Cost per APD	\$8.20	\$4.98
Cost per staffed bed	\$3,114	\$2,505
Cost per licensed bed	\$2,669	\$2,150
Cost per FTE	\$410	\$361
Fuel Oil		
Total Fuel Oil Costs ¹	\$6 million	\$4.8 million—fuel oil \$752,570—Diesel
Average Cost per Gallon ²	—	Fuel oil = \$3.25 Diesel = \$4.18
Total Energy Costs		
Total energy expenditure		\$432,120,300
Total energy costs per square foot	\$3.77	\$3.70
Total energy costs per FTE	\$1,355	\$1,428
1) Only a few hospitals use fuel oil to heat their facilities, but many have relatively small amounts of fuel oil or diesel available for backup generators. 2) This average pricing excludes the largest fuel oil user who receives a discounted rate.		

Figure 8 illustrates that the average cost for electricity per kilowatt hour while Figure 11 illustrates the average cost per square foot of facility.

Figure 8: Average Cost of Electricity per Kilowatt Hour

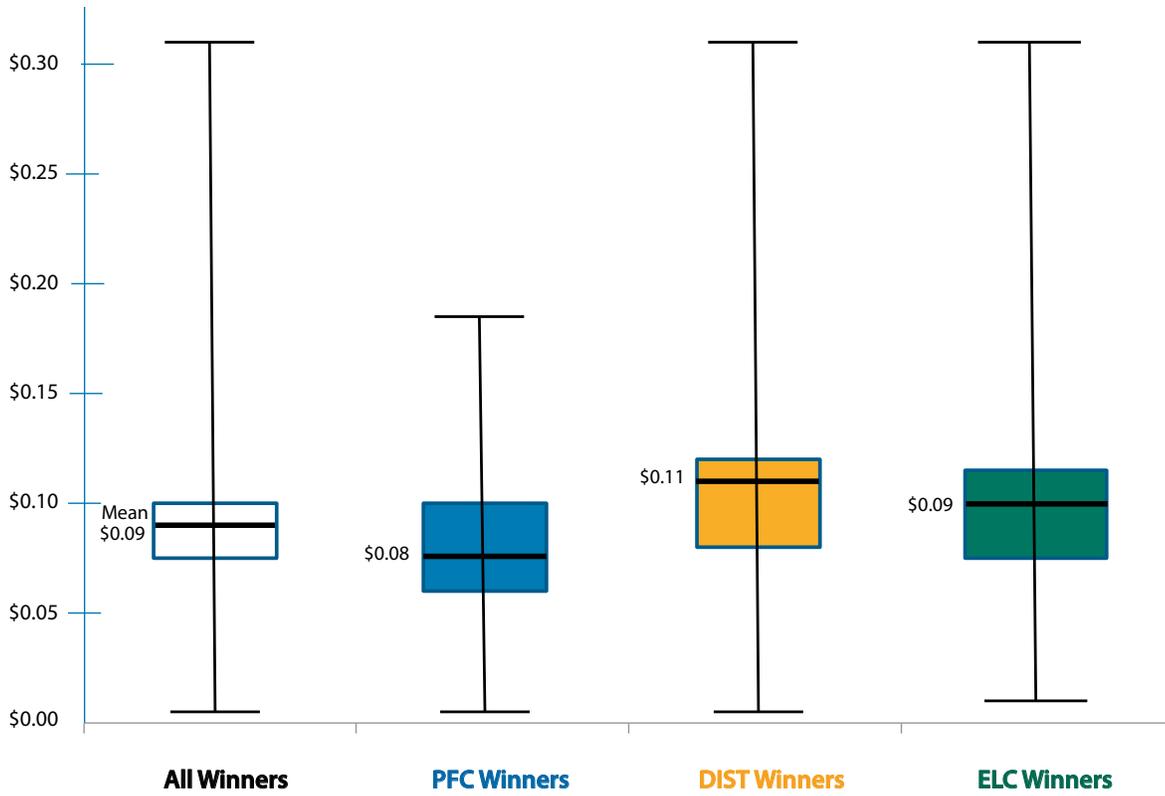
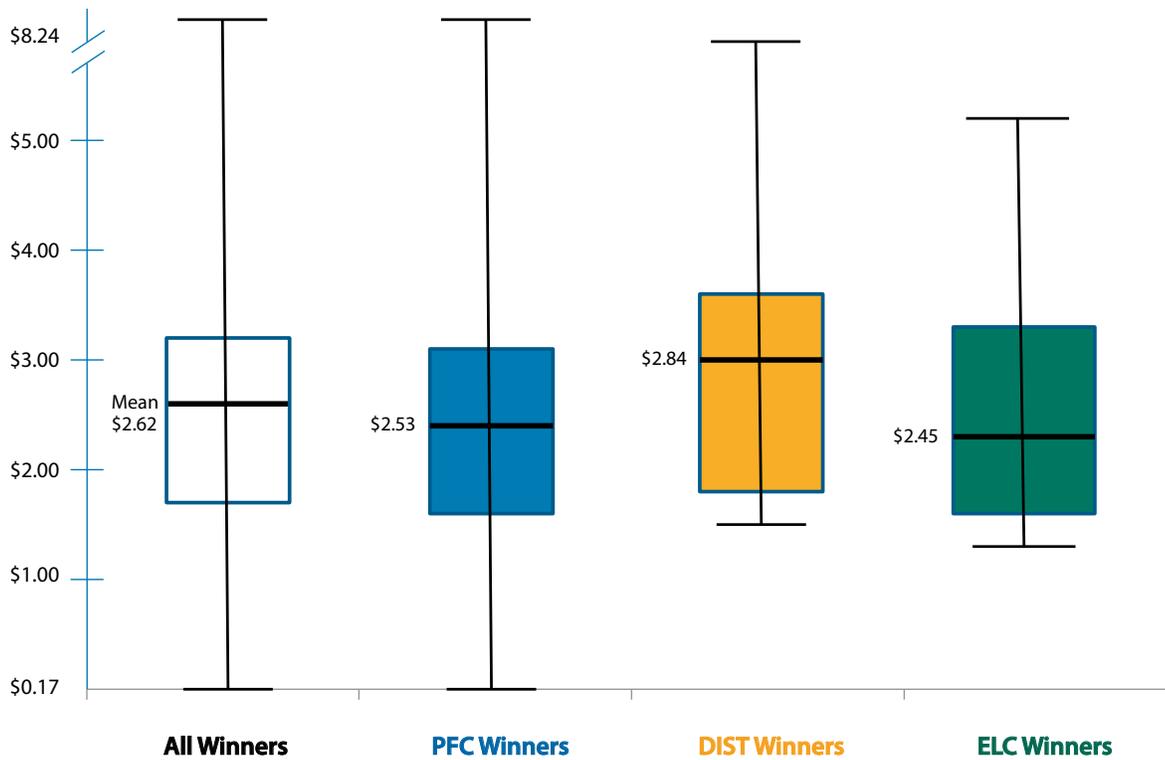


Figure 9: Average Cost of Electricity per Square Foot



Energy Costs by Temperature Zone

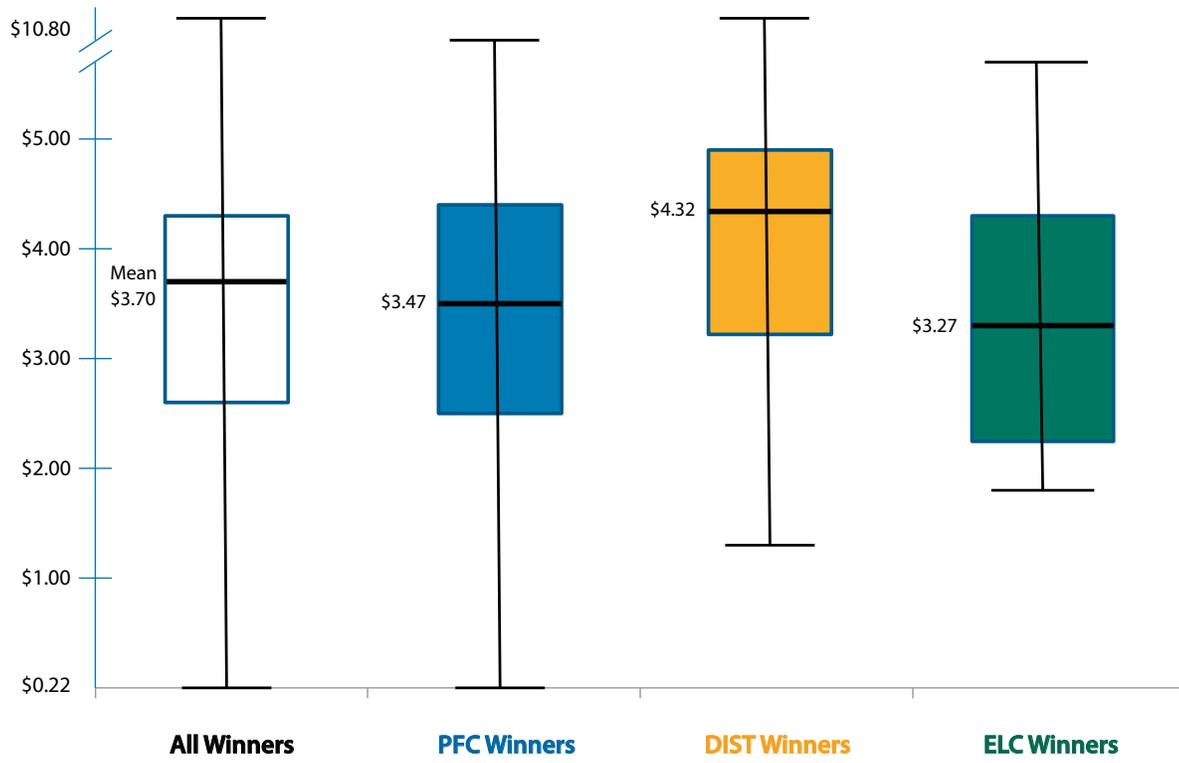
Obviously energy costs will vary by facility size and location. **Table 55** presents average energy expenditures by fuel type, for each of the three climate zones. Electricity cost per square foot is higher in the warmer zones, not surprisingly, due to air conditioning requirements, while natural gas costs per square foot (used primarily for heating) are much less in the warmer climates. **Total energy costs** are less costly per square foot of facility in the colder climates. Electricity, however, seems to be priced fairly similarly in the three regions.

Figure 10 represents total energy costs per square foot; the average for all Award winners is \$3.70 per square foot.

Table 55: Energy Expenditure by Temperature Zones

	Temperature Zone ¹			Mean
	Colder	Milder	Warmer	
	-25 to 0	0 to 20	20 to 45	
Energy Expenditure in Dollars				
Electrical Cost per Square Foot	\$2.39	\$2.61	\$3.13	\$2.59
Natural Gas Cost per Square Foot	\$0.86	\$0.95	\$0.39	\$0.80
Total Energy Cost per Square Foot ²	\$3.49	\$3.74	\$3.72	\$3.60
Energy Cost Per Unit				
Electricity in Kilowatt hours	\$0.09	\$0.08	\$0.11	\$0.9
1) Average Annual Extreme Minimum Temperature in Farenheit. 2) Average cost of fuel oil could not be accurately determined because only one facility appears to heat solely with fuel oil.				

Figure 10: Total Energy Costs per Square Foot



Diseconomy of Scale in Energy Costs

In the 2011 Sustainability Benchmark Report, an exponential (rather than linear) relationship was observed between total energy costs and staffed beds with an R^2 value of 0.627 (a perfect correlation would give an R^2 value of 1.0). This suggests that there was no economy of scale but rather that, "...the more beds you have, the more energy you will use, per bed." (2011 Benchmark Report, page 59).

The 2012 data demonstrates the same nonlinear relationship (as the 2011 data) between total energy costs and staffed beds with a similar R^2 value of 0.761, displayed in **Figure 11**. This year, with the additional information on the approximate number of buildings each facility is composed of, Practice Greenhealth was able to more directly explore this suggested diseconomy (rather than an economy of scale which dictates that there are cost savings from larger production). The average dollars spent on energy per staffed bed is displayed in **Table 56** for five categories of facilities increasing by the number of buildings they have. As the number of buildings increase, the energy cost per bed increases as well. The data clearly demonstrate a diseconomy of scale when it comes to energy costs.

The "number of facilities in each group" presented in the last row of the table can be read as: there were 18 Award winners that had only one main building, there were 22 winners that had 2-3 buildings, 20 facilities that had 5-6 buildings, etc.

