

ARMY MEDICINE

One Team...One Purpose!

Conserving the Fighting Strength Since 1775



MEDCOM Sustainability:

Adding Value to Operations

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Sustainability Program Contract Support

30 October 2019

Federal Environmental Symposium, Bethesda, MD



Agenda

- The MEDCOM Mission
- Climate, Healthcare and Sustainability
- MEDCOM Sustainability Program
- Implementation
- 2019 Annual Report



The MEDCOM Mission









SAVING LIVES in a COMPLEX WORLD





Army Medicine is the Nation's premier expeditionary and globally integrated medical force ready to meet the ever-changing challenges of today and tomorrow.



EVERYDAY IS A LIVE FIRE EXERCISE
WITH OVER 180.000 PATIENT CONTACTS DAILY 2.5 TIMES THE NUMBER **OF ATTENDEES AT** SUPER BOWL 51 **PRECISE PERSONAL**



WE NEED TO INCREASE CAPACITY STRATEGIC PARTNERSHIPS, WE WILL CONTINUE TO TRAIN OUR HEALTHCARE TEAMS IN OUR ORGANIC REALTH READINESS PLATFORMS; HOWEVER, WE MUST ORCHESTRATE A NATIONA AND GLOBAL NETWORK OF WALLS. THIS REQUIRES A TO" AND FROM "COMPETITION" TO "COLLABORATION." BIG PROBLEMS CANNOT BE SOLVED USING THE SAME STRATEGY THA CAUSED THEM. BIG PROBLEMS CAN'T BE SOLVED WITHOUT INTEGRATING, SYNCHRONIZING AND COORDINATING THROUGHOUT THE NETWORK. FLUENCY ACROSS ARMY MEDICINE'S PERCEIVED
BOUNDARIES WILL PROVIDE A CLEAR VIEW OF THE WORLD AS IT REALLY IS, NOT AS VIEWED THROUGH THE LENS OF IDEOLOGIES OR COMMANDED BY MYOPIC RESPONSE TO IMMEDIATE NEED, THAT IDEOLOGY IS PROBABLY OUR



ACROSS THE DEPARTMENT OF DEFENSE CASUALTY SURVIVABILITY RATE KILLED IN ACTION INCE 2001 5,390 SM HAVE BEEN KILLED IN ACTION F WE COULD SAVE EVEN 10%. 39 MORE WOULD GO HOME TO FAMILY THAT'S EQUAL TO A LARGE GRADUATING **HIGH SCHOOL CLASS**

MAJOR AND MINOR DEPARTMENT OF DEFENS LIMB AMPUTEES

1275 ARMY (68%) 536 MARINES (28%) ■ 49 NAVY (3%) **■ 27 AIR FORCE (1%)**

OUR GOAL

DEATHS

SMART DATA SMART SYSTEMS SMART MEDICS

IN 2012 MRMC OTHER NOTABLE RECIPIENTS INCLUDE **TOP 100** IN THE WORLD AND TOYOTA

VIRTUAL HEALTH

ZONES

COUNTRIES & TERRITORIES

40.000 PROVIDER-PATIENT ENCOUNTED OF THESE, APPROXIMATELY 5,700 (15%) ARE



TRANSFORMING MEDICAL READINESS WITH QUICK, EASY ACCESS TO

ESSENTIAL MEDICAL INFORMATION



BRENDAN MARROCCO

OVERSEAS CONTINGENCY EVACUATIONS SINCE 2001

BATTLE INJURIES (21% OF ALL EVACUATIONS)

56,586 DISEASE & NON BATTLE INJURIES

FIRST UNITED STATES SOLDIER SURVIVE A QUADRUPLE AMPUTATION &

WOUNDED IN ACTION

■ 1071 NAVY (2%)

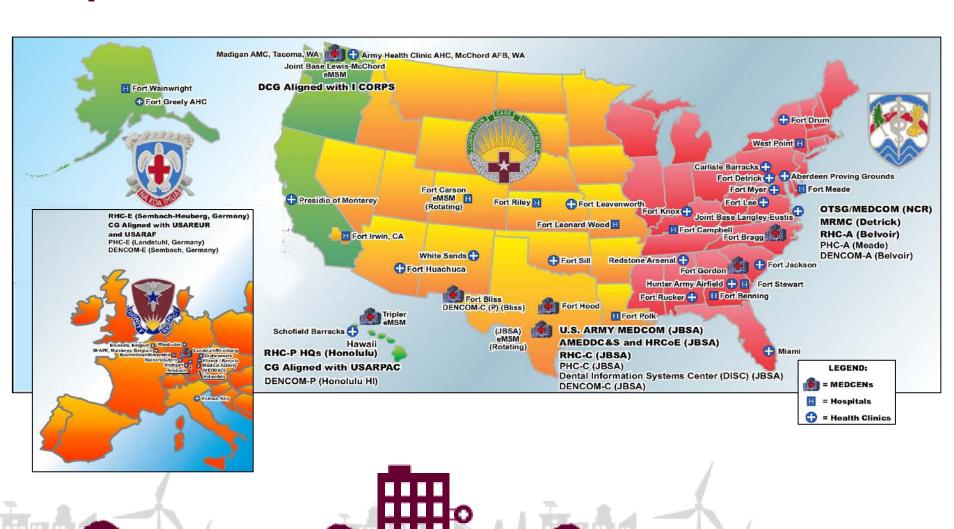
■971 AIR FORCE (2%)

