Objective

At the end of the training the participant will be able to:

- Know the challenges faced when working with a large multi-national staff at a new hospital
- Know the procedures necessary to coordinate department specific emergency plans with building design
Cleveland Clinic Abu Dhabi is a modern health care facility designed and constructed in accordance with modern building criteria that addresses safety from design through various phases of operations.

Life Safety Code (National Fire Protection Agent NFPA 101) is the international code for Fire/Life Safety which CCAD follow as it provides fundamental requirements for the design, operation, and maintenance of healthcare organization and addresses the general requirements for fire protection and systems.

The fire and life safety program involves numerous activities, programs, and procedures. These program areas include fire prevention, fire suppression, emergency/fire incidents preparedness, preplanning, education, and response. The following information is provided as a general guideline for activities associated with CCAD fire and life safety program:

**CCAD Building facts**

Snapshot for CCAD 364 bed Hospital (expandable to 494 beds)

- 8 Major Integrated buildings:
  1. Emergency department
  2. Patient tower (10th to 20th floor)
  3. Diagnostic and treatment
  4. Outpatient Clinic
  5. Gallery
  6. ICU (72 beds)
  7. Swing wing
  8. CUP (Central utility plant)
  9. Parking (1500 parking lots)

**CCAD Building Facts**

- Over 1 million M2
- Façade (For Maintenance) 122,442.92 M2
- Interior Space 1,500,000 M3
- Rooms 7500+ Nos.
- Mechanical Service Area 69,420 M2
- Mechanical Rooms 252 Nos.
- VAV Terminal Units 2965+ Nos.
- Exhaust Control Valves 2667+ Nos.
**CCAD Building Facts**

- Elevators 56 Nos. 13 escalators
- Electrical Services Area 12302 M2
- Electrical Distribution Boards 1266 Nos.
- Emergency Generators (2MW) 12 Nos. 26 transfer switches
- Transformers (11kv & 22kv) 55 Nos.
- Cooling Load 25,000 Tonnes

**CCAD Building Facts**

- 700,000 liters of underground tanks stored diesels
- Over 114 customized air handlers
- Over 1500 smoke detectors
- Over 8000 Motorized Smoke/Fire dampers
- 8 fire pumps
- 26 operating rooms
- 55 integrated systems in BMS
- Over 3000 staff including 1500 nurses and 175 Physicians
- 50 nationalities

**CCAD Occupancy Timeline**

- August 2014, 1st occupants in Swing wing business occupancy
- Preliminary risk assessment for occupancy completed post building hand over April 2014
- Mass on boarding from August 2014 to December 2014
- Cleveland Clinic Team assessment of fire and life safety November 2014
- Interim Building occupancy and mandatory training
- Weekly fire evacuation drills (total building evacuation) January 2015 to March 2015
- Civil defense fire drill, total building evacuation
CCAD Occupancy Timeline

- Building obtained authority license as Healthcare Facility January 2015
- Building still going through testing and commissioning
- Proactive fire watch all over the facility with deployment of 50 extra security officers
- CCP Team life safety assessment March 2015
- First patient (outpatient) March 2015
- Departmental specific training based on occupancy category, March to April 2015
- First inpatient, May 2015
- Second phase of departmental specific training June 2015
- Fire alarm annunciation amendment and consistency with zones June 2015 to September 2015

Fire/Life Safety Program

- Identification of Fire annunciators functions, including locations, training, messages in various scenarios
- Identification of all smoke detectors above the ceiling that need to be changed to supervisory mode
- Cause and effect analysis
- Identification of features that are not properly understood (special suppression systems) or that are not functional as intended (inactive door leafs)

Fire System
- Identification of Fire Zones per Fire Command Center and approved Civil Defense Drawings
- Exit stairs part of egress pathway and stairways pressurization
- The exit signs, where do they lead, any gap and deficiencies
- Doors response during fire alarm (cause and effect)
- Portable Fire extinguishers/hose reels final requirements

Facility
- Identification of Fire Zones per Fire Command Center and approved Civil Defense Drawings
- Exit stairs part of egress pathway and stairways pressurization
- The exit signs, where do they lead, any gap and deficiencies
- Doors response during fire alarm (cause and effect)
- Portable Fire extinguishers/hose reels final requirements

The Approach

Post Building Occupancy Evaluation and Assessment

Departments
- Hospital was divided into 23 areas
- Every department within the above areas was asked to nominate the fire warden within the area to be the main point of contact for Fire Life Safety programs
- Physical walkthrough within every department with the wardens to chart them with primary and secondary, agree with, adjacent zones, vertical and horizontal options of relocation

Caregivers
- Introduction to Fire Life Safety
- Orientation with fire zones and adjacent concept
- Orientation with current annunciators and how to response based on occupancy type
- Consistent procedure templates were shared with Fire wardens to be filled and followed
Where Patient receives treatment and then leaves facility, cases where patient suffers from complications would be transported and admitted to a hospital that provides care on 24-hour basis.

