



***HIGH SPEED VESSELS (HSVs)  
MEDICAL LOE 13-16 DEC 2004***

***QUICKLOOK RESULTS***

***STEVE DOUGLAS, Future Medical Systems, FHSO***



# ***PURPOSE***



- **Evaluate operational health service Support (HSS) concepts and CONOPS relevant to HSV-type vessels, maritime expeditionary strike force organization, and SEA BASING concepts.**



# ***LOE PARTICIPANTS***



- **NWDC**
- **CHIEF OF NAVAL OPERATIONS**
- **NAVAL MEDICAL LOGISTICS COMMAND**
- **FLEET HOSPITAL SUPPORT OFFICE**
- **NAVAL HEALTH RESEARCH CENTER (NHRC)**
- **NAVAL SUBMARINE MEDICAL RESEARCH LABORATORY**
- **NAVAL HOSPITAL PENSACOLA**
- **NAVAL HOSPITAL JACKSONVILLE**
- **AMPHIBIOUS GROUP THREE**
- **MARINE CORPS COMBAT DEVELOPMENT COMMAND (MCCDC)**
- **ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL**
- **U.S. ARMY AEROMEDICAL RESEARCH LABORATORY**
- **NAVAL SPECIAL WARFARE COMMAND**
- **U.S. TRANSPORTATION COMMAND**
- **NAVAL SEA SYSTEMS COMMAND**
- **NAVAL SURFACE WARFARE CENTER (NSWC) DAHLGREN**
- **NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY**
- **FLEET HOSPITAL OPERATIONAL TRAINING CENTER**
- **NAVAL OPERATIONAL MEDICINE INSTITUTE**
- **NAVAL MEDICAL EDUCATION AND TRAINING COMMAND**
- **HSV 2 SWIFT**
- **NSWC PANAMA**



# ***AREAS TESTED***



**LOE provided insight on:**

- **Medical configuration with shelter systems on board a notional HSV**
- **En route patient care requirements**
- **Operational employment of en route care (ERC) team**
- **HSV ability to receive and decontaminate chemical, biological, and radiological (CBR) exposed patients**
- **Varying sea conditions effects on personnel and equipment; and**
- **Vessel operations in a challenging health service support (HSS) environment with potential applications to near term littoral and future SEA BASING operations.**

# 3:1 TACTICAL (OR) DEPMEDS SHELTER ON LOAD



# 3:1 (FMSS) MMIC SHELTER OFF LOAD





# ***Initiative #1 Medical Configuration of HSV***



## **OBJECTIVE:**

1. Evaluate medical shelter systems to support patient care using hard and soft shelters, modified aircraft 463L patient support pallet (PSP)

## **OBSERVATION:**

1. Air quality and noise level measurements conducted.
2. No evaluation completed to test interface with ship's power connections
3. Concern identified with weight/cube of some shelters
4. Shelters loaded/unloaded using two methods dolly set/pier side cranes and forklifts
5. Positioned in mission bay using MCCDC's experimental air-skid system

## **RECOMMENDATIONS:**

1. Continue development of modular shelter/capabilities and testing on future ships and vessels.
2. Evaluate ability to rely on ship's power and test connectivity/disposal method for collection holding tank (CHT) system.

**OVERALL: SHELTER EFFECTIVENESS IN AN HSV IS PROMISING.**



**STANDARD TIE DOWNS  
ONBOARD  
HSV-2 SWIFT**

**ALL SHELTERS AND  
SUPPORT EQUIPMENT  
UTILIZED THESE  
TYPE OF TIE DOWN POINTS**



# MODULAR MEDICAL SHELTERS USED IN MISSION BAY

**3:1 Existing DEPMEDS**



**3:1 Shelter (FMSS) MMIC**



**Base-X 305 soft shelter**



**Tie down point**



# AIR FORCE PATIENT PALLET SYSTEM – HOUSED IN BASE-X 305 SOFT SHELTER



**Patient seating**



**Hand washing station**

**Litter racks**

# SUPPORT SYSTEMS



# UTILITY SUPPORT



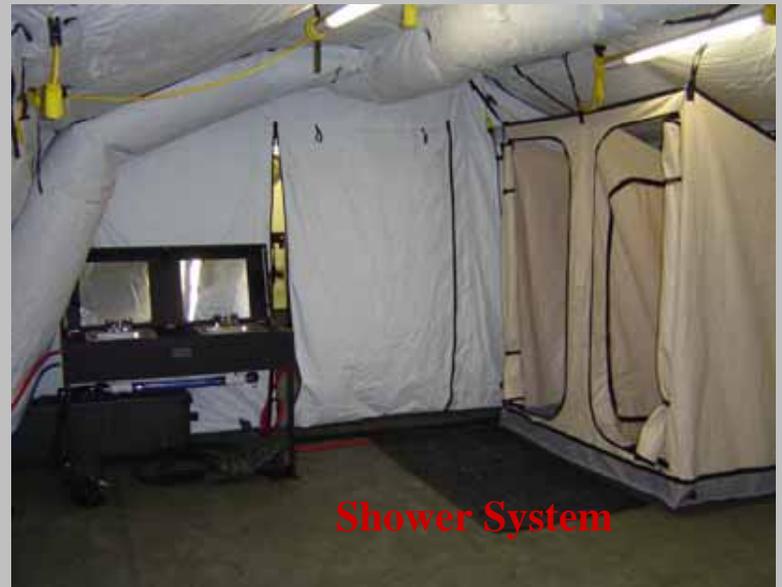
**Personnel Decon Station**



**Hand washing sink**



**Mission Bay  
Water point**



**Shower System**

**240v 60amp and 480v 30 amp  
Service**



**Power Generation/ECU trailer  
and onboard electrical  
services**



**115v and 220v 20 amp Service**

**35kw Gen./5-ton ECU**





# ***Initiative #2 Patient Care Requirements***



## **OBJECTIVES:**

- 1. Development of ERC tactics, techniques, and procedures (TTP)**
- 2. Refine ERC concept by evaluating delivery of patient care on board HSV**

## **OBSERVATIONS:**

- 1. HSV ideal afloat ambulance/patient transit platform**
- 2. This hull form and displacement not suitable for providing surgical care due to dynamic motion based on this experiment's results**
- 3. Tested all procedures/equipment in all shelters/ship spaces**
- 4. Further testing completed on ambient noise levels and noise reduction stethoscope**
- 5. Vibration data collected analyzing effect on patient treatment**
- 6. Forward deployed preventive medicine unit (FDPMU) successfully conducted chemical/biological identification laboratory testing**

## **RECOMMENDATIONS:**

- 1. Develop CONOPS for ERC using high speed connectors in areas of combat operations, CBR, humanitarian assistance, and disaster relief**
- 2. Focus on ERC TTP's and equipment requirements**

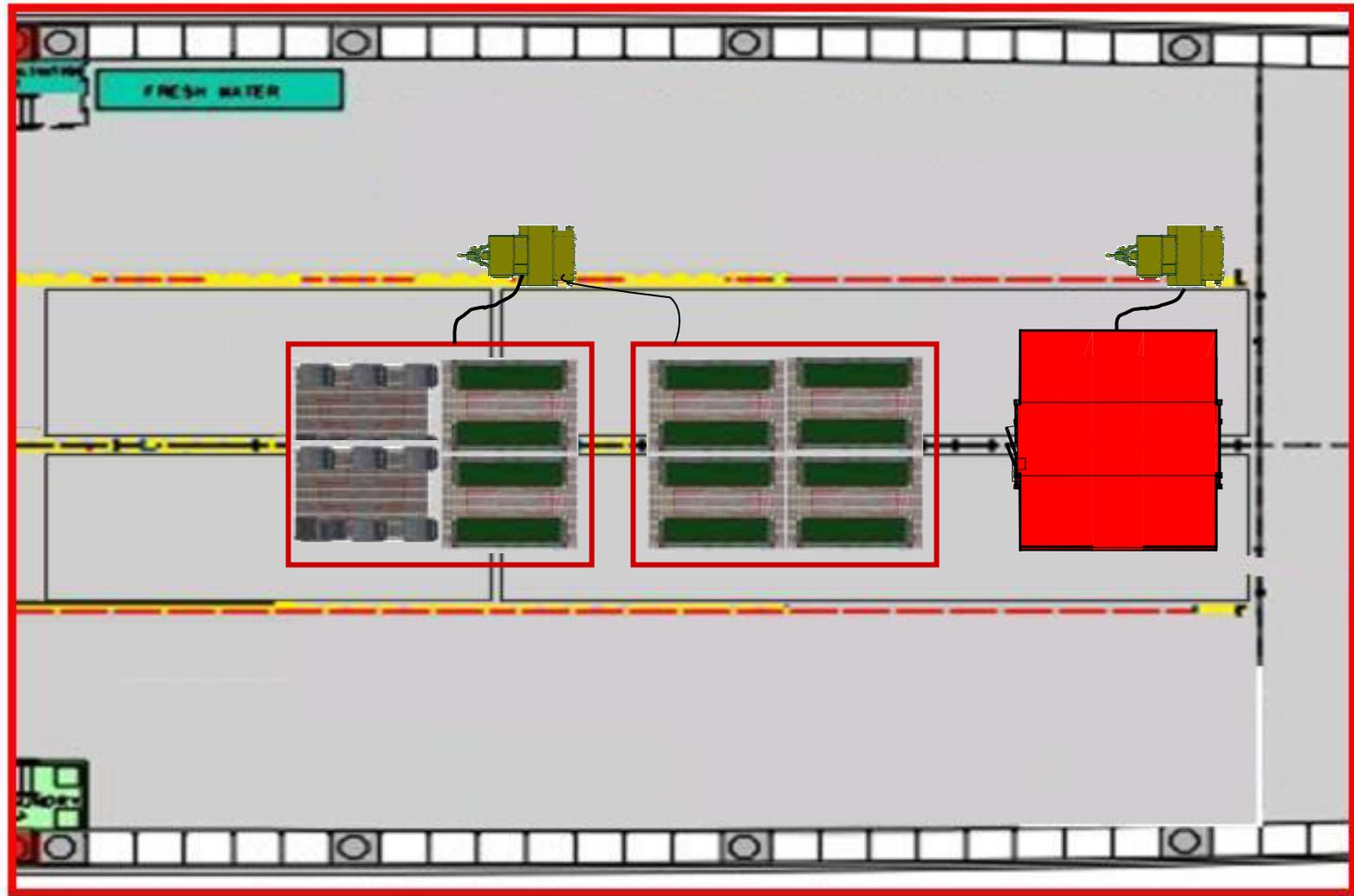
# MODULAR MEDICAL SHELTERS/PATIENT CARE SCENARIO



# PVOCC “Oxygen Generator System”



# HSV- "Notional" Mission Bay Load out



Soft Shelters



Patient Pallet  
Max. 6 Litters



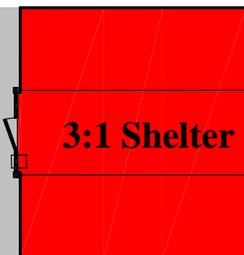
Patient Pallet  
Max. 6 Seats



(Future) Utility  
Pallet system

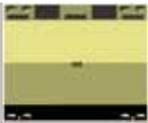


Support  
Gen/ECU

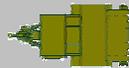


3:1 Shelter

# HSV- “Notional” Mission Bay Load Out Soft Shelter Layout



**Base-X 305  
18x25**



**35kw/ECU  
Trailer**

**EACH 305 SHELTER COULD  
HOUSE 4 PATIENT PALLET SETS**



# ***ANALYTIC PROCESS***



- **Military Utility Assessment under draft**
- **OPNAV/BUMED will use LOE data in its medical combat support development process. Examples:**
  - **En route care requirements**
  - **Future experimentation plans**
  - **Future shipboard designs/platforms**
  - **Medical capabilities integration**



# ***FUTURE EXPERIMENTATION PLANS***



- **Test “Feet Wet/Feet Dry” concept of the Expeditionary Medical Facility**
- **Evaluate other modular medical capabilities**
- **Continue to integrate experimentation with the SEA BASING concepts to include en- route care**
- **Conduct joint experimentation**



# ***JOINT SEA BASING CONCEPTS***

## **MARITIME EMERGENCY RESCUE CENTER (MERC)**

- **NATO ECHELON TWO CAPABILITY (SURGICAL/MEDICAL)**
- **TWO OPERATING ROOMS**
- **2 BED INTENSIVE CARE UNIT**
- **43 BED WARD/4 BED ICU (PART OF SHIP INFRASTRUCTURE)**
- **LABORATORY, PHARMACY, DENTAL, CSR/BMET**
- **OXYGEN GENERATION**
- **RESCUE CENTER IS DECK MOUNTED IN 13- 20' ISO CONTAINERS AND 13 –30' ISO CONTAINERS. WATER AND POWER PROVIDED BY SHIP SERVICES.**

# ***JOINT SEA BASING CONCEPTS***



**SHIPS POWER AND UTILITY CONNECTIONS**



**DECK MOUNTED LOCATION**

# ***JOINT SEA BASING CONCEPTS***



**BIO-MED**



**SHIPS SICK BAY**



**LABORATORY**



**DENTAL**



# ***SUMMARY***



- **HSV or surrogate vessel has potential to provide HSS capabilities in support of joint sea base and expeditionary warfare construct.**
- **Final analysis report will be entered into STIMS NLT 31 May 05**



# QUESTIONS?