Figure 11: Total Energy Costs vs. Staffed Beds

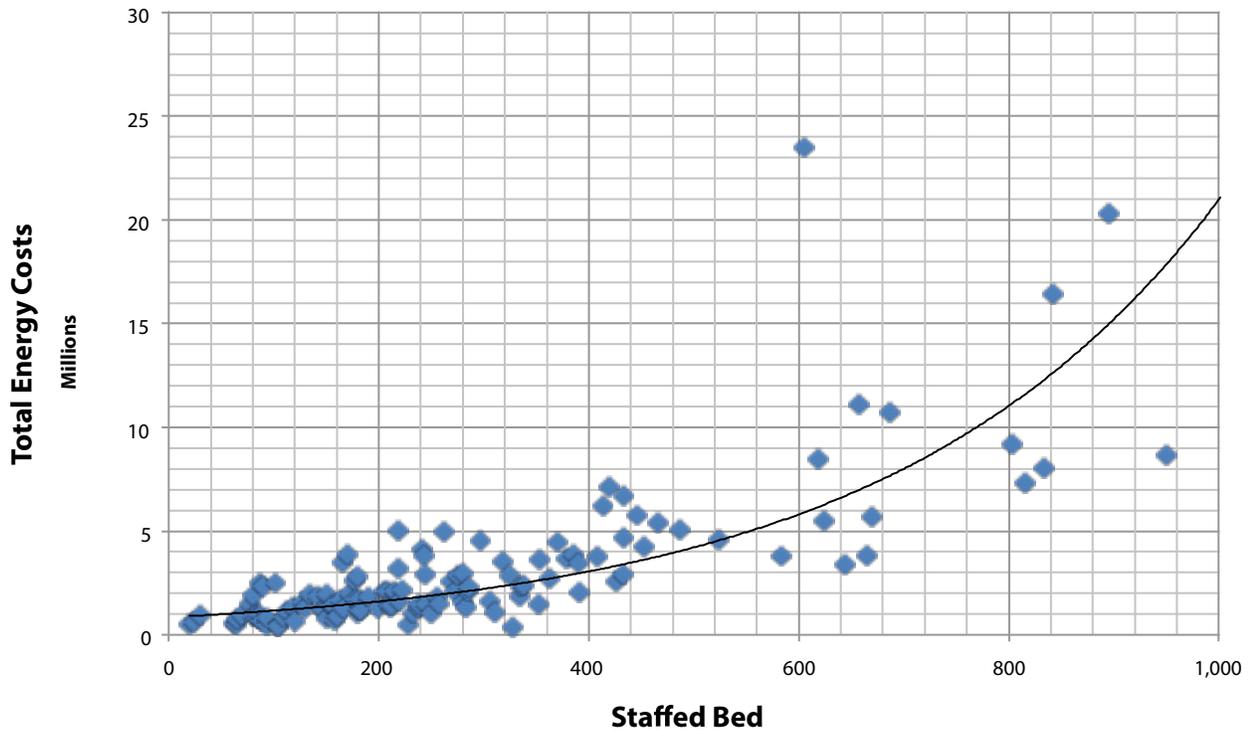


Table 56: Average Total Energy Cost per Staffed Beds by Number of Buildings

Total Mean (Average) Energy Cost per Staffed Beds BY Number of Buildings					
Number of buildings	1	2 – 3	4 -6	7 – 9	10 or more
Average annual cost per staffed bed	\$9,398	\$10,536	\$12,246	\$14,416	\$15,322
Number of facilities in each group	18	22	20	8	14

For a discussion on **predicting energy costs** based on campus size, see **Appendix 3**.

Energy Efficiency

As demonstrated above, many of Award winners have implemented energy efficiency projects. **Tables 57 and 58** provide some detail regarding these projects. The data provided in these two tables represents only those facilities that implemented energy efficiency measure and reported data for those projects. **2012 Award-winning facilities saved 73 million kWh of electricity and a million CCF of natural gas 200,000 gallons of fuel oil and over seven million pounds of steam for a total savings of nearly \$17 million—and prevention of 57,800 metric tons of CO₂ generation.**

2012 Award winning hospitals saved nearly \$17 million through energy efficiency.

Table 57: Energy Efficiency Executive Summary

Total Energy Savings	2011 Energy Saved	2012 Energy Saved	2011 Dollar Savings	2012 Dollar Savings
Electricity	50 million kilowatt hours	72 million kilowatt hours	\$7.6 million	\$14.3 million
Natural Gas	116,400 dekatherms	1.3 million CCF¹	\$925,000	\$1.4 million
Fuel Oil Savings	—	200,000 Gallons	—	\$165,000
Steam Projects	—	7,220,100 pounds	—	\$975,400
Total Energy Savings	—	—	\$8.5 million	\$16.8 million
Total GHG emissions prevented	40,300 metric tons CO ₂	57,800 metric tons CO₂²		

1) The natural gas units are suspect, as hospitals appear to have reported a mix of dekatherms and CCF.
 2) Energy efficiency programs are not generally assumed to affect baseload emissions (the emissions from power plants that run all the time), but rather non-baseload generation (power plants that are brought online as necessary to meet demand).

Table 58 highlights details of the electricity savings from projects implemented at Award-winning hospitals. These projects saved approximately **72 million kilowatt hours of electricity, saving 8% of annual electricity costs, preventing 57,800 metric tons of CO₂, and generating savings of \$14.3 million.** Award winners saved around \$1 per square foot of facility, which is a gross estimate of profits to be made through a commitment to energy efficiency. Projects most often included upgrades to chillers, lighting, boilers and installing variable-speed or variable-frequency drives on existing equipment.

Table 58: Details of Electricity Savings

Energy Efficiency Project Details ¹	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2011 ELC Winners	2012 ELC Winners	Combined 2011 Saving All Winners	Combined 2012 Savings All Winners
Total Electricity Used in kWh	1.3 billion	2.0 billion	1.2 billion	636 million	1 billion	1.9 billion	4.2 billion
Total Energy Saved in kWh	29 million	20 million	27 million	21 million	25 million	50 million	72 million
Total Electricity Expenditures	\$118 million	\$128 million	\$120 million	\$49 million	\$83 million	\$167 million	\$331 million
Total Electricity Dollars Saved	\$5.7 million	\$4.1 million	\$8.6 million	\$1.9 million	\$1.6 million	\$7.6 million	\$14.3 million
Average % Annual Electricity Expenditures Saved	4.9%	6.9%	12.1%	3.8%	3.2%	4.6%	7.7%
Average Kilowatt Saved per Square Foot	0.67	0.62	1.39	0.96	1.04	0.77	0.96
Average Savings in Dollars per Square Foot	\$0.13	\$0.15	\$0.27	\$0.09	\$0.07	\$0.12	\$0.18

Table 59 presents detailed data on energy efficiency projects. As stated above, 89% of ELCs, 93% of DIST and 76% of PFC winners reported implementing energy efficiency projects last year.

TREND: In general, the percentage of Award winners implementing energy efficiency projects continue to rise. Both ELC and DIST winners saw a big jump in implementing building envelope improvements and 100% of ELCs and 95% of DIST winners reported minimizing leaks in air handling units (AHUs) and duct work. There has also been a big jump in the number of Award winners reporting that they implemented energy saving retrofits and other techniques to save energy—(82% of ELCs—up from 65% in 2011, and 88% of DIST and 70% of PFC—up from 49% in 2011. Another area that saw a significant increase was the evaluation or improvement of critical equipment electrical distribution systems.

Table 59: Energy Efficiency Projects

Energy Efficiency	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Engaged in energy efficiency projects	82%	71%	76%	93%	88%	91%	89%
Implement building envelope improvements to reduce energy requirements, (such as improved insulation, window and door replacements)	55%	55%	45%	78%	75%	57%	71%
Use evaporative cooling when ambient conditions allow	32%	43%	48%	42%	54%	65%	61%
Reset space temperatures based on usage and occupancy	75%	69%	73%	78%	79%	87%	89%
Operate chiller plants that use various technologies and strategies to reduce overall plant energy consumption at full and partial loads (such as chillers with variable speed drives on the compressors, primary-only variable flow pumping, etc)	73%	81%	88%	85%	83%	83%	89%
Integrate day-lighting strategies to decrease building energy demand	56%	49%	48%	59%	79%	78%	82%
Utilize chiller optimization program (software) to determine best use of chiller sequencing based on efficiencies at various loads	61%	68%	74%	83%	88%	70%	71%
Minimize leakage in air handling units(AHUs) and ductwork to reduce overall fan horsepower while ensuring that air is properly filtered	73%	80%	79%	95%	83%	91%	100%
Retrofit using variable speed drives for motors and pumps, and Energy Star-rated equipment to reduce electrical consumption	76%	81%	81%	95%	79%	83%	89%
Install energy efficient lighting devices, such as: LED exit signs, fluorescents, Energy Star-qualified lighting fixtures, occupancy sensors and sunlight harvesting controls	95%	92%	96%	98%	96%	96%	96%
Implemented energy-efficiency retrofits and energy-saving techniques to reduce energy use	—	49%	70%	88%	—	65%	82%
Increased energy efficiency of computer server infrastructure	—	49%	55%	54%	—	65%	64%
Evaluated or improved critical equipment electrical distribution systems	—	58%	56%	83%	—	65%	89%
Other HVAC improvements to improve energy efficiency	26%	51%	53%	66%	50%	74%	75%

Commissioning remains incredibly important in an overall energy plan, as evidenced in the high level of participation reported in **Table 60**. A number of the most advanced hospitals have reported significant energy savings from commissioning their existing facility—which does not require a large capital investment.

TREND: Commissioning numbers remain high, with DIST members increasing regular inspections within the commissioning program (91%—up from 73% in 2011) and ensuring the program addresses the HVAC, humidity, lighting and safety systems (89%—up from 70% in 2011). In addition, all winners reported additional “other” commissioning activities.

Table 60: Commissioning

Commissioning	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Incorporate regular inspections of the mechanical ventilation system into the commissioning program to identify if the filters are clean, not overloaded and without leaks or tears and insure that drip pans are free of standing water or other contaminants	81%	73%	76%	93%	96%	91%	89%
Ensure that the commissioning program addresses—at a minimum—the following: heating system, cooling system, humidity control system, lighting system, safety systems, building envelope, domestic water pumping systems and the building automation controls	74%	70%	68%	90%	92%	91%	89%
Other Commissioning	—	12%	19%	37%	—	39%	46%

Refrigerant Management (**Table 61**) is another important responsibility of facilities managers and an important step to help reduce ozone destruction.

TREND: All areas of refrigerant management increased significantly for DIST winners, and the practices of other winners’ generally held steady, with one exception for ELC winners (minimizing leakage).

Table 61: Refrigerant Management

Refrigerant Management	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Use non-CFC-based HVAC&R equipment which is often more efficient than CFC-based equipment and can improve overall facility energy performance	62%	54%	63%	78%	75%	87%	86%
Set up leakage minimization procedures and systems to meet annual leakage minimization standards and reporting requirements. (For more information, see U.S. EPA’s “Complying with the Section 608 Refrigerant Recycling Rule.”)	54%	62%	66%	83%	75%	91%	82%
When reusing existing HVAC systems, conduct an inventory to identify equipment that uses CFC refrigerants and provide a phase out schedule for these refrigerants	55%	51%	51%	76%	67%	70%	75%

XIII. WATER

Tracking Water Use

Tracking and measuring the amount of direct water used is the first step a hospital should take to begin its water management and minimization program. The “water footprint” of a hospital is defined as the total volume of freshwater that is used directly or indirectly to run and support the hospital. Whether a hospital leases or owns the building, it is imperative that it has accurate water tracking tools in place to identify underperforming buildings, verify efficiency improvements and prioritize investment opportunities. A good tool for hospitals to track their water consumption is through Energy Star’s Portfolio Manager, found at: <http://www.energystar.gov>. Portfolio Manager is an online tool that can help hospitals track and assess energy and water consumption within individual buildings as well as across a health system’s building portfolio. This year, use of the EnergyStar tool increased to 37% of DIST and 29% of ELCs (up from 13% last year). A new, free water benchmarking tool (watermark!) is available online at <http://www.mazzetti.com/watermark>. This tool should prove helpful for many facilities interested in benchmarking their water use against like size and type facilities.

Award winners saved a total of **150 million gallons of water**, or **13% of their total usage**, producing a savings of **\$1.3 million**.

By tracking water use alongside energy use, facility managers can better understand how these resources relate to one another, make informed management decisions that increase overall efficiency, and verify savings from improvement projects in both energy and water systems. Organizations that manage water and energy performance together can take advantage of this relationship to create greener, more sustainable buildings.

TREND: Award winners used a total of **3.5 billion gallons of water** at a cost of **\$26.3 million** last year. Measured in gallons per APD or gallons per staffed bed, **water use decreased** for all Award winners. ELC winners had the lowest water use at 287 gallons per APD. A number of normalization factors are compared in **Table 62**, and annual water use in gallons per APD is displayed in **Figure 12**.

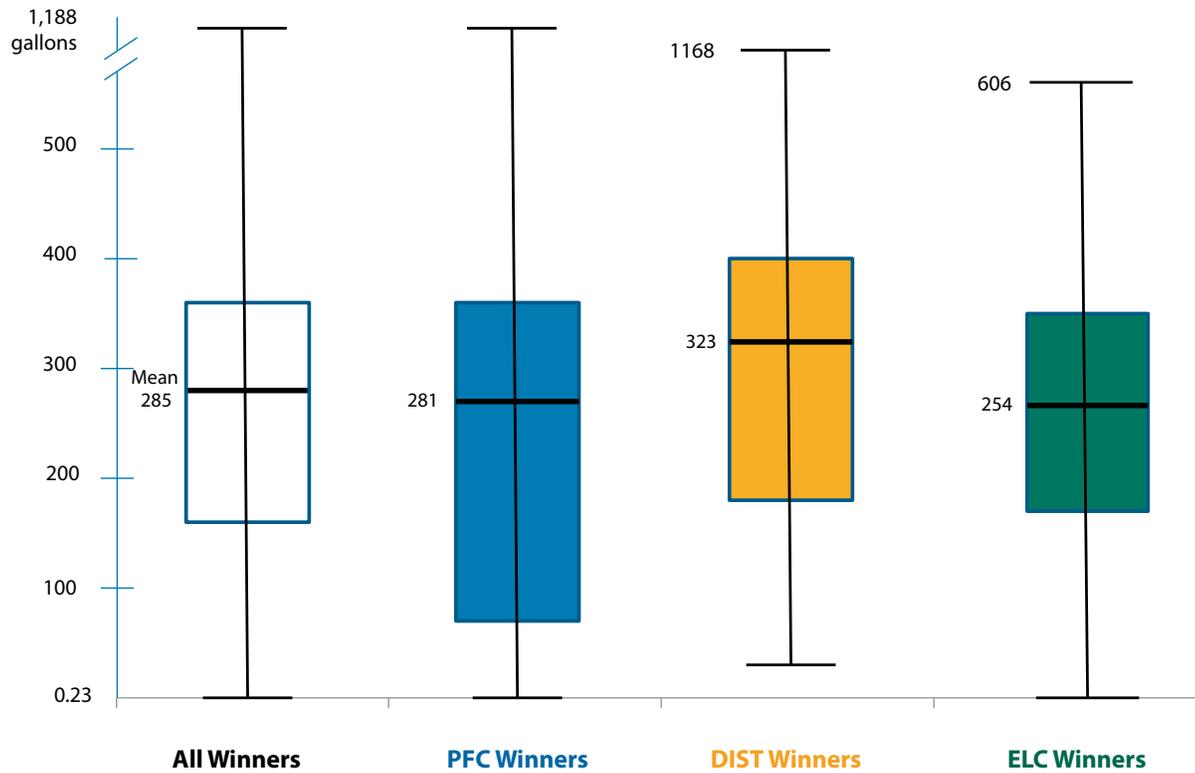
TREND: ELC winners significantly outperformed PFC winners as measured in gallons per APD, the best correlating normalization factor.

