Smart Hospitals tools and techniques in practice

Presentation by Judith Harvey, PhD for the PAHO / Health Canada workshop on Building Climate Resilient Health Systems for Health Sector Decision Makers
Strengthen building and infrastructure; improve operational aspects

Minimize downtime

Implement green technologies

Plan and execute preventative maintenance

Improve healthcare services

Reduce operational and rebuilding costs
Smart Tools available online

- Hospital Safety Index – vulnerability assessments inform the scope of retrofit
- Green checklist – opportunities for generating savings and reducing carbon
- Technical Guidance documents including
  - Preventive Maintenance Manual
  - CAT 5 resistant roofs
  - Model Policy and Case studies
PAHO implemented the Smart Concept during the period 2015 to 2023 in seven countries and various types of health facilities.

- **Medical Stores building**
  - Not retrofitted – Dominica
  - Retrofitted in Grenada
  - Serves the entire country

- **Comfort Bay Senior Citizens’ Home**
  - Retrofitted - St Lucia
  - For the elderly

- **Palm View Centre**
  - Retrofitted – Belize
  - For the mentally challenged
Smart Project results and achievements

**OPT1: Assessments & Training**
- Over 400 health facilities assessed (large database to guide future investments)
- Technical guidelines & case studies online
- Focus on maintenance
- Contingency plans

**OPT2: Design & Retrofitting**
- 55 facilities retrofitted by 31 Dec. 2022 (110% of original target)
- 6 full designs facilities handed over to the Ministries of Health

**OPT3: PR / Advocacy**
- Smart concept expanded & adopted by other sectors (education, tourism, shelters)
- Active outreach & engagement directly within the communities (billboards, banners, videos)
Current activities creating climate resilient and low carbon health systems

• Engagement of national partners and increasing knowledge of the smart concept.
  • Adaptation Planning
  • Risk assessment with the STAR tool
  • Updating Contingency Plans

• Application of smart concept in other countries and sectors, by other donors

• New facilities that are built to the Smart concept

• Sharing lessons learned in response to interest from the private sector

• Maintaining the investments made in retrofitting
New tools and best practice for vulnerability assessments

Electronic database with the spatial distribution of assessment results
The SMART App by PAHO

Vulnerability assessment must result in a cost effective outcome
The REST tool by Florida International University
New tools and best practice for retrofitting and adaptation to climate change

New tools are tailored to the characteristics and available resources in the Caribbean Health Systems. Check Consultants encourage the adoption of best practice on a routine basis. Resilience building must encompass a multi-hazard approach including extreme weather events.
Constructing climate resilient and low-carbon health facilities that address the needs of vulnerable populations

SMART HOSPITAL PROJECT IN ST. LUCIA

Providing safer, greener health facilities to deliver care in disasters

- 3 solar panel systems installed (total 74.7 kW)
- 13 generators installed (total kVA 269)
- 47,000 gallons of potable water storage provided
- 39,000 gallons of rainwater storage provided
- 148 females trained
- 71 males trained
- 220 hurricane shutters installed
- 375 meters of underground cabling

Catchment population: 178,696
Vulnerable groups:
- Elderly: 10,500
- Children: 45,000

Annual savings:
- Water: 122,544 gallons / US$ 1,218
- Electricity: 114,264.92 kWh / US$ 34,046.17

Total investment for design and retrofitting in St. Lucia is USD 4,333,999.29

Location of facilities in St. Lucia

Bexon Wellness Centre
St Lucia
Inclusive training, and capacity building that focuses on participation by the learners

Maintenance training by PAHO Smart Project

Generator training by MD Electrics

Fire Safety training by St Lucia Fire Service
A climate resilient facility reduces the negative effects on people's health caused by emergencies and disasters, reduces the damage to health infrastructure, and the disruption of health services.

La Soufriere Volcanic Eruption
Saint Vincent

Paramakatoi Smart Health Centre
Guyana
Safety

Sustainability

Inclusiveness

Adaptability

Flexibility

Hospital Resilience
The sneeze guard at La Croix Wellness Centre is an example of improving safety, sustainability, and adapting to Covid-19.
Thank you!

This material presented by Judith Harvey is drawn from work done by members of the Smart Project Technical Implementation Team including: Dana van Alphen, Clemens Buter, Roger Camacho, Lealou Reballos, Rosario Munoz, Shalini Jagnarine-Azan, Rawle Jordan, Julien Baptiste, Alejandro Arrieta, Adrianus Vlugman, Tony Gibbs

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References: