STRATEGIC RELEVANCE of RESPIRATORY SURVEILLANCE among US TROOPS DEPLOYED in AFRICOM and CENTCOM post COVID-19.

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Introduction

Historically, military populations have been at high risk for acute respiratory infections, primarily among recruits and deployed personnel due to frequent exposures to crowded conditions, deployments, and stressful work environments. Implementing proactive surveillance of Influenza like Illness (ILI) enables military health officials to rapidly detect outbreaks, monitor regional respiratory trends, and deploy targeted medical countermeasures—such as isolation protocols, treatment distribution, and vaccination campaigns—before an outbreak degrades unit capabilities. Since 2020, NAMRU-EURAFCENT was funded by the Armed Forces Health Surveillance Division Global Emerging Infections Surveillance (AFHSD-GEIS) to support different DOW military installation in AFRICOM, CENTCOM and EUCOM in implementing and sustaining ILI surveillance program for the detection of mild to moderate respiratory illness and identify the viral/bacterial etiology of the infection. In this poster we will be representing surveillance data from 3 of our military sites in AFRICOM and CENTCOM, namely Camp Lemonnier, Djibouti (CLDJ); Al Dhafra Air Base (ADAB), United Arab Emirates; and the Multinational Force & Observers (MFO) mission in Sinai, Egypt.

Objectives:

Provide timely detection of respiratory pathogens associated with ILI among deployed forces in those bases. Study the seasonality of circulating respiratory pathogens and identify any significant upsurge of pathogen activity in comparison to global reports of the World Health Organization (WHO). Monitor trends of respiratory virus circulation and generate evidence-based

Materials and Methods

Our ILI surveillance protocol (NAMRU3.2020.0001) was determined by NMRC IRB as a non- human research protocol. The eligible case are those that falls under the inclusion criteria of the WHO ILI case definition of 2014.

Enrollment of eligible cases at the clinic of CLDJ, MFO and ADAB basis

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Enrollment questionnaire completed and NP/OP samples collected in VTM/UTM

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Direct samples testing using the Biofire Film Array with the RP2.1 panel for 22 different respiratory pathogens in the base laboratory

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Enrollment forms and laboratory results are shared with NAMRU-EAC PI on weekly bases for consolidation and report preparation

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Data interpretation and analysis for the monthly report to GEIS

Results and Interpretation

- The surveillance data presented in this poster represents the period from (2023 – 2025) for the three US military installations in CENTCOM and AFRICOM.
- The military population deployed at the MFO are the US army, at ADAB are US Air force and at CLDJ are the US. Navy.

Table 1: Numbers of ILI enrollment and testing at MFO in Egypt, the EMDS-380 at ADAB in United Arab Emirates and at CLDJ in Djibouti during Calendar years 2023-2025

Location	CY2023	CY2024	CY2025	Total
MFO	72	1	87	160
ADAB	98	77	43	218
CLDJ	229	75	34	338

- The low enrollment rate for acute respiratory infections at OCONUS installations does not reflect true low epidemiological burden; rather, it represents a surveillance artifact driven by systemic operational friction that includes **high personnel turnover** and **variable interest among rotating medical teams**, which disrupt continuity of data collection.

Figures 1a, 1b and 1c show similar percent positivity rates in the detection of respiratory pathogens in the 3 sites of MFO, EMDS-380 and CLDJ

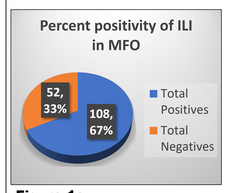


Figure 1a

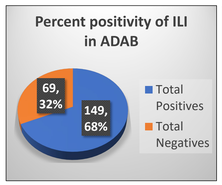


Figure 1b

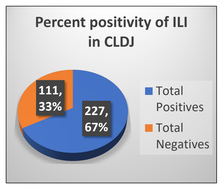


Figure 1c

Cont' Results and Interpretation

Figure 2a, 2b and 2c show the circulating respiratory pathogens in the regions of CENTCOM, MFO Egypt and EMDS-380 UAE and AFRICON, CLDJ

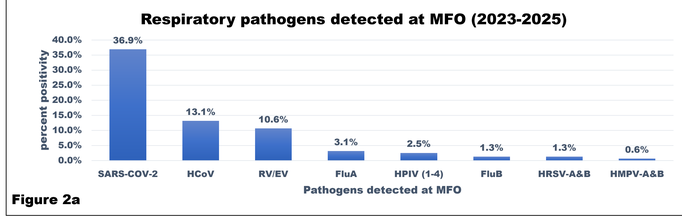


Figure 2a

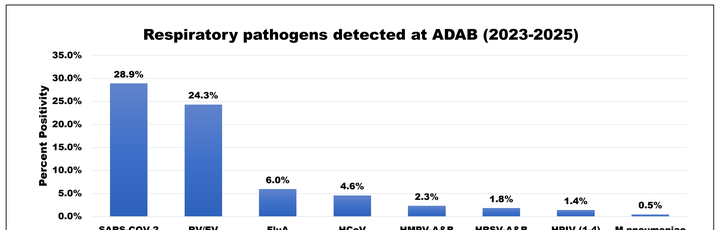


Figure 2b

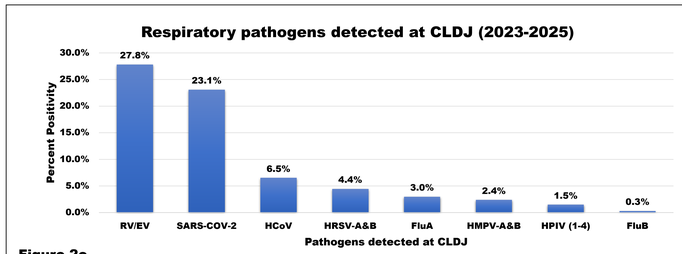
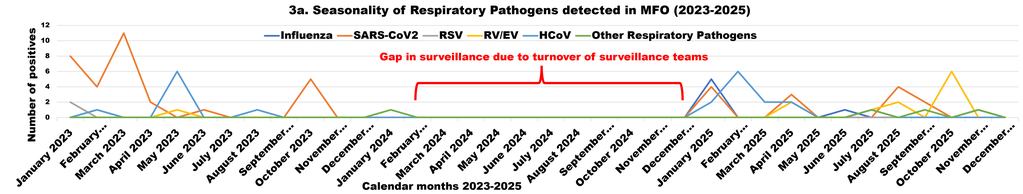
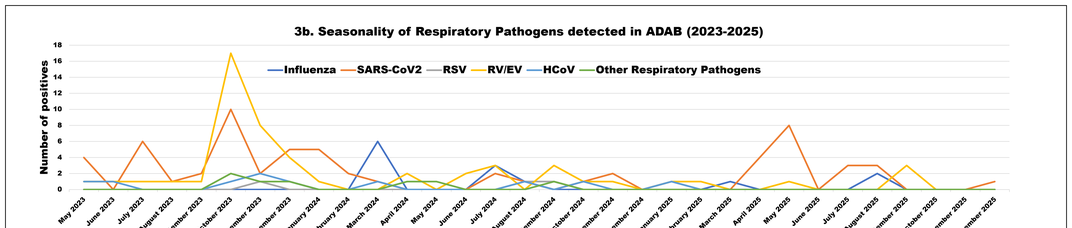
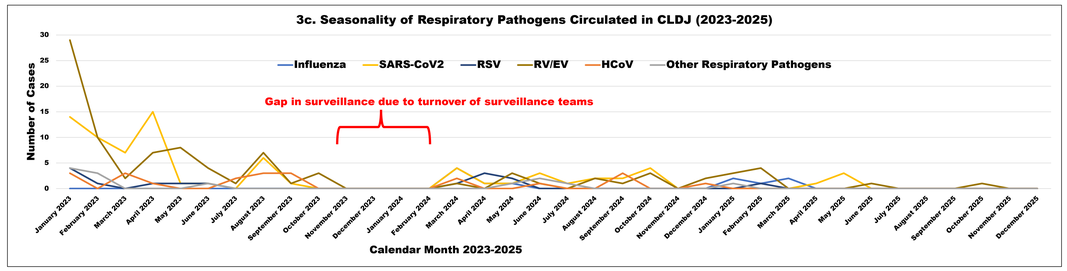


Figure 2c

Figure 3a, 3b and 3c show the seasonality of different respiratory pathogens detected in MFO-Egypt,EMDS-380-UAE and CLDJ Djibouti







➢ **Respiratory pathogen surveillance revealed that SARS-CoV-2 was the most common virus in CENTCOM military installations, whereas it was second to RV/EV at the AFRICOM location. Other pathogens, including Influenza A, RSV, and a single bacterial infection (M. pneumoniae), were also detected at lower and varying rates across the different sites.**

Command Region	Discussion : Risk Factors	Discussion : Operational Readiness Impacts	Conclusion : FHP Recommendations
CENTCOM (MFO & ADAB)	**Aerosol-Favored Dynamics** • Dry, extreme desert heat forces troops into indoor, recirculated air-conditioning. • High-velocity global transit and multinational troop rotations constantly introduce new SARS-CoV-2 variants.	**Mission Grounding & Isolation:** • Triggers mandatory duties-not-to-include-flying (DNIF; flight restriction) status, instantly stalling air operations. • Mandates strict quarantine and isolation protocols, removing critical personnel from active-duty shifts.	**Aerosol & Clinical Mitigation** • Install advanced indoor air filtration/purification and enhance ventilation systems. • Pre-position rapid antigen tests and targeted antiviral therapeutics for early intervention.
AFRICOM (CLDJ)	**Contact-Favored Dynamics** • High humidity stabilizes non-enveloped RV/EV pathogens on physical surfaces. • Frequent contact with the host-nation workforce introduces endemic community strains onto the installation.	**Tactical Performance & Clinic Strain** • Chronic congestion and fatigue degrade troop reaction times and situational awareness during ground ops. • High-volume "sick call" visits drain primary medical staff hours, reducing trauma training bandwidth.	**Contact & Stewardship Focus** • Enforce rigorous hand hygiene and sanitize high-touch surfaces in shared berthing and dining areas. • Utilize multiplex PCR testing to confirm viral etiology and actively prevent the misuse of antibiotics.

Partners/Collaborators

- **Multinational Force and Observers (MFO), Sinai, Egypt.**
- **380th Air Expeditionary Wing leadership and 380th Expeditionary Medical Squadron in Al Dhafra Air Base United Arab Emirates (ADAB)**
- **Camp Lemonnier, Djibouti's Expeditionary Medical Facility (CLDJ EMF)**

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