OPPORTUNITY: There is an opportunity for other hospitals to learn more about reducing water use from the ELC-winning hospitals.

Table 62: Average Annual Water Use and Costs

Water Use	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Total gallons used	2.6 billion	4.0 billion	1.6 billion	1.1 billion	1.3 billion	734 million	764 million
Annual gallons used per APD	382	457	281	310	375	368	287
Annual gallons used per staffed bed per day	452	468	362	319	388	385	354
Annual gallons used per square foot	—	62	39	47	—	57	39
Average gallons used per FTE	—	21,148	16,302	17,698	—	21,286	16,527
Water Costs¹							
Total annual water bill	—	—	\$8.0 million	\$4.5 million	—	—	\$3.3 million
Total annual sewer bill	—	—	\$5.2 million	\$3.3 million	—	—	\$2.0 million
Total combined water and sewer bill	—	—	\$13.2 million	\$7.8 million	—	—	\$5.3 million
Average cost per gallon of water	—	—	\$0.005	\$0.005	—	—	\$0.005
Average total cost per 1000 gallons	—	—	\$4.93	\$5.06	—	—	\$4.63
Average total cost per gallon (water and sewer)	—	—	\$0.008	\$0.009	—	—	\$0.008
Average total cost per 1000 gallons (water and sewer)	—	—	\$7.94	\$8.75	—	—	\$7.46
1) Not all applicants reported water and/or sewer costs							

Figure 12: Average Annual Water Use in Gallons per APD



Water Conservation

Table 63 presents water conservation data for the sub-group of Award winners that implemented water conservation projects and provided quantitative data for those projects. Award-winning facilities that implemented water conservation measures saved a total of **150 million gallons of water** (or **7% of their total usage**), producing a savings of over **\$1.3 million**.

The percent of DIST and ELC Award winners reporting water conservation projects rose significantly from 2011, as did the amount of water conserved and the savings gained. The biggest gains were seen by DIST and ELC winners. This improvement is a big turnaround—between 2010 and 2011, water conservation activities and savings had actually dropped.

TREND: Water conservation got much more attention this year, with winners not only conserving an important resource, but saving \$1.3 million.

Table 63: Average Annual Water Conservation Savings

Water Conservation ¹	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2011 ELC Winners	2012 ELC Winners
Engaged in recent water conservation projects	41%	41%	73%	52%	64%
Gallons water used	1.2 billion	826 million	732 million	305.5 million	467 million
Total gallons saved	120 million	53.3 million	71.5 million	41.5 million	24.5 million
Average percent of annual water use conserved ²	10%	6.5%	9.8%	14%	5.2%
Water conserved in gallons per APD	27	27	26	32	30
Savings					
Total dollars saved on water	\$456,000	\$242,400	\$246,540	\$157,000	\$306,840
Total dollars spent on water and sewer	—	\$6,725,950	\$9,990,305	—	\$3,024,280
Total dollars saved on water and sewer	—	\$367,660	\$535,520	—	\$419,845
% savings (dollars saved / dollars spent on water + sewer)	—	5.5%	5.4%	—	13.9%
Savings in dollars per APD (for water and sewer)	\$0.30	\$0.23	\$0.18	\$0.1/2	\$0.44
1) Data is for hospitals that reported conservation projects only. 2) This percent was calculated as an average of % savings for water of the individual facilities (gallons conserved / gallons used annually) in 2012 for facilities that reported savings; in prior years it was calculated as an average of aggregate data.					

Tables 64 shows progress in potable water use reduction, such as fixture replacement and landscape irrigation. The table also shows progress in improving cooling tower function. Many water-saving activities saw an increase in 2012, as captured below. Notable increases include all four tasks listed under Fixtures and Landscaping at the top of Table 64. As noted above, a big jump was seen in Award winners taking advantage of EnergyStar’s water tracking under Fixture Fitting and Efficiency shown here. Under Fixtures and Landscaping, half of ELCs and a third of other winners are moving towards or considering xeriscaping.

Table 64: Potable Water Use Reduction Activities—Fixtures and Landscaping

Potable Water Use Reduction – Fixtures and Landscaping	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Reduced fixture water usage through automatic controls and other actions	76%	75%	78%	90%	75%	96%	96%
Specify water conserving plumbing fixtures and fittings that exceed the UPC or IPC fixture and fitting performance requirements in combination with high efficiency or dry fixture and control technologies.	55%	53%	51%	76%	83%	65%	71%
Purchase water efficient equipment in the laundry (washers)	—	23%	19%	32%	—	43%	46%

	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Potable Water Use Reduction – Fixtures and Landscaping							
Purchase water efficient equipment in the kitchen (washers)	—	44%	38%	54%	—	57%	61%
Indoor Plumbing Fixture and Fitting Efficiency							
Reclaimed any potable “grey” water drains, cooling coil condensate, and/or captured rainwater for filtration and treatment to use in non-potable process water needs such as process cooling (sterilizers) or cooling tower water make-up.	6%	8%	8%	7%	17%	22%	14%
Tracked facility’s water consumption (for free) using the water tracking feature of U.S. EPA’s Energy Star® National Energy Performance Rating System, found within Portfolio Manager at http://www.energystar.gov/benchmark .	21%	17%	11%	37%	17%	13%	29%
Documented reclaimed potable water use for further non-potable process use (i.e. cooling tower and boiler water make-up).	15%	13%	18%	17%	21%	22%	25%
Calculated annual fixture potable water use per occupant and per square foot.	11%	12%	10%	20%	25%	9%	11%
Water Efficient Landscaping							
Implemented and maintained high- efficiency irrigation technologies that include micro irrigation, moisture sensors, or weather data based controllers.	26%	28%	24%	20%	54%	65%	57%
Fed irrigation systems with captured rainwater, gray water (site or municipal), or on-site treated wastewater.	5%	7%	9%	5%	17%	26%	29%
Considered eliminating use of an irrigation system . Consider use of xeriscaping principles. Selected water efficient, native or adapted, non-invasive climate tolerant plantings.	32%	28%	29%	32%	46%	35%	50%

Table 65 shows Award winners’ activities to conserve water via their cooling towers systems. Increases were seen in working with water treatment specialists to develop a water management strategy, exploring technologies to eliminate chemical waste to drain in blowdown, implementing water management plans for cooling towers, and installation of conductivity meters and automatic controls.

Use of non-potable make-up water was also observed, and types of makeup water included: condensate from cooling coils, well water, steam condensate, water that passes through emergency storage tanks, cooling tower blowdown, and reverse osmosis reject water.

Table 65: Potable Water Use Reduction Activities—Cooling Towers

Potable Water Use Reduction – Cooling Towers	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Worked with a water treatment specialist to develop a water management strategy addressing the appropriate chemical treatment and bleed-off to ensure proper concentration levels in the cooling tower	77%	67%	68%	90%	96%	65%	75%
Explored technologies and strategies to eliminate chemical waste to drain in cooling tower and boiler blowdown	58%	58%	53%	78%	71%	65%	79%
Treated blowdown so that chemical treatment can be reclaimed for re-use	11%	14%	13%	12%	17%	26%	18%
Implemented a water management plan for the cooling tower that addresses chemical treatment, bleed-off, biological control and staff training for cooling tower maintenance	70%	60%	66%	81%	71%	61%	68%
Improved water efficiency by installing and/or maintaining a conductivity meter and automatic controls to adjust the bleed rate and maintain proper concentration at all times	62%	62%	66%	88%	67%	65%	75%
Employed non-toxic treatment chemicals or chemical-free cooling tower systems	25%	19%	29%	24%	29%	43%	36%
Used make-up water that consists of at least 50% non-potable water	3%	14%	20%	17%	4%	13%	11%
Used non-potable makeup water (rainwater, A/C condensate, cooling tower blow down, etc.)	6%	14%	18%	22%	13%	4%	11%
Other Water Use Reduction Projects	4%	3%	3%	20%	29%	4%	11%

XIV. TRANSPORTATION

Alternative Transportation

Use and encouragement of alternative transportation continues to grow at Award-winning facilities (**Table 66**). Almost half of Award winners have hybrid, electric or alternatively fueled vehicles in their fleet, illustrating management's support of sustainability. Some facilities have encouraged biking to work with raffle tickets or other incentives, in addition to making bike racks and adequate shower facilities accessible to employees.

Some health systems have begun allowing (appropriate) staff to work from home. One relatively small 200-bed hospital tracked the miles saved by this program, and reported their associates drove 16,800 fewer miles and prevented 13,170 pounds of CO₂. Another indicated that instead of reimbursing employees for public transportation, the organization contributes heavily to each of the bus services in the region, to allow all ridership to remain free of charge. Other innovative ideas included purchasing improved teleconference equipment when renovating conference rooms and using golf carts on larger campuses for mobility.

Table 66: Alternative Transportation Techniques

Alternative Transportation	2010 PFC Winners	2011 PFC Winners	2012 PFC Winners	2012 DIST Winners	2010 ELC Winners	2011 ELC Winners	2012 ELC Winners
Have hybrid, electric or alternative fueled vehicles in fleet	—	36%	48%	44%	—	61%	57%
Reimbursed public transportation fees	35%	42%	38%	46%	38%	43%	50%
Organized car pools	61%	45%	51%	49%	67%	70%	68%
Made bike racks available	82%	90%	93%	90%	100%	100%	100%
Provided adequate locker rooms and shower facilities	69%	80%	91%	88%	92%	91%	96%
Offered shuttle services to/from public transportation and/or between facilities	48%	56%	55%	63%	58%	70%	71%
Provided desired parking for carpools or owners of hybrid cars	35%	26%	36%	29%	54%	61%	54%
Encouraged teleconferencing instead of meetings	82%	88%	89%	98%	67%	83%	93%
Encouraged carpooling to offsite classes and meetings	76%	81%	81%	83%	71%	87%	93%
Offered other incentives (e.g. free lunches)	25%	31%	34%	46%	38%	48%	36%

4.0 CONCLUSIONS

Summary of Savings

The 2012 Practice Greenhealth Sustainability Benchmark Report provides a robust analysis of a vast array of sustainable activities (and savings from those activities) performed by the 149 Award-winning hospitals in this data set. This dedicated group of hospitals has made great strides in creating sustainable facilities—summarizing their accomplishments is not a simple task.

Practice Greenhealth Award winners are saving **over \$54 million dollars a year through their sustainability activities**. Table 67 presents a summary of savings achieved by the combined 2012 Award Winners. Equivalency results for CO₂ reductions are also presented below.

Table 67: Summary of Savings

Savings from:	Amount of Waste Diverted or Prevented 2011	Dollars Saved 2011	Amount of Waste Recycled 2012	Dollars Saved 2012	Table in 2012 Report
Recycling ¹	63,000 tons	\$19 million in avoided disposal fees	64,806 tons	\$16.8 million	Text above Table 14a
SUD Reprocessing	320 tons	\$11.8 million	333 tons	\$18.3 million	Table 17
Reusable Sharps Container Programs	1,625 tons	\$2.0 million	1,656 tons	\$794,000	Table 18
Solvent Distillation	51,807 gal distilled 38,220 gal reused	\$860,000	39,507 gal distilled 37,725 gal reused	\$494,000	Table 29
Electricity ²	50 million kWh =34,480 metric tons of CO ₂	\$7.6 million	72.5 million kWh =50,000 metric tons of CO₂	\$14.3 million	Table 57, 58
Natural Gas	116,400 dekatherms = 5,820 metric tons of CO ₂ ²	\$925,000	CCF³	\$1.4 million	Table 57
Fuel Oil	—	—	200,000 gallons	\$165,000	Table 57
Stream	—	—	7 million pounds	\$975,000	Table 57
Water and Sewer	162 million gallons	\$610,000	150 million gallons	\$1.3 million	Table 63
TOTAL		\$ 43 million		\$55 million	Table 67

1) Includes avoided solid and hazardous waste disposal fees. This data does not include additional savings from recycling construction and demolition debris.

2) Please note: The Greenhouse Gas Equivalencies Calculator uses the Emissions & Generation Resource Integrated Database (eGRID) U.S. annual non-baseload CO₂ output emission rate to convert reductions of kilowatt-hours into avoided units of carbon dioxide emissions. Most users of the Equivalencies Calculator who seek equivalencies for electricity-related emissions want to know equivalencies for emissions reductions from energy efficiency or renewable energy programs. These programs are not generally assumed to affect baseload emissions (the emissions from power plants that run all the time), but rather non-baseload generation (power plants that are brought online as necessary to meet demand). Emission Factor = 6.8956 x 10⁻⁴ metric tons CO₂/kWh.

3) Data units were not considered to be reliable.

Equivalency Results- CO₂ Emission Reductions

The prevention of 50,000 metric tons of CO₂ from the electricity savings listed above, is equivalent to any *one* of the following:

- Annual greenhouse gas emissions from **9,800 passenger vehicles**;
- CO₂ emissions from **5,605,400 million gallons of gasoline consumed**;
- CO₂ emissions from **116,300 barrels of oil consumed**;
- CO₂ emissions from the **electricity use of 6,235 homes** for one year;
- Carbon sequestered by **1,282,050 tree seedlings** grown for 10 years;
- Carbon sequestered annually by **10,660 acres of pine** or fir forests;
- CO₂ emissions from **2,083,300 million propane cylinders** used for home barbecues.