36,863 ARMY (70%) 13,589 MARINES (26%)

THE SEVENTH RECIPIENT OF A BILATERAL ARM TRANSPLANT

RMY MEDICINE | LEVERAGING 21ST SUPPORTS THE TECHNOLOGY IN

Map of MEDCOM facilities



Climate, Healthcare and Sustainability



Climate, Healthcare and Sustainability

"There is a direct link between healing the individual and healing this planet...

...we will not have healthy individuals, healthy families, and healthy communities if we do not have clean air, clean water, and healthy soil."

Rossi, Mark, and Tom Lent, "Creating Safe and Healthy Spaces: Selecting Materials That Support Healing," Designing the 21st Century Hospital (September 2006), p. 55.

If the U.S.
healthcare system
were a country, it would
rank **13th** in the world for
greenhouse gas (GHG)
emissions.

Matthew J. Eckelman, Jodi Sherman. Environmental Impacts of the U.S. Health Care System and Effects on Public Health. PLOS ONE, 2016; 11 (6): e0157014 DOI: 10.1371/journal.pone.0157014



Climate and National Security

Climate change will have several significant strategic impacts affecting the Army, the DoD, and the future geopolitical landscape.

- Expanding zones of competition.
- Drastic changes in regional temperatures are changing disease and vector patterns.
- Current medical treatments challenged to keep up with changes.
- Climate change impacts can lead to mass migration and regional instability.





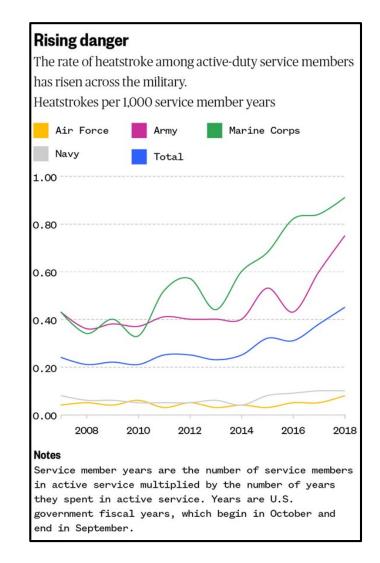
Climate, Health and Readiness

Heatstroke

In 2008: 1,766 cases of heatstroke

By 2018: 2,792 cases; 60% increase





Capacity and Resiliency

Capacity over time in face of disturbances

Resiliency

ensuring complex and interconnected human and environmental systems can withstand and bounce back from disturbances

Readiness
being
prepared or
available for
service,
action, or
progress

Sustainability

ensuring human and environmental well-being now and into the future

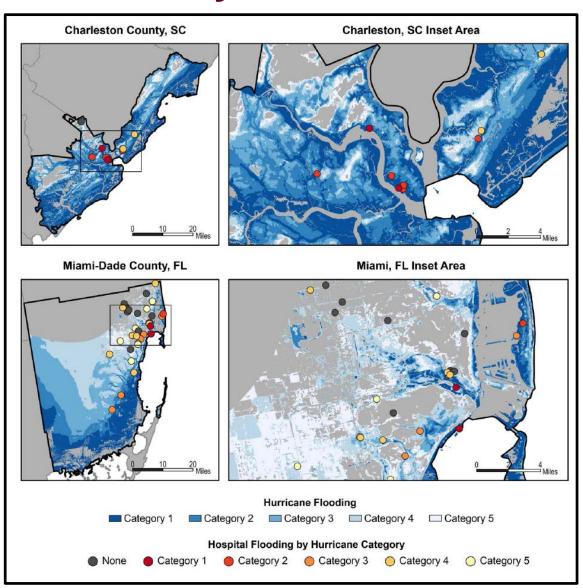
Capacity to preserve the system in the long run

"A ready and resilient Army strengthened by secure access to the energy, water, and land resources in order to preserve future choice in a rapidly changing world."

U.S. Army, 2016

Readiness and Resiliency

Hospitals at Risk from Storm Surge by Hurricanes...