Applicable requirements:
- Egress
- Number of exits
- Alarm system
- Evacuation and relocation plan
- Staff procedures in case of fire
- Door size minimum 32 inch
- Emergency lighting

Applicable requirements:
- TO Defend In Place plan will be implemented
- To isolate patients and staff from fire and smoke while emergency personnel respond to the situation
- Five Units of Defense
  - The room
  - The compartment
  - The floor assembly
  - The building
  - The exits

Ambulatory Occupancy
- Healthcare Occupancy

Elements per clinical Occupancy/Function

Introduction to Fire Life Safety to Fire Wardens
- Revisit Departments to complete departmental procedures
- Train The Trainer Concept to Fire Wardens
- Identification of required supplies and procurement of the same
- Finalize Fire Alarm Annunciator messages
- Finalize Strategy of Drills and align with PSD and EHS

Phase 3
- Incorporate identified zone numbers into Egress Maps
- Finalize Hospital Wide Evacuation/Relocation Plan and align with PSD and EHS
- Revisit Fire Wardens and departmental procedures implementation
- Continue on Drill conduction and evaluation

Phase 4
- NFPA 101 Seminar
- Revisit Fire Wardens and departmental procedures implementation
- Continue on Drill conduction and evaluation

Q1 2015
Q2 2015
Q3 2015
Q4 2015
The purpose of a fire drill is to test and evaluate the efficiency, knowledge, and response of Caregivers in implementing the facility fire emergency plan. Its purpose is not to disturb or excite patients. Drills shall be conducted to familiarize CCAD Caregivers with the signals and emergency action required under varied conditions.

**Fire Drills**

**Purpose**

- Ensures training program for Caregivers to know and understand the methods to respond and implement the “code red” (fire/smoke plan) procedures.
- Assesses evaluations of drills with responsible parties.
- Allocates resources for equipment and supplies as needed for drills.
- Ensures procedures, fire plans and EOP align with Codes, response and local requirements.

**Responsibilities & Duties**

- **Administrative**
  - Oversees department response
  - Accounts for all persons
  - Reassigns Caregiver duties as needed
  - Documents names of Caregivers and Patients as they are evacuated.
  - Assigns Caregivers to clear obstructions from corridors.
  - Coordinates with support clinical team/Fire Wardens to plan and implement the evacuation drill process.

- **Department Heads/Shift Supervisor**
  - Ensures training program for Caregivers to know and understand the methods to respond and implement the “code red” (fire/smoke plan) procedures.
  - Assesses evaluations of drills with responsible parties.
  - Allocates resources for equipment and supplies as needed for drills.
  - Ensures procedures, fire plans and EOP align with Codes, response and local requirements.

**Recordkeeping**

- Identity of the person conducting the drill
- Date and time of the drill
- Notification method used
- Caregivers on duty and participating
- Number/Type of occupants evacuated
- Special conditions simulated
- Problems encountered
- Time required to accomplish complete evacuation/drill
- Drills must be evaluated & corrective measures implemented

Drills must be evaluated & corrective measures implemented.
Introduction

Cleveland Clinic Abu Dhabi is a modern health care facility designed and constructed in accordance with modern building and life safety codes
- Compartmentation to contain a fire
- Automatic detection systems to detect a fire
- Emergency voice communication system to notify you of a fire emergency
- Automatic sprinkler protection to control and contain a fire

Introduction

- Interim occupancy fire safety training in November 2014
- Patient care started in March 2015
- Department specific training started in March 2015

Evacuation Diagrams
Cleveland Clinic Abu Dhabi
Interim Building Occupancy
Fire Training And Evacuation

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November 2014

Train the Trainer
Plan B

Coordination

Coordination

False Activations
- Canyon Cleaning - Voids
- Duct Detector - Moisture
- Dust
- Dirty Head
- Steam - Hot Water Tap
- Sprinkler Pressure Drop
- Steam - Kitchen Equipment
- Water Leak
Coordination

- Fire alarm notification zones do not coincide with smoke compartments
- Separate pre-recorded messages for:
  - Fire alarm zone of origin
  - Adjacent zones
  - Remainder of building
- Single live voice message for entire building
  - Looking at revising the system for voice messaging per building
  - Some departments still want to know.

Coordination

- Revise the system such that many of the smoke detectors, such as the above ceiling smoke detectors, initiate a supervisory signal
Final Thoughts

Questions and Discussion

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