Source and references used for these calculations include:

- US EPA Clean Energy website: <http://www.epa.gov/cleanenergy/>
- Electricity use (kilowatt-hours): <http://www.epa.gov/cleanenergy/energy-resources/refs.html>
- Greenhouse Gas Equivalencies Calculator (updated March 2010): <http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results>

Please note, per US EPA, most users of the Equivalencies Calculator who seek equivalencies for electricity-related emissions want to know equivalencies for emissions reductions from energy efficiency or renewable energy programs. These programs are not generally assumed to affect baseload emissions (the emissions from power plants that run all the time), but rather non-baseload generation (power plants that are brought online as necessary to meet demand). The Greenhouse Gas Equivalencies Calculator uses the Emissions & Generation Resource Integrated Database (eGRID) U.S. annual non-baseload CO₂ output emission rate to convert reductions of kilowatt-hours into avoided units of carbon dioxide emissions. Emission Factor = 6.8956 x 10⁻⁴ metric tons CO₂ / kWh.

Summary

Practice Greenhealth Award winners continue to lead the healthcare sector in driving sustainability performance. Both small and large facilities were able to make significant improvements in their environmental footprint. Included in this data set are facilities with less than 100 beds and facilities with more than 1000 beds. Their projects ranged from simple yet effective techniques (displaying red bag waste segregation posters for improved waste segregation, installing a door sweep or screen to keep out rodents, purchasing reusable pillows) to incredibly complex projects (optimizing heating and cooling management systems for an entire building or campus, building to LEED certification, or even delving into the world of alternative energy production).

Through the activities described in this report, Practice Greenhealth Award winners improved the environment, their bottom line, and the health of their employees, patients and local community. They saved millions of dollars and millions of gallons of water; they prevented the generation of thousands of tons of waste and thousands of tons of CO₂. Through sustainable activities such as offering healthier food and creating healing gardens, they were able to impact and improve the health and well-being of their constituencies.

Practice Greenhealth celebrates its Award winners and their many impressive accomplishments through this one-of-a-kind report and would like to thank each of the PFC Award applicants who took the time to complete the lengthy application that provided the data for this report.

Practice Greenhealth would like to extend a special thank you to Andrea Brunk and John Baltzell of Definitive Market Research, Inc. (DMR) who performed the statistical analyses. DMR is a woman owned small business that employs experts in various fields, including economics, sociology, and demography. DMR's recent research studies include projects ranging from customer satisfaction, market segmentation, retention, market demand, and programming, to media awareness and efficiency.

DISCLAIMER: This report is based on self-reported data as provided by Practice Greenhealth Environmental Excellence Award applicants and has been compiled by staff and consultants. While the data is correct to the best of our knowledge, Practice Greenhealth can't guarantee that all of the data presented herein is flawless.

Appendix 1: Clinic and Long Term Care

The Data Set

This appendix represents Practice Greenhealth's first effort to report on clinic and long term care (LTC) data for facilities that filled out the Partner for Change Award application. These facilities are part of health systems that have joined Practice Greenhealth as a *system* and also have member hospitals. The tables in this appendix are numbered the same as the tables in the main body of the report, above. However, not all the tables in the report body are represented in this appendix.

It should be noted that the clinic and LTC groups are very small from a statistical perspective; there are only 14 clinics (each clinic represent 7% of the clinic group) and 8 LTCs (each LTC represents 13% of the LTC group). Assessment between these smaller groups is not recommended. The clinics range in size and function, with number of outpatient visits ranging from 50,000 to over 860,000. Five of the clinics (36%) have operating rooms. The LTC group ranges from 40 to 300 licensed beds, and does contain 2 facilities that described their operations primarily as LTC facilities, but also operate as small hospitals.

Table 1: Data Set

Hospital Winners	149
PFC	80
DIST	41
ELC	28
Clinic Award Winners	14
PFC	14
DIST	0
LTC Award Winners	8
PFC	5
DIST	3
Total all winners (149 hospital +14 Clinic +8 LTC)	171

Results

Table 2: Community Benefit Reporting

Community Benefit Reporting	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
PFC winners who have won PFC previously	75%	71%	75%
Facilities that are non-profit	95%	100%	100%
Facilities that prepare a community benefit report	91%	93%	88%
Facilities that include sustainability activities in their community benefit report	74%	93%	38%

Table 3: Sustainability Infrastructure

Sustainability Infrastructure	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have a "Green Team"	100%	100%	100%
Have a designated sustainability officer	68%	14%	63%
Have a full time sustainability officer	51%	0%	13%
Have someone on staff who is responsible for sustainability within their job description (but not by title)	32%	79%	50%
Track their environmental improvement initiatives in the Joint Commission structure	43%	0%	13%
Provide new employee orientation on environmental initiatives	66%	50%	100%
Provide annual training on environmental initiatives	67%	64%	75%
Clinicians involved in environmental programs?	93%	100%	75%
Calculated payback period for sustainability activities that have up-front costs	76%	79%	88%
Owners or shareholders or Board have been presented with information on potential or actual return on investment (ROI) for sustainability projects?	67%	64%	75%

Table 4: Sustainable Activities In-House

Sustainable Activities In-house	2012 Hospital Winners (Performed Previously/ Performed in 2011)	2012 Clinic Winners (Performed Previously/ Performed in 2011)	2012 LTC Winners (Performed Previously/ Performed in 2011)
Shared sustainable activities with senior leadership team and/or address board of directors	84% / 99%	100% / 100%	75% / 100%
Developed an environmental commitment statement	76% / 71%	50% / 50%	88% / 88%
Integrated sustainability into at least one grand rounds event this year	40% / 56%	50% / 50%	25% / 38%
Added language to job descriptions on our commitment to the environment and the role that each employee plays.	25% / 32%	7% / 7%	38% / 38%
Added sustainability measures for leadership staff performance evaluations	30% / 43%	7% / 7%	63% / 63%
Sent at least one green team member from each site to CleanMed for Award receipt	57% / 63%	50% / 50%	13% / 25%
Developed, improved or advertised sustainability website or webpage on Intranet	53% / 71%	64% / 71%	63% / 75%
Created videos on sustainability for in-house use	31% / 44%	29% / 43%	13% / 38%
Held low or zero-waste picnic for employees	15% / 24%	14% / 21%	13% / 13%
Include questions about sustainability program in employee engagement survey	9% / 25%	14% / 14%	25% / 25%
Developed Strategic Plan around sustainability that identifies short, medium and long term goals .	52% / 73%	43% / 71%	63% / 63%
Created a healing garden for patients and staff	51% / 50%	14% / 14%	50% / 38%

Table 5: Departmental Representation on Green Teams

Department	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Environmental Services	98%	50%	100%
Facilities	95%	64%	100%
EH &S	64%	29%	63%
Materials Management	95%	50%	75%
Engineering	88%	36%	75%
Safety	83%	36%	100%
Administration	92%	86%	100%
Nutrition	80%	21%	63%
Nursing	92%	93%	88%
Infection control	48%	21%	75%
Physicians	43%	57%	13%
Communications/Marketing	79%	29%	75%
Food Services	91%	14%	75%
Risk Management	30%	0%	25%

Table 6: Leadership within the Local Community

Leadership within the Local Community (Performed Previously or in 2011)	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Held thermometer swap	8%	14%	0%
Held pharmaceutical take-back event	30%	43%	0%
Held electronics collection event	32%	0%	38%
Handed out or collected compact fluorescent lamps	22%	21%	13%
Held Earth Day Event for patients and staff	81%	93%	100%
Created a sustainability report as part of the community benefits report	58%	64%	38%
Developed a sustainability webpage for the public on facility website	46%	36%	25%
Displayed signage visible to patients describing recycling or other environmental programs	71%	50%	88%
Used local media to communicate sustainability activities to the community	73%	43%	50%
Received media attention /local press around PGH Award	52%	21%	25%
Met with city government reps or local organizations to promote sustainability locally or plan local events (like Clean Air days)	59%	43%	25%
Shared information on sustainability programs with local businesses, community groups, schools etc.	75%	57%	50%
Educated community on environmental topics (example: provide information on proper medication disposal when issuing prescriptions)	64%	43%	38%
Include sustainability in advertising campaigns	33%	29%	25%
Highlight PGH membership to employees and/or visitors	71%	36%	88%

Table 7: Leadership in the Health Care Sector

Sustainability in the Health Care Sector (Performed Previously or in 2011)	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Presented at a state-wide Meeting	49%	43%	38%
Presented at a national meeting (AHE, ASHE, CleanMed, etc.)	50%	43%	38%
Presented at a health system meeting	66%	50%	75%
Mentored another hospital within same health system	76%	43%	38%
Mentored another hospital outside its health system	64%	43%	38%
Was interviewed by local TV or Radio for broadcast	40%	0%	13%
Signed on to Healthier Hospitals Initiative's™ Healthier Hospital Agenda (www.healthierhospitals.org)	32%	14%	25%
Engaged in socially responsible investing	32%	7%	38%

Table 8: Waste Distribution as Percent of Total Waste Stream

Waste Type	Average % of Total Waste Stream		
	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Solid ¹	62%	59%	72%
Recycling ²	28%	36%	26%
RMW	9%	3%	0.8%
Hazardous ³	0.6%	2%	1%

1) Some of the **solid waste** numbers may contain treated **RMW** (e.g. when treated onsite by autoclave before being land filled), which drives the solid waste percentages up and the RMW percentages down.
 2) The recycling data contains traditionally recycled items only, and does NOT contain diverted or avoided waste.
 3) The **hazardous** waste percentages were generally reported as less than 1 percent, but this number should not be zero for any hospital. This number may actually increase at a facility as their awareness for identifying and properly handling RCRA hazardous pharmaceutical waste increases.

Table 9: Average Annual Total Waste Generation Normalized by Different Factors

Total Waste (Recycling, No Diversion)	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Pounds / Square Foot	5.1	8.2	10.6
Pounds/ APD	25.0	—	10.7
Tons / Staffed bed	5.3	—	4.7
Pounds / Staffed Bed / day	28.9	—	26.0
Pounds / FTE	1403	1768	1842

Table 10: Average Annual Waste Generation Normalized by Adjusted Patient Day¹

Waste Type	Average lbs. per APD ¹ for 2012 Hospital Winners	Average lbs. per APD ¹ for 2012 Clinic Winners	Average lbs. per APD ¹ for 2012 LTC Winners
Solid Waste	15.0	15.1	7.2
Recycling ²	7.2	7.8	3.2
RMW ³	7.3	1.7	0.16
Hazardous Waste ⁴	0.12	0	0.05

1) Adjusted Patient Days = Total Patient Days x (Total Patient Revenue/Inpatient Revenue) Where Total Patient Revenue = Inpatient Revenue + Outpatient Revenue
 2) RRR includes recycling, but no diversion.
 3) RMW includes regulated medical waste and non-hazardous pharmaceutical waste.
 4) Hazardous waste includes RCRA-regulated waste and RCRA-regulated pharmaceutical waste

Table 11: Average Annual Regulated Medical Waste Generation

RMW Generation	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Pounds RMW per APD	2.3	1.7	0.2
Tons RMW per Staffed Bed	1.6	—	1.8
Pounds RMW per FTE	123	59	11
Pounds RMW per Square Foot	0.5	0.7	0.05
Tons RMW per O.R.	9.3	2.1	2.1

Table 13: Donations

Donated Item	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Clinical Items	78%	71%	25%
Medical Equipment	77%	36%	63%
Furniture	77%	36%	63%
Linens	34%	29%	50%
Books	34%	21%	38%
Other Supplies	34%	21%	13%

Table 16: RMW Reduction Techniques

These facilities reported that they:	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have engaged in an RMW education and reduction program	88%	86%	75%
Have posted waste segregation posters at red bag collection areas	77%	43%	88%
Use a fluid management system in the OR	66%	29%	N/A
Use single-use device (SUD) reprocessing	83%	50%	N/A
Have implemented a reusable sharps container program	75%	43%	13%

Table 17: Single-Use Device Reprocessing

SUD Reprocessing	2012 Hospital Winners	2012 Clinic Winners
Total annual savings (sum of facilities)	\$18,093,534	\$231,322
Average annual savings per staffed bed	\$644	—
Average annual savings per APD	\$1.67	0.4
Average annual savings per O.R.	\$10,661	\$2,676
Average annual savings per O.R. procedures	322	11
Tons of waste diverted annually from landfill (sum all facilities)	33	—
Average annual lbs. of waste diverted from landfill per staffed bed	0.07	0.04
Average annual pounds of waste diverted per APD	590	232

Table 18: Reusable Sharps Container Program Savings

Reusable Sharps Containers	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Total annual savings (sum of facilities)	75%	43%	12.5%
Average annual savings per staffed bed	\$571,701	— ¹	\$486
Average annual savings per APD	\$25	— ¹	\$16
Tons of waste diverted annually from landfill (sum all facilities)	\$0.06	— ¹	\$0.01
Average annual pounds of waste diverted per staffed bed	1,655 tons	— ¹	0.74 tons
Average annual pounds of waste diverted per APD	120# per bed	— ¹	49# per bed
Total annual savings (sum of facilities)	0.3	— ¹	0.03
1) not reported			

Table 19: Greening of the OR

These facilities reported that they:	2012 Hospital Winners	2012 Clinic Winners
Waste Reduction and Prevention in the OR		
Track waste volumes from the OR	15%	0%
Ensure non-hazardous OR waste is going to solid waste or recycling	79%	29%
Segregate non-infectious from infectious waste in the OR	78%	29%
Recycle medical plastics from the OR	70%	14%
Recycle overwraps	45%	7%
Recycle rigid trays	58%	14%
Recycle blue wrap	56%	7%
Recycle saline bottles	61%	14%
Purchase reusable rigid cases for sterilization in OR	71%	29%
Environmentally Preferable Purchasing in the OR		
Reformulate OR kits to reduce excess supplies and overage currently going to trash or donation	67%	79%
Purchase reprocessed medical devices from third party reprocessor for use in OR	72%	29%
Replace disposable items with reusable items in OR kits where demonstrated safe and economically viable	56%	7%
Utilize reusable surgical gowns for staff	38%	14%
Utilize reusable back table covers	15%	7%
Utilize reusable mayo stand covers	15%	7%
Utilize reusable surgical towels	58%	7%
Utilize reusable basins	46%	14%
Sterilize reusable surgical textiles in-house or using third party contractor for cleaning, repair and sterilization		
In-house	20%	0%
Third party	30%	14%
Both	11%	0%
Use reusable grounding pads in the OR	10%	7%
Use reusable patient warming devices in the OR	28%	0%
Built Environment		
Track energy use specifically in surgical services/ OR	8%	0%
Utilize occupancy sensors for lighting to reduce energy use in unoccupied ORs	31%	7%
Program HVAC system to reduce air changes when ORs are unoccupied to reduce energy use	38%	0%
Utilize LED surgical lighting to reduce energy use and increase thermal comfort	44%	14%