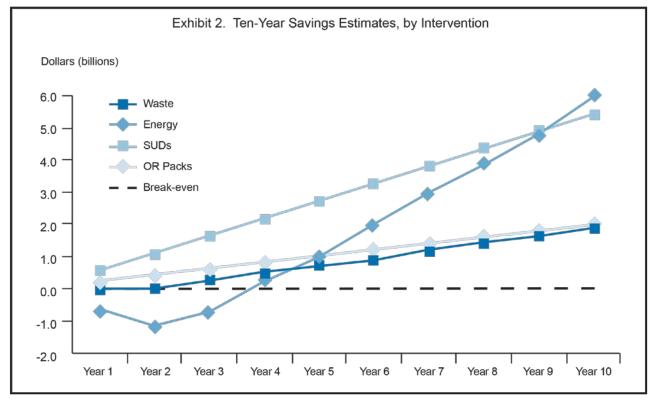


Business Case

Is it possible to reduce the cost of delivering healthcare through implementation of sustainability initiatives?

RESEARCH STUDY:

Impact if all US hospitals implemented sustainability interventions



Kaplan, et al., (2012) *Can Sustainable Hospitals Help Bend the Health Care Cost Curve?* Commonwealth Fund pub. 1641 Vol. 29

Triple Bottom Line Climate Change Adaptation/Disaster Healthier Environment: Resilience **Built and Natural Pollution** Historic/Cultural **Prevention Preservation** U.S.ARMY ENT COMMUNITY EN PRONMENT Community **Conservation of Involvement Natural Resources Lower Operating Improved Wellness/ Expenses Lower Healthcare Costs Enhanced Mission Capability**

MEDCOM Sustainability Program



Regulatory Drivers

EO 13834 Efficient Federal Operations

DOD Strategic Sustainability Performance Plan (SSPP)

DoDI 4715.23 Integrated Recycling & Solid Waste Management

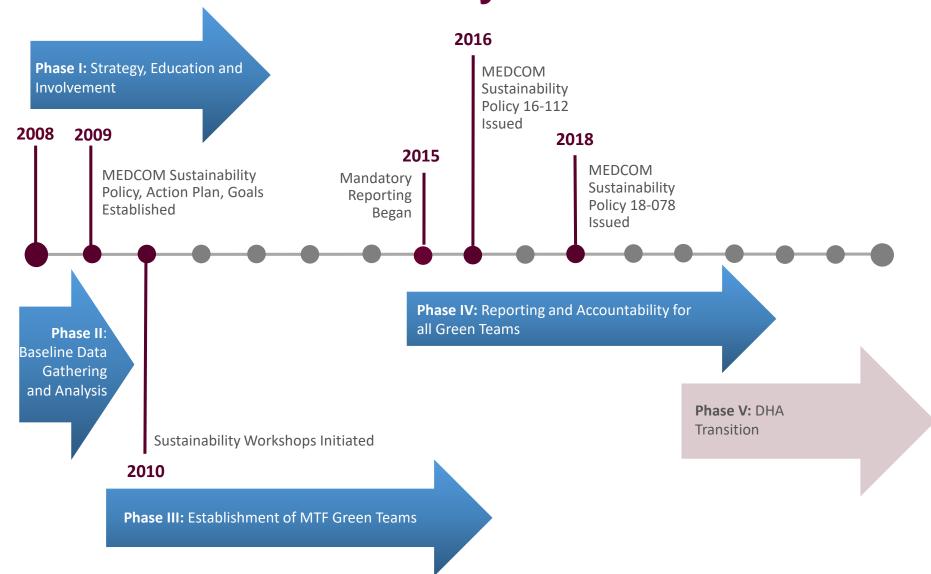
Army Sustainability Campaign Plan (ASCP)

MEDCOM Sustainability Policy 18-078

Enhance Health
Enhance the Environment
Enhance Community Relations



MEDCOM Sustainability



Mission & Vision

MEDCOM Sustainability Mission

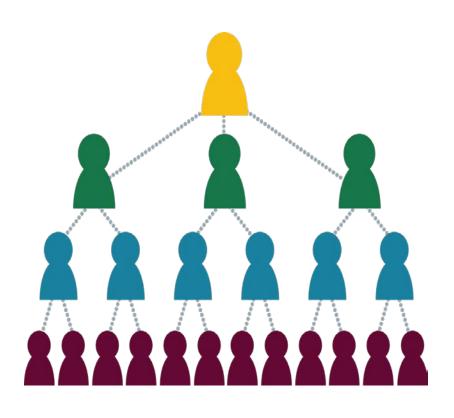
Enhance Army Medicine readiness and resiliency by safeguarding human health and the environment through the efficient use of resources and on-going process improvement.

MEDCOM Sustainability Vision

We are leaders in delivering world-class healthcare solutions with minimal environmental footprint to support those who serve in the defense of our country. We focus on securing a sustainable and resilient future for all.