Table 20: Making Medicine Mercury Free

Mercury Free Program Elements	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Established and implemented a mercury-free purchasing policy	85%	93%	88%
Performed a facility-wide inventory for mercury containing items	91%	79%	88%
Labeled all remaining mercury-containing items	74%	50%	75%
Inventoried all mercury-containing chemicals in the laboratory	88%	86%	38%
Eliminated or reduced mercury-containing thermometers	97%	86%	75%
Eliminated or reduced mercury-containing sphygmomanometers	96%	93%	75%
Eliminated or reduced mercury-containing lab thermometers (5 grams mercury)	94%	57%	38%
Eliminated or reduced B5 and Zenker stains	83%	50%	38%
Use low mercury (green tip) lamps	84%	71%	88%
Switched to digital X-Ray	88%	93%	50%
Include mercury-free requirements in requests for proposals (RFPs) and contract language	61%	86%	38%
Held a thermometer swap for employees	24%	7%	13%
Held a thermometer swap for the community	17%	7%	0%

Table 21: DEHP & PVC Reduction

DEHP & PVC Reduction	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have a general DEHP reduction program	53%	79%	25%
Have a program to reduce DEHP-containing products in the NICU	62%	79%	N/A
Have a PVC-reduction program	51%	79%	38%
PVC-education program includes medical products and supplies	46%	79%	38%
PVC-reduction program includes construction and renovation materials	50%	79%	38%

Table 22: Nicotine Reduction

Nicotine	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Is your entire facility smoke free?	95%	100%	88%
If more than one main building, is your entire campus smoke free?	94%	100%	38%
We allow smoking in the following areas:			
Smoking Lounge	1%	0%	0%
Chemical Dependency Unit	3%	0%	0%
Psychiatric Unit	2%	0%	0%
Outdoors or off property	22%	14%	88%

Table 23: Pharmaceutical Waste Management Program

Process	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have implemented a pharmaceutical waste management program	87%	36%	36%
Hired an outside vendor to help set up this program	57% <u>internal analysis</u> 62% <u>waste vendor</u> 29% other outside vendor	29% <u>internal analysis</u> 29% <u>waste vendor</u> 0% other outside vendor	25% <u>internal analysis</u> 13% <u>waste vendor</u> 25% other outside vendor
Separate pharmaceutical waste at the point of generation	80%	29%	63%
Send pharmaceutical waste back to pharmacy for proper segregation	36%	64%	38%
Collect all pharmaceutical waste and sort in a satellite accumulation area	28%	14%	50%
Treat all pharmaceuticals as hazardous waste	29%	21%	38%

Table 24: EtO Elimination and Alternatives

EtO	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Reduced the use of EtO	93%	86%	38%
Completely eliminated onsite use of EtO	64%	50%	25%
Alternative			
Steam sterilization	93%	86%	38%
Low temperature hydrogen peroxide gas plasma	77%	29%	25%
Ozone plasma	16%	7%	0%
Peracetic acid	62%	43%	25%

Table 25: Glutaraldehyde Elimination and Alternatives

Glutaraldehyde	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Reduced glutaraldehyde	93%	79%	38%
Completely eliminated glutaraldehyde	56%	86%	38%
Alternative			
Ortho-phthalaldehyde (OPA)	87%	93%	38%
Hydrogen peroxide	60%	36%	13%

Table 26: Green Cleaning

Green Cleaning	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have a building-specific green cleaning plan for their facility, such as the one outlined in the Green Seal Certification Checklist, standard GS-42	66%	71%	88%
In-house EVS or housekeeping staff performs their cleaning	87%	7%	75%
Use contracted or outsourced EVS or housekeeping for some or all of facility cleaning	14%	93%	25%
Use some green cleaning chemicals or products at their facility	92%	93%	100%
Use some techniques to minimize chemical use	96%	93%	100%
Cleaners			
General purpose (hard surface) cleaners	72%	64%	38%
Glass cleaners	67%	64%	50%
Carpet and upholstery cleaners	46%	43%	0%
Cleaning and Degreasing Compounds	46%	50%	13%
Floor cleaners, strippers, waxes	45%	50%	38%
Metal Polish	19%	36%	13%
Drain/Grease trap additives	21%	29%	0%
Fragrances/Odor control additives	26%	29%	13%
Laundry Soaps/Cleaners	21%	36%	13%
Liquid or foam hand soap	25%	36%	0%
Other	10%	29%	0%
Cleaners – Have you:			
Collaborated with the Infection Control Committee to identify areas where use of disinfectants can be minimized or eliminated	86%	71%	88%
Used a dilution control system for chemicals	93%	79%	100%

Green Cleaning	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Disposable Products- Do you:			
Select bathroom paper products with a preference for recycled content	85%	71%	88%
Select bathroom paper products with a preference for chlorine-free products	60%	86%	88%
Use fragrance free products	84%	86%	88%
Avoid aerosolized cleaning products	94%	86%	88%
Avoid fragrance-emitting devices , e.g. air fresheners, fragrance or deodorizer sprays and urinal blocks	62%	79%	50%
Have you evaluated paper dispensing systems to ensure optimal product efficacy	92%	43%	88%
Powered Cleaning Equipment¹			
Do you use, or specify, powered cleaning equipment (scrubbers, burnishers, extractors, vacuums, or power washers) that is tested by the CRI Green Label Plus program or is otherwise certified	79%	64%	75%
Is this equipment designed to minimize vibration, noise, and user fatigue	87%	79%	75%
Is this equipment operated with a sound level of less than 70 db	83%	64%	75%
Does this equipment capture fine particulate matter	85%	64%	88%
Flooring			
Do you use micro fiber mops	94%	71%	63%
Has your facility installed flooring that does not require regular stripping and/or polishing	80%	43%	75%
Do you use, or specify, powered cleaning equipment (scrubbers, burnishers, extractors, vacuums, or power washers) that is tested by the CRI Green Label Plus program or is otherwise certified	34%	50%	63%
1) Green Seal does not certify powered cleaning equipment, however the Carpet and Rug Institute certifies through its Green Label and Green Label Plus program vacuums and through its CRI Seal of Approval program carpet cleaning equipment and services. http://www.carpet-rug.org/commercial-customers/green-building-and-the-environment/green-label-plus/index.cfm .			

Table 27: Integrated Pest Management

Integrated Pest Management	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Has reduced the use of chemical pesticides through the implementation of an integrated pest management (IPM) program	91%	86%	100%
Developed an IPM plan for the facility	86%	71%	100%
Designated an IPM coordinator to supervise all pest elimination activity	83%	57%	100%
Developed a plan for training all hospital staff on pests, pesticides, and their role in the facility IPM program	48%	50%	50%

Integrated Pest Management	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Inspected facility for signs of pest activity and conditions that may lead to pest infestation	95%	93%	100%
Facilitated removal of food waste consistent with IPM	88%	93%	100%
Inspected building roofs , checked bird netting, sealed roof parapets and caps	93%	86%	100%
Used and regularly checked bait stations (as a last resort) instead of sprays	94%	93%	100%
Ensured that devices such as bait stations placed in outside areas were locked, secured, clean and in good working order.	93%	93%	100%
Eliminated cracks and holes to keep pests out	96%	86%	100%
Installed door sweeps to keep pests out	93%	79%	100%
Implemented and enforced sanitation procedures to limit pests' access to food and drink (address leaky faucets, condensation on pipes, and all edibles.)	95%	86%	88%
Fixed moisture problems (leaks and condensation on pipes)	94%	86%	100%
Used physical barriers to block pest entry and movement (such as door sweeps, screens at chimneys and air intakes, window screens).	94%	93%	100%
Minimized the entry of contaminants into the building from pesticides	89%	86%	88%
Ensured mulch is not used immediately next to building façade	75%	79%	63%
IPM Policy			
Ensured IPM policy is included in all pest control bid specifications when outsourcing pest elimination contracts	73%	93%	63%
Contracted with pest control companies that meet 100% of the requirements for IPM certification.	80%	36%	100%

Table 28: Solvent Distillation

Solvent Distillation	2012 Hospital Winners	2012 Clinic Winners
Have a program to recycle or distill solvents, alcohols or other chemicals from the lab	52%	29%
Distill xylene	43%	21%
Distill alcohol	34%	64%
Distill formalin	28%	14%

Table 30: EPP Purchasing Practices

EPP Practices	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have communicated a desire for environmentally preferable products with their GPO	91%	100%	100%
Has an Environmentally Preferable Purchasing Policy (EPP)	75%	100%	88%
Product evaluation committee considers environmental impacts in its selection process	89%	93%	100%
Do you ask suppliers to track and provide EPP purchasing reports in your purchasing contracts ?	36%	50%	13%

Table 31: Chemicals of Interest in Purchasing

Material/Chemical	Evaluated in Purchasing Hospital Winners	Evaluated/Avoided in Purchasing Clinic Winners	Evaluated/Avoided in Purchasing LTC Winners	Had Language in Policy Hospital Winners	Had Language in Policy Clinic Winners	Had Language in Policy LTC Winners
Mercury	91%	93%	100%	75%	86%	88%
Lead	67%	57%	88%	36%	21%	38%
PBTs (persistent bioaccumulative toxics)	53%	86%	63%	44%	86%	25%
DEHP (di-2-ethylhexylphthalate)	71%	79%	88%	44%	64%	25%
PVC (vinyl, polyvinyl chloride plastics)	65%	57%	75%	49%	50%	38%
Halogenated, chlorinated or bromated flame retardants	51%	21%	50%	37%	21%	13%
Phthalates	52%	21%	63%	39%	21%	25%
Carcinogens, mutagens, reproductive toxics	60%	21%	75%	43%	21%	38%
Bisphenol-A	57%	43%	63%	37%	43%	25%
VOCs (volatile organic compounds)	65%	21%	88%	36%	21%	50%
Latex	83%	86%	88%	61%	86%	63%
Halogenated plastics	34%	14%	63%	24%	14%	13%
Perfluorinated compounds	32%	43%	50%	21%	50%	0%
Benzidine dyes and pigments	24%	0%	63%	13%	0%	13%
Lubricant parafins	22%	0%	63%	15%	0%	13%

Table 32: Attributes in Purchasing

Attribute	Evaluated in Purchasing 2012 Hospital Winners	Evaluated/ Avoided in Purchasing 2012 Clinic Winners	Evaluated/ Avoided in Purchasing 2012 LTC Winners	Included in Policy 2012 Hospital Winners	Included in Policy 2012 Clinic Winners	Included in Policy 2012 LTC Winners
Energy efficiency	87%	93%	100%	67%	86%	88%
Water efficiency	78%	93%	100%	56%	79%	63%
Excessive packaging	73%	93%	75%	44%	86%	38%
Reducing plastics that are not easy to recycle	37%	57%	63%	24%	50%	38%
Durability/expected length of service	75%	79%	88%	36%	36%	63%
Life Cycle Analysis/ Environmental footprint*	42%	36%	50%	19%	29%	13%
Whether the product becomes or generates hazardous waste	75%	86%	75%	48%	79%	38%

Table 33: EPEAT and Waste Electronics

Activity	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Use EPEAT standards for purchasing electronic equipment (Purchase EPEAT-registered products)*	66%	43%	38%
Have a policy requiring or preferring the purchase of EPEAT-registered products	34%	0%	25%
Manage old computers and E-Wastes as Universal Waste	81%	79%	50%
Performed information technology (IT) energy efficiency upgrades	86%	86%	63%

Table 34: Energy Efficiency Rankings

How important is energy efficiency in the purchase of this item?	2012 Hospital Winners Very or Extremely Important/ Paid More for this Item	2012 Clinic Winners Very or Extremely Important/ Paid More for this Item	2012 LTC Winners Very or Extremely Important/ Paid More for this Item
Lighting (electronic ballast)	46% / 66%	50% / 57%	13% / 88%
Lighting (energy-efficient lamps)	40% / 72%	29% / 57%	13% / 75%
Lighting (LED exit signs)	50% / 61%	57% / 36%	25% / 75%
Lighting (other)	46% / 55%	57% / 43%	25% / 63%
Diagnostic imaging equipment	44% / 22%	43% / 7%	25% / 0%
Anesthesia/monitoring equipment	46% / 14%	21% / 0%	13% / 0%
Building systems equipment	50% / 58%	36% / 14%	38% / 25%
Laboratory equipment	48% / 22%	43% / 0%	13% / 0%

Table 35: Reusable Linens

Are you using these reusable items at your facility?	More than 50% 2012 Hospital Winners	More than 50% 2012 Clinic Winners	More than 50% 2012 LTC Winners
Surgical Drapes	40%	25%	0%
Surgical Gowns	59%	50%	0%
Incontinent Products (underpads & briefs)	60%	33%	33%
Isolations Gowns	61%	50%	50%
Scrubs	99%	86%	100%
Surgical Packs (sterile and non-sterile)	39%	80%	0%

Table 36: Reusable Products

Reusable Products	Reuse this Item 2012 Hospital Winners	Reuse this Item 2012 Clinic Winners	Reuse this Item 2012 LTC Winners
Totes for <u>internal</u> deliveries	83%	79%	63%
Shipping containers (totes)	63%	57%	25%
RMW shipping	71%	7%	38%
Rigid sterile cases for surgical items	87%	64%	25% ¹
Pharmacy waste containers	62%	36%	38%
Surgical basins/biowaste tubs	34%	14%	N/A
Trocar (tubing)	29%	7%	13%

1) This question was answered "yes" by two facilities that also operate as small hospitals.

Table 37: Sustainable Food Practices

Food Pledges	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have signed the Healthy Food Pledge ¹	69%	71%	63%
Have implemented a " Balanced Menus " program ² / Accepted "Balanced Menus" Challenge ³	23%	7%	38%

1) HCWH Health Food Pledge: (http://www.noharm.org/lib/downloads/Healthy_Food_in_Health_Care.pdf)
 2) HCWH Balanced Menus Program: (http://www.noharm.org/lib/downloads/food/Healthy_Food_in_Health_Care.pdf)
 3) 2012 wording.

Table 42: Local and Organic Food

Local and Organic Food	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have established relationships with local farmers / Buy locally	45%	14%	38%
Buy local and/or organic:			
Chicken	32%	14%	38%
Eggs	34%	14%	38%
Meats	34%	14%	38%
Milk	62%	21%	50%
Fish	28%	21%	50%
Produce	77%	21%	50%

Table 43: Beverages and Vending

Beverages and Vending	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Offered employees reusable water bottles, coffee or travel mugs	76%	79%	50%
Offered fewer sugar-sweetened beverages in the cafeteria and food services	71%	64%	50%
Offered fewer sugar-sweetened beverages in vending machines?	55%	86%	63%
Provided healthier food in vending machines	58%	71%	50%
Provide access to free sources of drinking water	95%	93%	75%
Have eliminated bottled water in:	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Cafeteria	19%	14%	13%
Patient services	53%	43%	63%
Meeting rooms	55%	29%	50%
Vending machines	9%	29%	13%
Other	29%	43%	25%

Table 44: Healthier Food Choices

Healthier Food Choices	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have reduced use of:			
Salt			
Cafeteria	1%	7%	0%
Patient Food	11%	0%	25%
Both	69%	50%	63%
High fructose corn syrup			
Cafeteria	4%	7%	0%
Patient Food	5%	0%	13%
Both	51%	43%	75%
Portion sizes			
Cafeteria	10%	14%	0%
Patient Food	3%	0%	13%
Both	51%	43%	38%
Have increased use of:			
Trans fats/Hydrogenated oil			
Cafeteria	1%	7%	0%
Patient Food	3%	0%	25%
Both	83%	50%	75%
Deep fried foods			
Cafeteria	1%	7%	0%
Patient Food	13%	0%	38%
Both	28%	43%	38%
Have increased use of:			
Fruits and vegetables			
Cafeteria	7%	14%	0%
Patient Food	1%	0%	25%
Both	86%	50%	63%
Nutritionally dense & minimally processed foods			
Cafeteria	6%	7%	0%
Patient Food	3%	0%	13%
Both	75%	50%	38%
Protein balanced vegetarian and vegan options			
Cafeteria	11%	14%	0%
Patient Food	3%	0%	25%
Both	77%	43%	63%
Creating soups from scratch			
Cafeteria	7%	43%	0%
Patient Food	3%	0%	25%
Both	71%	7%	63%
Whole grains			
Cafeteria	5%	7%	0%
Patient Food	1%	0%	25%
Both	60%	21%	63%

Table 45: Other Food Projects

Other Food Projects	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have a fast food restaurant on your campus?	9%	0%	13%
Offer Fair Trade Coffee	68%	14%	13%
Host a Farmers Market	55%	29%	13%
Offer an employee CSA (community supported agriculture) program	22%	0%	0%
Grow vegetables onsite for use in the kitchen	13%	0%	25%
Offer garden space for community ?	9%	7%	25%
Educate via healthy cooking classes	74%	50%	50%
Have program to compost food waste	41%	0%	38%
Working with a GPO on any healthy food initiatives	57%	21%	25%
Communicated with your distributor or vendor about your interest in including more healthy and sustainable foods ?	83%	64%	88%

Table 46: Green Building

Green Building	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Facility has been LEED certified	5%	7%	0%
Currently building or planning any new building projects	46%	29%	38%
Currently building or planning any new renovation projects	67%	43%	50%
Involved in a Pebble Project with the Center for Health Designs	3%	0%	0%
Practice evidence based design	58%	43%	25%
Have a green or living roof	20%	21%	0%
Following the green guide for health care			
Renovation	14%	14%	13%
New Construction	13%	0%	0%
Following LEED guidelines but do not plan on certification			
Renovation	18%	29%	25%
New Construction	10%	0%	0%
Following LEED guidelines and the building will be LEED certified			
Renovation	2%	7%	0%
New Construction	18%	7%	13%
High-efficiency HVAC			
Renovation	11%	14%	13%
New Construction	9%	7%	0%

Green Building	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Both	64%	50%	38%
High-efficiency building controls			
Renovation	11%	7%	13%
New Construction	8%	0%	0%
Both	67%	57%	38%
Low-flow water fixtures			
Renovation	11%	7%	25%
New Construction	7%	0%	0%
Both	71%	79%	38%
Low-emissivity glass for windows			
Renovation	3%	0%	25%
New Construction	20%	14%	0%
Both	45%	50%	38%
Increased day lighting Type			
Renovation	4%	7%	25%
New Construction	29%	14%	13%
Both	38%	50%	25%

Table 47: Sustainable Design and Construction

Sustainable Design and Construction	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Use of physical and mechanical design and materials to improve indoor air quality			
Renovation	7%	7%	25%
New Construction	3%	7%	0%
Both	74%	50%	38%
Optimize layout and orientation of building to optimize energy performance			
Renovation	5%	0%	13%
New Construction	36%	64%	13%
Both	30%	0%	25%
Reuse/recycle demolition materials			
Renovation	8%	0%	50%
New Construction	4%	0%	0%
Both	75%	57%	38%

Sustainable Design and Construction	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Minimize site development footprint			
Renovation	5%	0%	13%
New Construction	24%	50%	0%
Both	40%	0%	38%
Add language to contract specifications that constructor will follow LEED or GGHC requirements			
Renovation	2%	0%	13%
New Construction	11%	7%	0%
Both	44%	43%	25%
Specify cogeneration, fuel cells, renewable energy systems and other alternative energy resources as feasible			
Renovation	3%	0%	25%
New Construction	13%	14%	0%
Both	27%	7%	25%

Table 49: Energy Executive Summary

ENERGY	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Total Energy Costs	\$453 million	\$18 million	\$3 million
Total Energy Savings	\$18.6 million	\$305,832	\$542,586

Table 50: Energy Characteristics

Energy Characteristic	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Are EnergyStar Partners	64%	86%	75%
Average Energy Star rating for their building	50	40	68
Completed data collection through Portfolio Manager	56%	64%	75%
Range of Energy Star ratings	0-98	10-59	54-83
Participate in the E2C Program (between ASHE and EnergyStar)	22%	0%	25%
On-Site Data Center	72%	14%	63%
Engaged in energy efficiency projects	83%	57%	50%
Total Cost of Energy per Staffed Bed	\$11,065	N/A ¹	\$11,350
Cost of all types of energy per APD	\$25	\$23	\$7

1) Energy data not reported on applications.

Table 58: Details of Electricity Savings

Energy Efficiency Project Details ¹	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Total Electricity Used in kWh	4.2 billion	168 million	39 million
Total Energy Saved in kWh	72 million	633,162	726,000
Total Electricity Expenditures	\$331 million	\$16 million	\$2 million
Total Electricity Dollars Saved	\$14 million	\$68,679	\$90,146
Average % Annual Electricity Expenditures Saved	7.7%	3.2%	64.4%
Average Kilowatt Saved per Square Foot	0.96	0.55	3.0
Average Savings in Dollars per Square Foot	\$0.18	\$0.6	\$0.22
1) Data in this table is from only those facilities that reported electricity saving projects.			

Table 59: Energy Efficiency Projects

Energy Efficiency	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Implement building envelope improvements to reduce energy requirements, (such as improved insulation, window and door replacements)	59%	50%	63%
Use evaporative cooling when ambient conditions allow.	48%	64%	25%
Reset space temperatures based on usage and occupancy .	77%	93%	75%
Operate chiller plants that use various technologies and strategies to reduce overall plant energy consumption at full and partial loads (such as chillers with variable speed drives on the compressors, primary-only variable flow pumping, etc)	87%	50%	38%
Integrate day-lighting strategies to decrease building energy demand.	57%	57%	63%
Utilize chiller optimization program (software) to determine best use of chiller sequencing based on efficiencies at various loads.	76%	36%	50%
Minimize leakage in air handling units and ductwork to reduce overall fan horsepower while ensuring that air is properly filtered.	87%	71%	88%
Retrofit using variable speed drives for motors and pumps, and Energy Star-rated equipment to reduce electrical consumption.	87%	79%	63%
Install energy efficiency lighting devices, such as: LED exit signs, fluorescents, Energy Star qualified lighting fixtures, occupancy sensor and sunlight harvesting controls.	97%	86%	100%
Implemented energy-efficiency retrofits and energy-saving techniques to reduce energy use.	77%	86%	75%
Increased energy efficiency of computer server infrastructure	56%	57%	38%
Evaluated or improved critical equipment electrical distribution systems	70%	86%	63%
Other HVAC improvements to improve energy efficiency	60%	57%	38%

Table 60: Commissioning

Commissioning	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Incorporate into the commissioning program regular inspections of the mechanical ventilation system to identify if the filters are clean, not overloaded and without leaks or tears and insure that drip pans are free of standing water or other contaminants.	83%	71%	75%
Ensure that the commissioning program addresses, at a minimum, the following: heating system, cooling system, humidity control system, lighting system, safety systems, building envelope, domestic water pumping systems and the building automation controls.	78%	36%	63%
Other Commissioning	29%	7%	13%

Table 61: Refrigerant Management

Refrigerant Management	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Use non-CFC-based HVAC&R equipment which is often more efficient than CFC-based equipment and can improve overall facility energy performance.	71%	64%	38%
Set up leakage minimization procedures and systems to meet annual leakage minimization standards and reporting requirements. (For more information, see U.S. EPA's "Complying with the Section 608 Refrigerant Recycling Rule.")	74%	36%	50%
When reusing existing HVAC systems, conduct an inventory to identify equipment that uses CFC refrigerants and provide a phase out schedule for these refrigerants.	62%	43%	50%

Table 62: Average Annual Water Use and Costs

Water Use	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Total gallons used	3.5 billion	112.3 million	21.2 million
Annual gallons used per APD	290	309	55
Annual gallons used per staffed bed per day	349	N/A	349
Annual gallons used per square foot	41.6	27.6	25.6
Average gallons used per FTE	16,743	12,513	11,481
Water Costs¹			
Total annual water bill	\$15.8 million	\$369,350	\$317,300
Total annual sewer bill	\$10.5 million	— ²	\$18,350
Average cost/gallon of water	\$0.005	— ²	\$0.018
1) not all applicants reported water and/or sewer costs 2) no data or minimal data			

Table 63: Average Annual Water Conservation Savings

Water Conservation	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Engaged in recent water conservation projects	55%	36%	50%
Gallons regular water use	2 billion	93.4 million	13 million
Total gallons saved	149 million	131,400	2.5 million
Total dollars saved	\$795,700	— ¹	\$1000 ²
Average percent of annual water use conserved	13%	0.4% ²	—% ¹
Water conserved in gallons per APD	27	1	3
Savings in dollars per APD	\$0.17	— ¹	\$0.01
1) Not enough data submitted for accurate representation 2) very small sample size, N=1			

Table 64: Potable Water Use Reduction – Fixtures and Landscaping

Potable Water Use Reduction – Fixtures and Landscaping	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Reduced fixture water usage through automatic controls and other actions.	85%	64%	38%
Specify water conserving plumbing fixtures and fittings that exceed the UPC or IPC fixture and fitting performance requirements in combination with high efficiency or dry fixture and control technologies.	62%	29%	63%
Purchase water efficient equipment in the laundry (washers)	28%	14%	38%
Purchase water efficient equipment in the kitchen (washers)	46%	14%	38%
Indoor Plumbing Fixture and Fitting Efficiency			
Reclaimed any potable “grey” water drains, cooling coil condensate, and/or captured rainwater for filtration and treatment to use in non-potable process water needs such as process cooling (sterilizers) or cooling tower water make-up.	9%	0%	0%
Tracked facility’s water consumption (for free) using the water tracking feature of U.S. EPA’s Energy Star® National Energy Performance Rating System, found within Portfolio Manager at http://www.energystar.gov/benchmark .	22%	14%	13%
Documented reclaimed potable water use for further non-potable process use (i.e. cooling tower and boiler water make-up).	19%	14%	25%
Calculated annual fixture potable water use per occupant and per square foot.	13%	7%	25%
Water Efficient Landscaping			
Implemented and maintained high- efficiency irrigation technologies that include micro irrigation, moisture sensors, or weather data based controllers.	29%	0%	13%

Potable Water Use Reduction – Fixtures and Landscaping	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Fed irrigation systems with captured rainwater, gray water (site or municipal), or on-site treated wastewater. Used reclaimed water for selected applications can reduce costs and preserve precious potable water supplies.	11%	0%	13%
Considered eliminating use of an irrigation system . Consider use of xeriscaping principles. Selected water efficient, native or adapted, non-invasive climate tolerant plantings.	34%	14%	25%