Culture Change in a Large Bureaucracy



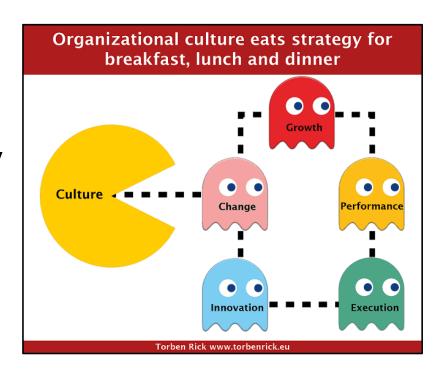
Positive Impacts

- ✓ Consistency and control
- Management of continual/incremental change
- Reporting and accountability structures
- ✓ High levels of expertise
- Minimal disruptions of work flow

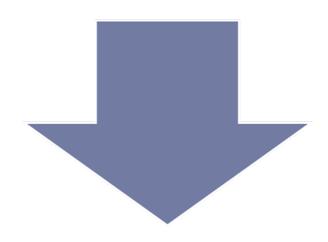
Culture Change in a Large Bureaucracy

Negative Impacts

- X Blocks flow of information
- X Disempowers people
- Undermines personal responsibility and accountability
- X No reward for experimentation
- X Lack understanding of broader context or overall systems
- Not capable of sustained innovation



Challenge of Culture Change

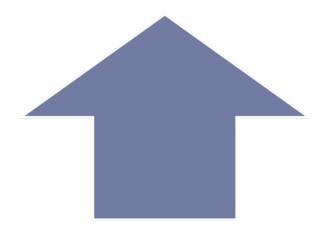


Continual Change Management

(strength of bureaucratic organizations)

Innovation

(strength of organic or learning organizations)



Implementation



MEDCOM Culture Change - Sustainability

Bottom Up and Top Down

- Enable the MTFs through Sustainability Teams
- Develop and enforce policies
- Annual data call
- Accountability

Continuous Improvement

- Capture trend data
- Industry benchmarking
- Recognize achievements



Innovation and Collaboration

- Cross-functional support and engagement
- Work with Commands and host installations

MEDCOM Best Practice

Carl R. Darnall Army Medical Center Sustainability Committee







Policy Areas

- Waste Reduction
- Regulated Waste
- Chemicals of Environmental Concern
- Energy and Water Use
- Construction and Renovation
- Air Quality
- Nutrition
- Procurement
- Support Host Installation Sustainability

Waste Reduction

Implementation

Effectively and efficiently minimize all waste streams to exceed industry best practice. MEDCOM will support Army initiatives for Net Zero Waste.

Strive for zero waste to landfills







MEDCOM Best Practice

Bayne-Jones Army Community Hospital Reusable Linens Program

- Eliminate the use of disposable bed sheets, surgical gowns and scrubs
- Extending the life of linens:
 - Large sheets repurposed and sewn into crib covers
 - Shower curtain sewn into cart covers
 - Worn scrub pants cut off and sewn into shorts for use in physical therapy and radiology
 - Stained white towels are dyed brown
 - Used in Physical Therapy, Occupational Therapy, Family Practice and Radiology
 - Worn brown towels donate to Veterinary Clinic/stray facility
 - Other unserviceable items sent to Veterinary Clinic/kennels





Regulated Waste

Implementation

Effectively and efficiently minimize all waste streams to exceed industry best practice. MEDCOM will support Army initiatives for Net Zero Waste.

MEDCOM facilities will:

- Reduce amount of Regulated Medical Waste (RMW)
- Minimize Hazardous Waste (HW) generation



MEDCOM Best Practice

- Carl R. Darnall AMC implemented a Neptune self-cleaning closed system for collection of surgical waste.
- The system minimizes human contact with biological waste and fluids, reduces RMW disposal costs and reduces OR turn-over times.
- The system contributed to a FY17 25% reduction in RMW. The reduction led to a corresponding reduction in disposal costs and in turn reduced the purchase of RMW containers and related supplies.





Chemicals of Environmental Concern

Implementation

Identify use of chemicals of environmental concern (CoEC) and establish facility baseline usage. MEDCOM facilities will establish reduction goals and implement actions to reduce use/disposal of the chemicals.

- Reduce use and disposal of CoEC
- CoEC are chemicals that:
 - Persist in the environment
 - Build up in animal/human tissue, and/or are considered toxic



MEDCOM Best Practice

DEHP/PVC Reduction

- Persistence of the sustainability team at Ireland Army Health Clinic produced results from their supplier – a list of catalog numbers
- Examples of medial devices that may contain DEHP/PVC include:
 - IV bags and tubing
 - umbilical artery catheters
 - peritoneal dialysis bags and tubing
 - blood bags and tubing
 - heart bypass machine tubing
 - nasogastric feeding tubes
 - respiratory tubing



Energy and Water Use (1)

Implementation

Strive to optimize building performance through all phases of a facilities life cycle reducing the demand for energy and water.

MEDCOM will support Army initiatives for Net Zero Energy and Net Zero Water.

Reduce facility energy use intensity and potable water use intensity



Energy and Water Use (2)



MEDCOM Best Practice

- Martin ACH implemented a project for addition of UV lighting on each of the facility's 26 air handler coils.
- The UV lighting decreases biofouling on cooling coils, providing increased fan power, heat transfer and energy savings.
- The primary purpose and success for this project is higher quality of air within the facility which benefits all patients, visitors, and staff.





Construction and Renovation

Implementation

Strive to optimize building performance through all phases of a facilities life cycle reducing the demand for energy and water. MEDCOM will support Army initiatives for Net Zero Energy and Net Zero Water.

Ensure new construction and renovation projects conform to the Guiding Principles for Federal Sustainable Buildings.

1st Conservation Efforts2nd Generation Efforts



Weed Army Community Hospital







ENVIRONMENTAL BENEFITS

- LEED PLATINUM
- Fully commissioned building
- Designed to be carbon neutral
 - First DoD hospital in US
 - 2.3 MW / 7 acre PV array
- Life cycle cost validated
- Energy efficient measures above ASHRAE 90.1

RESILIENCY BENEFITS

- Power supply-whole facility generator backup
- Water supply-potable water tank storage
- Gas Supply-propane quick connect
- Condensing Water Heating-Solar Thermal
- Xeriscaping
- Flood impact prevention
- Wastewater backup storage tank

Well-Being: Air Quality

Implementation

Sustain and enhance the well-being of patients and workforce.

Enhance Indoor Air Quality through reduction in use of hazardous and toxic materials found in furnishings, building materials, and cleaning supplies





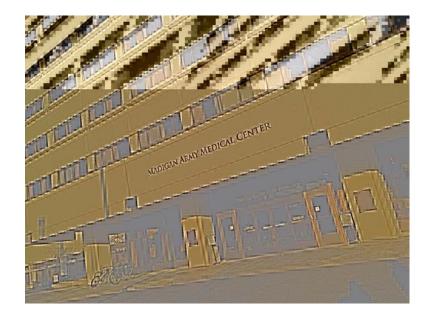


MEDCOM Best Practice

Madigan AMC reduced occupational and environmental exposures by:



- Eliminating over 95% of chemical disinfection products containing aldehydes
- Replacing waiting room area furniture with green furniture items free of chemicals of concern.



Well-Being: Nutrition

Implementation

Sustain and enhance the well-being of patients and workforce.

Adhere to existing local and sustainable food purchasing targets on the subsistence prime vendor contract based on comprehensive nutrition programs that also address food forecasting, preparation and service that minimizes food waste



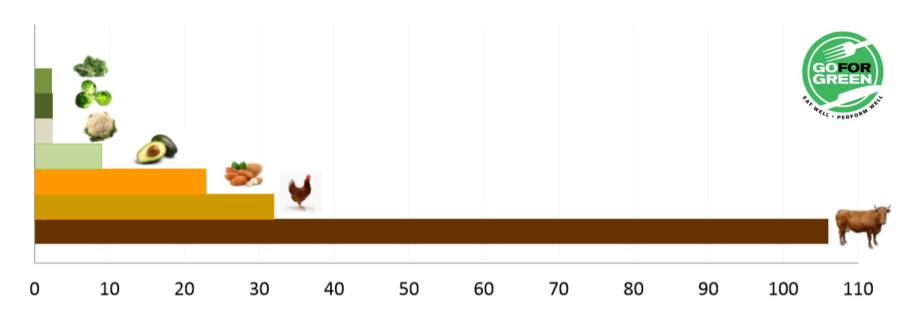
MEDCOM Best Practice

Education and Awareness



oose**MyPlate**.gov

Gallons of Water Needed to Make 1 ounce of Food



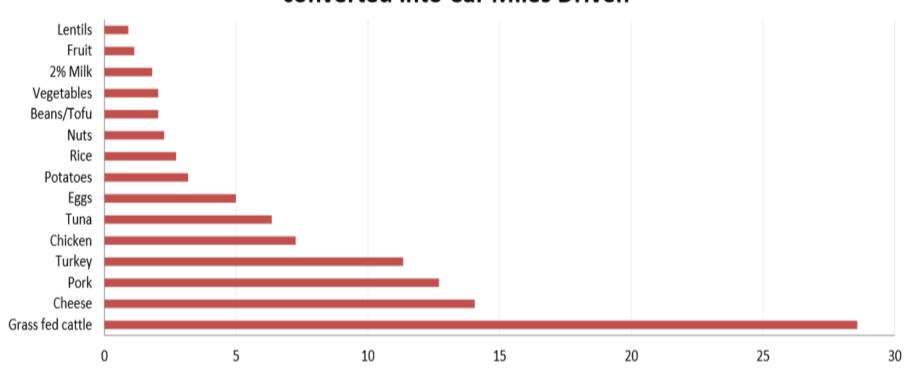
Go Meat Free For A Healthy You and A Healthy Planet
Blanchfield Army Community Hospital Sustainability Workgroup

MEDCOM Best Practice

Education and Awareness



Green House Gas Emissions per 1 pound food produced converted into Car Miles Driven