Table 65: Potable Water Use Reduction – Cooling Towers

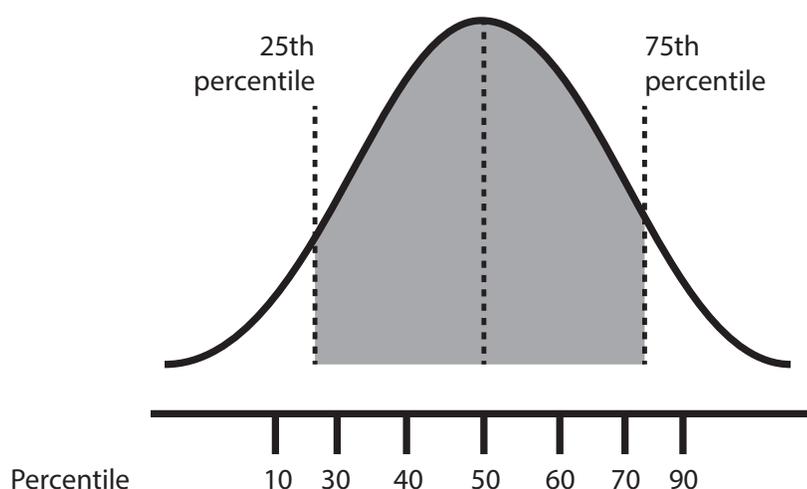
Potable Water Use Reduction – Cooling Towers	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Worked with a water treatment specialist to develop a water management strategy addressing the appropriate chemical treatment and bleed-off to ensure proper concentration levels in the cooling tower	75%	21%	25%
Explored technologies and strategies to eliminate chemical waste to drain in cooling tower and boiler blowdown	64%	21%	25%
Treated blowdown so that chemical treatment can be reclaimed for re-use	13%	7%	0%
Implemented a water management plan for the cooling tower that addresses chemical treatment, bleed-off, biological control and staff training for cooling tower maintenance	71%	29%	25%
Improved water efficiency by installing and/or maintaining a conductivity meter and automatic controls to adjust the bleed rate and maintain proper concentration at all times	74%	36%	25%
Employed non-toxic treatment chemicals or chemical-free cooling tower systems	29%	14%	13%
Used make-up water that consists of at least 50% non-potable water	17%	14%	0%
Used non-potable makeup water (rainwater, A/C condensate, cooling tower water blow down, etc.)	17%	7%	13%
Other Projects	9%	7%	0%

Table 66: Alternative Transportation Techniques

Alternative Transportation	2012 Hospital Winners	2012 Clinic Winners	2012 LTC Winners
Have hybrid, electric or alternative fueled vehicles in fleet	48%	14%	25%
Reimbursed public transportation fees	42%	71%	13%
Organized car pools	54%	57%	25%
Made bike racks available	93%	71%	63%
Provided adequate locker rooms and shower facilities	91%	43%	63%
Offered shuttle services to/from public transportation and/or between facilities	60%	36%	13%
Provided desired parking for carpools or owners of hybrid cars	38%	7%	0%
Encouraged teleconferencing instead of meetings	92%	100%	100%
Encouraged carpooling to offsite classes and meetings	84%	93%	100%
Offered other incentives (e.g. free lunches)	38%	36%	13%

Appendix 2: Additional Information on the Data Set, Waste, Water and Energy

The data presented in this Appendix is for the entire data set of 149 hospitals. Each variable of interest is defined using 3 numbers, which illustrate the bulk of the data. The “low” number represents the bottom of the 25th percentile, the mean is the average, and the high represents the top of the 75th percentile. If the data was presented using bell curves, the data presented in the table below is similar to the data found under the main part of the bell curve; note the shaded area on the diagram immediately below.



Normalization Factor	Low (25th Percentile)	Mean (Average)	High (75th Percentile)
Adjusted Patient Days (APD)	66	139	178
Patient Days	34,086	84,835	112,890
Full Time Equivalents (FTE)	1040	2544	3107
Licensed Beds	185	353	466
Staffed Beds	150	299	384
Number of Operating Rooms (ORs)	8	17	21
No. of OR Procedures	5706	12,255	15,379
Number of Emergency Rooms Visits	27,717	47,429	63,643
Outpatient Visits	89,255	371,766	432,231
Square Footage	320,669	795,950	1,107,750

Annual Waste Data	Low (25th Percentile)	Mean (Average)	High (75th Percentile)
Pounds of Solid Waste per APD	10	16	17
Pounds of Recycling per APD	4	7	8
Pounds of RMW per APD	1	3	2
Pounds of Hazardous Waste per APD	0.03	0.13	0.17
Pounds of Total Waste per APD	17	26	27

Annual Energy and Water Data	Low (25th Percentile)	Mean (Average)	High (75th Percentile)
Energy Data			
Electricity use in Kilowatt Hours per Square Foot	23	33	37
Electricity Use per Adjusted Patient Day	132	226	238
Cost of Electricity per Kilowatt Hour	\$0.07	\$0.09	\$0.10
Total Energy Cost per Square Foot of Facility	\$2.64	\$3.70	\$4.21
Total Energy Cost per Staffed Bed	6793	\$11,066	13,201
Total Energy Cost per Adjusted Patient Day	16	25	29
Water Data			
Gallons of Water Used per Square Foot	24	42	61
Gallons of Water Used per Staffed Bed	72,643	127,256	168,168
Gallons of Water Used per Staffed Bed per Day	199	349	461

Appendix 3: Predicting Waste Generation and Energy Costs

Predicting Annual Waste Generation

THE BOTTOM LINE: Full-time equivalents (FTEs) and number of operating rooms (ORs) are this year's most unique and best predictors of total waste generation.

THE STATISTICS: A search for the best predictors of total waste generation was undertaken. Stepwise multiple regression with backwards elimination was used to assist in identifying the fewest number of variables needed to adequately predict total waste tonnage generated by an "average" Award winner. With just 75 cases having non-missing values for all the ten variables to be explored, assessing the relative impact of more than two predictors simultaneously with such an advanced technique is to be done with considerable caution¹. Standard practice would have one assuring there were 40 cases for every predictor variable being analyzed. Thus the technique will be restricted to identifying a possible predictive model with limited interpretation and generalization until replication with future samples is possible.

The equation below shows the variables identified which best predict total waste generation. The numeric coefficient preceding each predictor is a standard beta coefficient reflecting the relative and unique contribution to the prediction of total waste tonnage for that variable.

Total Annual Waste Generation (in tons) = 0.64 Full-Time Equivalent + 0.31 Number of ORs;

where $n=150$ and $R^2=0.849$,

The model's R^2 indicates that nearly 85% of the variance in total Tons of Waste is accounted for with just these two variables, Full-Time Equivalency and Number of Operating Rooms. By this step in model selection, other predictors like APD and Number of Procedures had been eliminated. They simply offer no unique contribution in explaining total waste beyond the explanation provided by Full-Time Equivalent and the Number of Operating Rooms.

These two remaining predictors offer unique contribution toward waste generation which allows for the interpretation that regardless of facility size as measured by FTE, more waste is created by those facilities with larger numbers of operating rooms. While seemingly obvious, contrast this with the finding that regardless of facility size, the facilities doing more procedures than others, do not produce any significantly greater amounts of waste than places doing fewer procedures. Full-time equivalent and number of operating rooms are this year's most unique and best predictors of total waste generation.

¹ Cohen, J. & Cohen, P. *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. New Jersey: Lawrence Erlbaum Associates, Inc., 1975, 102-104.

Predicting Annual Electricity Use

An attempt was made to identify the best predictors of energy use. Various multiple regression techniques were used to accomplish this including stepwise regression with backwards elimination.

The initial analysis on total energy use yielded several counterintuitive results which led to the separation of total energy into its primary components of electricity and natural gas for closer analysis.

For **electricity** used, the most simplified model of prediction is:

Annual Electrical Use (in kWh) = + 0.55 (Square Footage) + 0.36 (Number of OR Procedures), with R²=0.742.

The number preceding the variable name is the standardized beta coefficient which indicates the relative influence that predictor had on electrical use. With little effort in statistical manipulation, the “Number of OR Procedures” variable could be replaced with another work volume measure such as Staffed Beds with no substantial loss in the overall R², however, “Square Footage” *cannot* be replaced. As suggested earlier, it is the natural normalizing factor for energy use.

Analysis of the data showed that **natural gas** usage could not be well explained with *any* predictors. None of the multiple regression models were substantial in their magnitude (the highest multiple R² value for any of the models explored was less than 0.20). Practice Greenhealth has chosen not to report on natural gas in this year's report because of an apparent mix of units in the data submitted on the Award applications. Next year's PFC application will provide a unit pick list to ensure proper selection of the units.

Appendix 4 : Single-use Device (SUD) Reprocessing

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Table 1: SUD Reprocessing – PFC Winners

Device	2010 PFC Winners Reprocess these Items	2011 PFC Winners Reprocess these Items	2012 PFC Winners Reprocess these Items	2011 PFC Winners Purchase these Reprocessed Items	2012 PFC Winners Purchase these Reprocessed Items
ANESTHESIOLOGY					
Anesthesia Masks	7%	2%	7%	2%	5%
Laryngeal Airway	11%	5%	10%	3%	4%
Pulse Oximeter Sensor	33%	46%	44%	40%	35%
CARDIOVASCULAR					
Cardiovascular Surgical Saw Blade	13%	14%	10%	10%	9%
Pericardiocentesis Tray	4%	1%	1%	1%	0%
Tissue Stabilizer	4%	4%	6%	3%	4%
Blood-Pressure Cuff	18%	22%	19%	15%	19%
Sequential Compression Sleeve / DVT Compression Sleeve*	39%	47%	39%	31%	28%
Electrophysiology Catheters	15%	29%	24%	24%	19%
Steerable Electrophysiology Catheter	13%	17%	13%	18%	10%
Inflation Device	2%	4%	3%	4%	2%
Cardiac Stabilizers & Positioners	5%	5%	7%	5%	5%
Electrophysiology Catheters	13%	31%	28%	25%	23%
Diagnostic Electrophysiology Catheter	17%	22%	17%	21%	14%
Imaging Catheter	6%	11%	13%	9%	10%
Pulse Oxisensor / Pulse Oximeter*	24%	29%	37%	28%	29%
Femoral Compressor Device	8%	8%	5%	7%	5%
Guidewires	4%	6%	9%	5%	5%

Device	2010 PFC Winners Reprocess these Items	2011 PFC Winners Reprocess these Items	2012 PFC Winners Reprocess these Items	2011 PFC Winners Purchase these Reprocessed Items	2012 PFC Winners Purchase these Reprocessed Items
DENTAL					
Diamond Dental Instrument	6%	3%	5%	1%	2%
Dental Burs And Blades	12%	7%	7%	3%	2%
EAR NOSE & THROAT					
ENT Bur	13%	15%	30%	12%	20%
GASTROENTEROLOGY					
Stone Retrieval Basket	5%	6%	11%	4%	6%
Biopsy Forceps	14%	17%	33%	8%	20%
Trocar	27%	37%	46%	21%	30%
Biopsy Forceps, Hot	10%	13%	22%	5%	9%
Endoscopic Electrodes	12%	9%	16%	7%	9%
Hospital Bed Patient Monitoring Alarm	7%	13%	9%	10%	7%
Pressure Bag	4%	3%	2%	3%	1%
GENERAL					
Electrosurgical Electrode	11%	8%	15%	7%	8%
EP and Ablation Catheters	—	—	11%	—	6%
EP/Ablation Cables	—	—	9%	—	5%
Turp Loops	—	—	11%	—	6%
ENT Shavers	—	—	27%	—	16%
Navigation and Ex Fix Anchor Pins	—	—	13%	—	7%
Trocars	—	—	37%	—	26%
MultiClip Appliers	—	—	29%	—	20%
Pneumatic Tourniquet Cuff	31%	38%	39%	30%	34%
Disposable Surgical Instruments	20%	25%	26%	18%	13%
Chisel	6%	7%	18%	3%	7%
Curette	8%	7%	15%	3%	5%
Rasp	11%	8%	17%	4%	7%
Hook	8%	8%	17%	4%	6%
Gouge	8%	6%	16%	3%	6%
Laparoscopic Instruments	30%	42%		28%	
Hot Laparoscopic Instruments	—	—	36%	—	21%

Device	2010 PFC Winners Reprocess these Items	2011 PFC Winners Reprocess these Items	2012 PFC Winners Reprocess these Items	2011 PFC Winners Purchase these Reprocessed Items	2012 PFC Winners Purchase these Reprocessed Items
Cold Laparoscopic Instruments	—	—	25%	—	16%
Laser Probe	9%	5%	16%	3%	7%
Saw Blade	26%	30%	34%	20%	19%
Bur	27%	32%	34%	23%	18%
Scissor Tips	14%	21%	24%	12%	13%
Reloadable Cutters & Appliers	20%	25%	35%	16%	21%
Suture Passer	11%	19%	33%	13%	20%
Ultrasonic Scalpel	32%	42%	49%	32%	35%
NEUROLOGY					
Drills, Burrs, Trephines & Accessories	16%	13%	11%	9%	6%
OBSTETRICS & GYNECOLOGY					
Laparoscopic Instruments	23%	40%		27%	
Hot Laparoscopic Instruments	—	—	35%	—	21%
Cold Laparoscopic Instruments	—	—	27%	—	17%
OPHTHALMIC					
Phacoemulsification Tip Needle	4%	7%	7%	3%	1%
Laser Probe	6%	3%	4%	2%	1%
ORTHOPEDIC					
Arthroscopy Instruments	29%	29%	27%	23%	19%
Reamer	11%	8%	17%	3%	7%
Cartilage Knife	5%	2%	9%	2%	2%
Bur	30%	35%	36%	24%	22%
Drill Bit	30%	31%	33%	22%	18%
Rongeur	7%	5%	10%	1%	0%
Trephine	4%	3%	7%	1%	0%

Device	2010 PFC Winners Reprocess these Items	2011 PFC Winners Reprocess these Items	2012 PFC Winners Reprocess these Items	2011 PFC Winners Purchase these Reprocessed Items	2012 PFC Winners Purchase these Reprocessed Items
Countersink	5%	5%	11%	3%	3%
Tap	10%	8%	15%	3%	6%
External Fixation Device	14%	19%	29%	13%	14%
Carpal Tunnel Blade	8%	6%	18%	4%	10%
Orthopedic Cannulas And Trocars	32%	20%	28%	11%	15%
Orthopedic Saw Blades	—	—	29%	—	17%
Rasps	—	—	19%	—	9%
Chisels	—	—	19%	—	8%
* 2012 wording.					