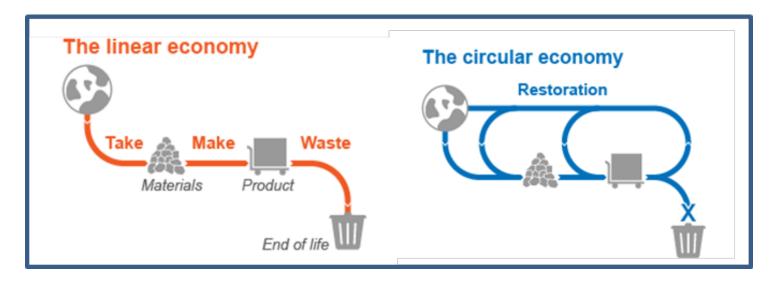


Procurement (1)

Implementation

Incorporate environmentally preferred purchasing (EPP) and sustainability into procurement and contracting actions.

- Implement end of life take-back programs
 - Pharmaceutical Returns Program
 - Solvent Recycling
 - Amalgam Recycling



Procurement (2)

Implementation

Incorporate environmentally preferred purchasing (EPP) and sustainability into procurement and contracting actions.

- Implement electronics life cycle management plan and data center energy management plan
- Conduct single use device (SUD) collection and repurpose.





Procurement (3)

Implementation

Incorporate environmentally preferred purchasing (EPP) and sustainability into procurement and contracting actions.

Meet sustainable procurement requirements set forth in the FAR to include purchase of designated recycled content, bio-based, and energy-and water-efficient products.







MEDCOM Best Practice

Sustainable Procurement at Madigan Army Medical Center



- Replaced Styrofoam[™] clam shells and cups with compostable items.
- Replaced alcohol hand sanitizer with alcohol-free.
- Installed automated disinfection systems to replace manual chemical disinfection.



Support Host Installation Sustainability

Implementation

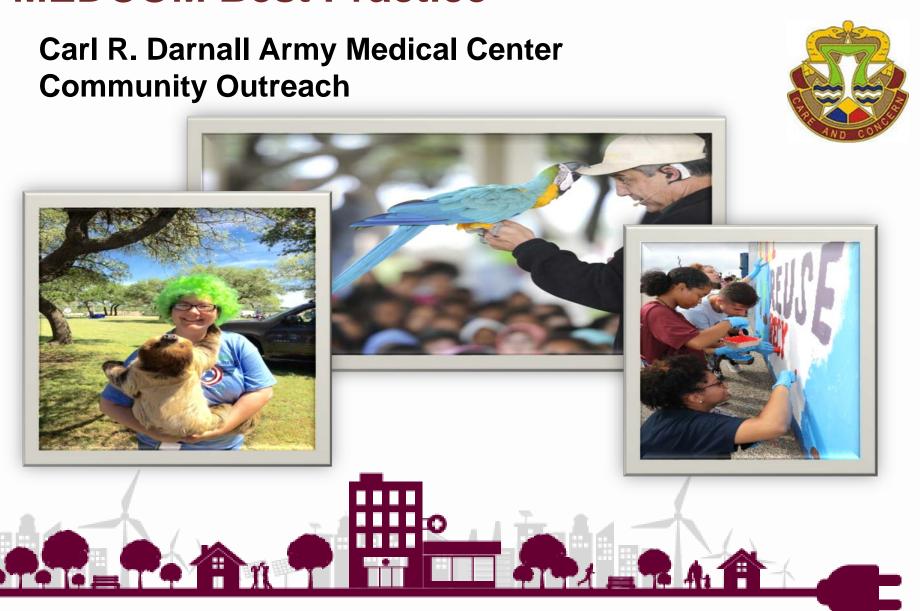
Work with host installation and other relevant Army commands to ensure the Army meets its sustainability goals.

- Collaborate with installation and/or GSA to meet GHG emission reduction goals for nontactical fleet
- Participate and contribute to planning and adaptation efforts of local Garrison sustainability strategy

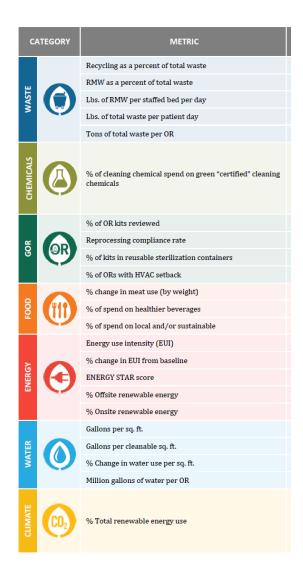




MEDCOM Best Practice



Annual Sustainability Data Call



Practice Greenhealth (PGH) Membership:

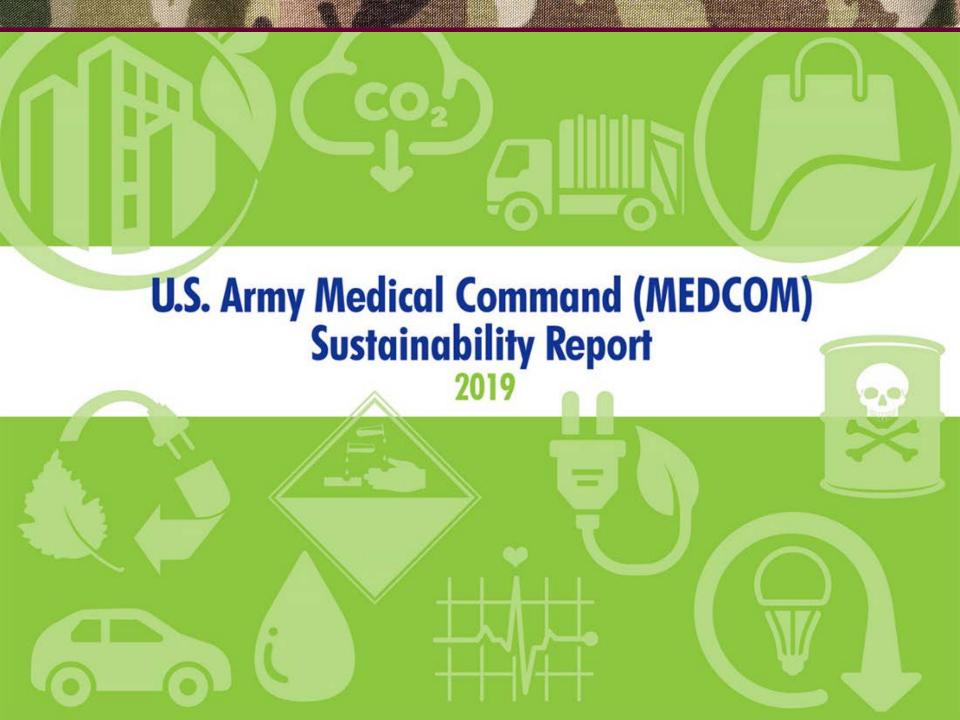
- Annual Awards Application = Data Call
- Third party validation
- Trend data with relevant metrics
- Compare to peers (hospitals/clinics, etc.)
- Visibility: HQ, Regions and MTFs
- Compare vendors across system
- Knowledge sharing

Tracking Progress

- Benchmarking and Accountability
- Monthly Training Webinars
- Quarterly Newsletters
- Annual Awards
- Annual Report

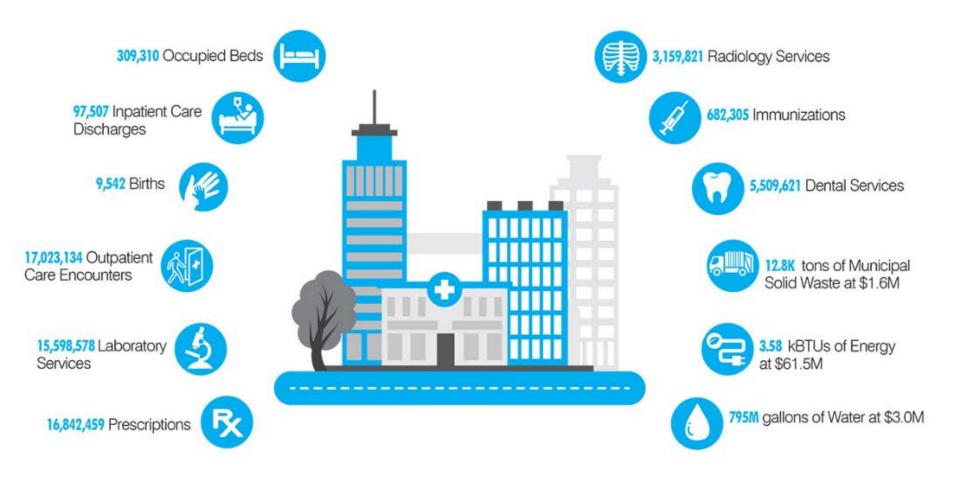
Communication and Recognition is Key!





MEDCOM A Year at a Glance

For the 29 MTFs required to report sustainability metrics, 2018 represented the following operational tempo:



Focus Areas

High Performance Resilience **Waste Management** Building **Hazardous** Municipal Waste **Solid Waste** Water Sustainable **Energy** Renewable Reduction Minimization **Efficiency Buildings** Reduction **Energy** Culture Greenhouse Gas (GHG) Acquisition Management Change

Chemicals of Concern



Environmentally Preferred Purchasing



Single Use Device Collection and Reprocessing



GHG Emission Reduction



Fleet Management



Sustainability Training



Sustainable Buildings



25 LEED Certified Buildings

> 3.9M Square feet

13.2% of Qualifying Square feet

Renewable Energy



2.5%

of energy consumed was from renewable sources

Energy Reduction



of facilities more energy-efficient than PGH median

Water Efficiency



56%

of facilities more water-efficient than PGH median

Hazardous Waste Minimization



208 tons diverted from hazardous waste

Municipal Solid Waste Reduction



6,679 tons diverted from municipal solid waste

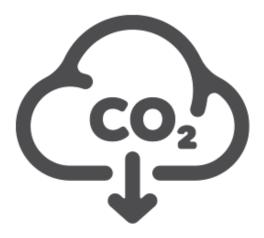
Single Use Device Collection and Reprocessing