Table 2: SUD Reprocessing – DIST Winners

Device	2012 DIST Winners Reprocess these Items	2012 DIST Winners Purchase these Reprocessed Items
ANESTHESIOLOGY		
Anesthesia Masks	0%	0%
Laryngeal Airway	5%	5%
Pulse Oximeter Sensor	50%	36%
CARDIOVASCULAR		
Cardiovascular Surgical Saw Blade	27%	25%
Pericardiocentesis Tray	2%	0%
Tissue Stabilizer	11%	7%
Blood-Pressure Cuff	39%	34%
Sequential Compression Sleeve / DVT Compression Sleeve*	41%	34%
Electrophysiology Catheters	36%	34%
Steerable Electrophysiology Catheter	27%	27%
Inflation Device	11%	11%
Cardiac Stabilizers & Positioners	5%	5%
Electrophysiology Catheters	39%	34%
Diagnostic Electrophysiology Catheter	27%	27%
Imaging Catheter	32%	30%
Pulse Oxisensor / Pulse Oximeter*	41%	39%
Femoral Compressor Device	9%	9%
Guidewires	14%	7%
DENTAL		
Diamond Dental Instrument	7%	2%
Dental Burs And Blades	9%	5%
EAR NOSE & THROAT		
ENT Bur	39%	30%
GASTROENTEROLOGY		
Stone Retrieval Basket	9%	5%
Biopsy Forceps	23%	16%
Trocar	46%	30%
Biopsy Forceps, Hot	18%	9%
Endoscopic Electrodes	18%	11%

Device	2012 DIST Winners Reprocess these Items	2012 DIST Winners Purchase these Reprocessed Items
Hospital Bed Patient Monitoring Alarm	14%	9%
Pressure Bag	11%	11%
GENERAL		
Electrosurgical Electrode	16%	9%
EP and Ablation Catheters	23%	21%
EP/Ablation Cables	18%	16%
Turp Loops	14%	2%
ENT Shavers	34%	25%
Navigation and Ex Fix Anchor Pins	16%	7%
Trocars	48%	34%
MultiClip Appliers	43%	25%
Pneumatic Tourniquet Cuff	59%	48%
Disposable Surgical Instruments	36%	27%
Chisel	14%	9%
Curette	7%	2%
Rasp	14%	9%
Hook	9%	5%
Gouge	7%	2%
Hot Laparoscopic Instruments	52%	39%
Cold Laparoscopic Instruments	32%	18%
Laser Probe	9%	2%
Saw Blade	48%	34%
Bur	52%	41%
Scissor Tips	21%	11%
Reloadable Cutters & Appliers	34%	18%
Suture Passer	34%	23%
Ultrasonic Scalpel	59%	57%
NEUROLOGY		
Drills, Burrs, Trephines & Accessories	21%	21%
OBSTETRICS & GYNECOLOGY		
Hot Laparoscopic Instruments	52%	34%
Cold Laparoscopic Instruments	36%	23%

Device	2012 DIST Winners Reprocess these Items	2012 DIST Winners Purchase these Reprocessed Items
OPHTHALMIC		
Phacoemulsification Tip Needle	11%	7%
Laser Probe	2%	0%
ORTHOPEDIC		
Arthroscopy Instruments	41%	27%
Reamer	14%	7%
Cartilage Knife	9%	2%
Burr	57%	41%
Drill Bit	55%	43%
Rongeur	11%	5%
Trephine	7%	2%
Countersink	9%	5%
Tap	11%	5%
External Fixation Device	32%	30%
Carpal Tunnel Blade	14%	11%
Orthopedic Cannulas And Trocars	25%	18%
Orthopedic Saw Blades	50%	36%
Rasps	18%	14%
Chisels	14%	7%
* 2012 wording.		

Table 3: SUD Reprocessing – ELC Winners

Device	2010 ELC Winners Reprocess these Items	2011 ELC Winners Reprocess these Items	2012 ELC Winners Reprocess these Items	2011 ELC Winners Purchase these Reprocessed Items	2012 ELC Winners Purchase these Reprocessed Items
ANESTHESIOLOGY					
Anesthesia Masks	8%	9%	4%	4%	0%
Laryngeal Airway	25%	13%	11%	4%	4%
Pulse Oximeter Sensor	46%	57%	57%	39%	50%
CARDIOVASCULAR					
Cardiovascular Surgical Saw Blade	17%	22%	29%	26%	29%
Pericardiocentesis Tray	0%	4%	0%	4%	0%
Tissue Stabilizer	8%	4%	0%	4%	0%
Blood-Pressure Cuff	17%	26%	32%	9%	18%
Sequential Compression Sleeve / DVT Compression Sleeve*	54%	57%	68%	35%	36%
Electrophysiology Catheters	50%	52%	54%	39%	39%
Steerable Electrophysiology Catheter	38%	39%	25%	35%	21%
Inflation Device	0%	4%	4%	4%	4%
Cardiac Stabilizers & Positioners	38%	30%	21%	26%	14%
Electrophysiology Catheters	46%	39%	43%	30%	29%
Diagnostic Electrophysiology Catheter	42%	48%	32%	35%	25%
Imaging Catheter	25%	30%	25%	26%	21%
Pulse Oxisensor / Pulse Oximeter*	42%	30%	43%	22%	39%
Femoral Compressor Device	29%	13%	7%	9%	4%
Guidewires	8%	4%	4%	4%	0%
DENTAL					
Diamond Dental Instrument	8%	4%	7%	4%	7%
Dental Burs And Blades	8%	9%	11%	9%	11%
EAR NOSE & THROAT					
ENT Bur	17%	17%	18%	17%	14%
GASTROENTEROLOGY					
Stone Retrieval Basket	8%	17%	11%	13%	4%
Biopsy Forceps	17%	26%	36%	17%	11%
Trocar	38%	35%	61%	35%	36%

Device	2010 ELC Winners Reprocess these Items	2011 ELC Winners Reprocess these Items	2012 ELC Winners Reprocess these Items	2011 ELC Winners Purchase these Reprocessed Items	2012 ELC Winners Purchase these Reprocessed Items
Biopsy Forceps, Hot	8%	17%	32%	13%	11%
Endoscopic Electrodes	8%	9%	11%	9%	4%
Hospital Bed Patient Monitoring Alarm	13%	9%	14%	4%	4%
Pressure Bag	4%	0%	11%	0%	4%
GENERAL					
Electrosurgical Electrode	25%	13%	25%	4%	4%
EP and Ablation Catheters	—	—	21%	—	14%
EP/Ablation Cables	—	—	21%	—	14%
Turp Loops	—	—	4%	—	0%
ENT Shavers	—	—	25%	—	21%
Navigation and Ex Fix Anchor Pins	—	—	7%	—	0%
Trocars	—	—	57%	—	32%
MultiClip Appliers	—	—	18%	—	7%
Pneumatic Tourniquet Cuff	58%	43%	57%	35%	43%
Disposable Surgical Instruments	17%	13%	21%	9%	11%
Chisel	17%	9%	14%	9%	11%
Curette	21%	9%	7%	4%	0%
Rasp	25%	0%	18%	4%	18%
Hook	21%	4%	7%	4%	4%
Gouge	13%	4%	7%	4%	4%
Hot Laparoscopic Instruments	—	—	57%	—	29%
Cold Laparoscopic Instruments	—	—	32%	—	14%
Laser Probe	21%	9%	4%	9%	7%
Saw Blade	42%	39%	64%	39%	43%
Bur	46%	43%	61%	48%	50%
Scissor Tips	21%	26%	43%	26%	21%
Reloadable Cutters & Appliers	25%	17%	32%	17%	11%
Suture Passer	33%	22%	32%	22%	18%
Ultrasonic Scalpel	58%	35%	57%	35%	46%

Device	2010 ELC Winners Reprocess these Items	2011 ELC Winners Reprocess these Items	2012 ELC Winners Reprocess these Items	2011 ELC Winners Purchase these Reprocessed Items	2012 ELC Winners Purchase these Reprocessed Items
NEUROLOGY					
Drills, Burrs, Trephines & Accessories	21%	17%	25%	9%	7%
OBSTETRICS & GYNECOLOGY					
Laparoscopic Instruments	21%	30%		22%	
Hot Laparoscopic Instruments	—	—	43%	—	11%
Cold Laparoscopic Instruments	—	—	25%	—	7%
OPHTHALMIC					
Phacoemulsification Tip Needle	4%	0%	4%	0%	4%
Laser Probe	8%	13%	11%	9%	7%
ORTHOPEDIC					
Arthroscopy Instruments	46%	30%	36%	26%	21%
Reamer	25%	9%	18%	0%	7%
Cartilage Knife	21%	9%	7%	4%	4%
Burr	67%	52%	64%	48%	46%
Drill Bit	67%	43%	54%	35%	39%
Rongeur	17%	4%	7%	0%	4%
Trephine	17%	4%	7%	0%	4%
Countersink	25%	9%	11%	0%	7%
Tap	29%	9%	14%	0%	11%
External Fixation Device	33%	30%	39%	26%	18%
Carpal Tunnel Blade	21%	13%	18%	9%	11%
Orthopedic Cannulas And Trocars	46%	35%	32%	30%	21%
Orthopedic Saw Blades	—	—	36%	—	29%
Rasps	—	—	18%	—	11%
Chisels	—	—	18%	—	11%
* 2012 wording.					

Table 4: SUD Reprocessing – Hospital and Clinic Winners

Device	2012 Hospital Winners Reprocess these Items	2012 Hospital Winners Purchase these Reprocessed Items	2012 Clinic Winners Reprocess these Items	2012 Clinic Winners Purchase these Reprocessed Items
ANESTHESIOLOGY				
Anesthesia Masks	5%	3%	7%	0%
Laryngeal Airway	9%	5%	7%	0%
Pulse Oximeter Sensor	54%	44%	7%	0%
CARDIOVASCULAR				
Cardiovascular Surgical Saw Blade	20%	19%	0%	0%
Pericardiocentesis Tray	1%	0%	0%	0%
Tissue Stabilizer	7%	5%	0%	0%
Blood-Pressure Cuff	27%	23%	36%	36%
Sequential Compression Sleeve / DVT Compression Sleeve*	50%	36%	0%	0%
Electrophysiology Catheters	34%	28%	29%	29%
Steerable Electrophysiology Catheter	22%	19%	0%	0%
Inflation Device	6%	5%	0%	0%
Cardiac Stabilizers & Positioners	10%	7%	0%	0%
Electrophysiology Catheters	35%	28%	36%	36%
Diagnostic Electrophysiology Catheter	26%	22%	0%	0%
Imaging Catheter	20%	16%	36%	36%
Pulse Oxisensor / Pulse Oximeter*	45%	38%	0%	0%
Femoral Compressor Device	7%	7%	0%	0%
Guidewires	11%	5%	0%	0%
DENTAL				
Diamond Dental Instrument	6%	3%	0%	0%
Dental Burs And Blades	9%	5%	0%	0%
EAR NOSE & THROAT				
ENT Bur	30%	22%	43%	36%
GASTROENTEROLOGY				
Stone Retrieval Basket	11%	6%	0%	0%

Device	2012 Hospital Winners Reprocess these Items	2012 Hospital Winners Purchase these Reprocessed Items	2012 Clinic Winners Reprocess these Items	2012 Clinic Winners Purchase these Reprocessed Items
Biopsy Forceps	32%	17%	36%	36%
Trocar	51%	32%	36%	36%
Biopsy Forceps, Hot	26%	11%	0%	0%
Endoscopic Electrodes	17%	10%	0%	0%
Hospital Bed Patient Monitoring Alarm	13%	8%	0%	0%
Pressure Bag	7%	5%	0%	0%
GENERAL				
Electrosurgical Electrode	19%	9%	0%	0%
EP and Ablation Catheters	17%	13%	7%	0%
EP/Ablation Cables	15%	11%	7%	0%
Turp Loops	11%	5%	7%	0%
ENT Shavers	28%	19%	43%	36%
Navigation and Ex Fix Anchor Pins	14%	7%	7%	0%
Trocars	47%	32%	21%	14%
MultiClip Appliers	31%	19%	43%	36%
Pneumatic Tourniquet Cuff	50%	42%	43%	36%
Disposable Surgical Instruments	31%	19%	7%	0%
Chisel	17%	9%	7%	0%
Curette	12%	4%	7%	0%
Rasp	17%	11%	7%	0%
Hook	14%	6%	7%	0%
Gouge	13%	5%	7%	0%
Hot Laparoscopic Instruments	49%	31%	7%	0%
Cold Laparoscopic Instruments	31%	19%	7%	0%
Laser Probe	13%	7%	7%	0%
Saw Blade	48%	31%	7%	0%
Bur	48%	34%	7%	0%
Scissor Tips	29%	16%	7%	0%
Reloadable Cutters & Appliers	35%	18%	43%	36%
Suture Passer	34%	20%	43%	36%
Ultrasonic Scalpel	56%	46%	43%	36%

Device	2012 Hospital Winners Reprocess these Items	2012 Hospital Winners Purchase these Reprocessed Items	2012 Clinic Winners Reprocess these Items	2012 Clinic Winners Purchase these Reprocessed Items
NEUROLOGY				
Drills, Burrs, Trephines & Accessories	18%	11%	0%	0%
OBSTETRICS & GYNECOLOGY				
Hot Laparoscopic Instruments	46%	26%	7%	0%
Cold Laparoscopic Instruments	32%	20%	7%	0%
OPHTHALMIC				
Phacoemulsification Tip Needle	8%	3%	0%	0%
Laser Probe	5%	2%	0%	0%
ORTHOPEDIC				
Arthroscopy Instruments	36%	25%	0%	0%
Reamer	18%	8%	0%	0%
Cartilage Knife	9%	3%	0%	0%
Bur	52%	36%	0%	0%
Drill Bit	48%	32%	0%	0%
Rongeur	11%	2%	0%	0%
Trephine	7%	1%	0%	0%
Countersink	11%	5%	0%	0%
Tap	15%	7%	0%	0%
External Fixation Device	33%	18%	36%	36%
Carpal Tunnel Blade	19%	12%	0%	0%
Orthopedic Cannulas And Trocars	32%	20%	0%	0%
Orthopedic Saw Blades	40%	28%	0%	0%
Rasps	21%	12%	0%	0%
Chisels	20%	9%	0%	0%
* 2012 wording.				