40 tons

Single Use Devices diverted from waste stream

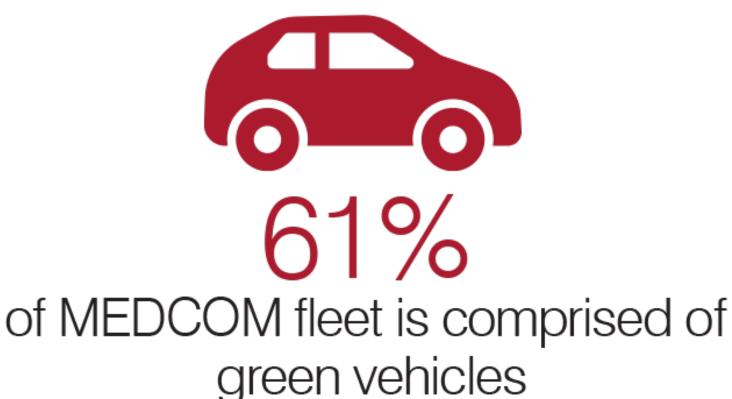
GHG Emission Reduction



4.7%

reduction in Scope 2 GHG emissions from renewable energy consumption

Fleet Management



60

Sustainability Training



Recognition







U.S. Army Medical Command Regional Health Command – Atlantic Regional Health Command – Central



Bayne-Jones Army Community Hospital Brooke Army Medical Center Carl R. Darnall Army Medical Center Evans Army Community Hospital Madigan Army Medical Center



Bassett Army Community Hospital Bavaria-Medical Department Activity Blanchfield Army Community Hospital Brooke Army Medical Center Dwight D. Eisenhower Army Medical Center Guthrie Army Health Center Irwin Army Community Hospital Keller Army Community Hospital Kenner Army Health Clinic Kimbrough Ambulatory Care Center Landstuhl Regional Medical Center Lyster Army Health Clinic Martin Army Community Hospital McDonald Army Health Center Munson Army Health Center Raymond W. Bliss Army Health Center Reynolds Army Health Clinic Tripler Army Medical Center Weed Army Community Hospital



Bayne-Jones Army Community Hospital General Leonard Wood Army Community Hospital William Beaumont Army Medical Center Winn Army Community Hospital Womack Army Medical Center



Carl R. Darnall Army Medical Center



Total Savings



Energy Efficiency

\$19.8M 2018 Savings



Water Efficiency

\$800K 2018 Savings



Greening the OR

\$3M 2018 Savings



Diversion from MSW

\$977K 2018 Savings



Reduction of and Diversion from HW

\$513K 2018 Savings

\$

Grand Total

\$25.1M 2018 Savings

Potential Savings

\$24.8M Total Potential Annual Savings \$1.3M Total Potential Annual Savings

\$8.1M Total Potential Annual Savings \$2.1M Total Potential Annual Savings \$1.3M Total Potential Annual Savings \$37.6M Total Potential Annual Savings

MEDCOM's Sustainability Program

- ...is a mission enhancer.
- ...reduces total cost of ownership and operations.
- ...promotes continuous process improvement and efficiencies.
- ... supports wise use of resources and preserves future choices.
- ...safeguards human health and the environment.
- ...is a force multiplier.



Networking

MEDCOM Program Management Team

Concurrent Technologies Corporation (CTC)

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MEDCOM Sustainability Share Point

https://amp.amedd.army.mil/g89/g9/Communities/Sustainability

Questions?

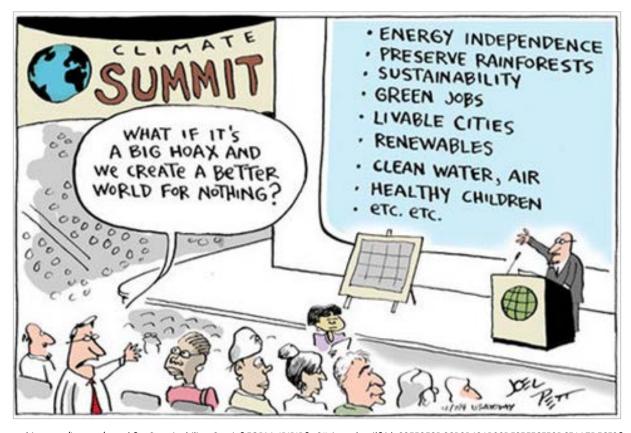


Photo curtesy of: http://www.bing.com/images/search?q=Sustainability+Comic&FORM=IRIBIP&=0#view=detail&id=03E59E8DCCB0B431B90DF05FE6F59D6E1A7DE6F0&selectedIndex=45