

Presenter:
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Background

- **Pregnancy is a pro-arrhythmic state**
 Hemodynamic, hormonal, and autonomic changes increase susceptibility to arrhythmias
- **Arrhythmias are increasingly common**
 Driven by older maternal age and increasing cardiovascular comorbidities
- **Arrhythmias are linked to adverse maternal and fetal outcomes**
 Early identification can guide management and mitigate risk
- **Real-world data remain limited**
 Particularly on arrhythmia burden and monitoring performance in pregnancy

This study characterized the **diagnostic yield, arrhythmia types, and temporal patterns of detection** using extended ambulatory ECG monitoring in pregnancy

Methods

- **Study Design:** Retrospective cohort study of pregnant patients undergoing extended ambulatory ECG monitoring
- **Data Sources**
 - iRhythm Clinical Data Warehouse: ECG data from Zio® devices, including wear metrics, rhythm findings, and symptom-rhythm correlation
 - Claims: Tokenized linkage to the PurpleLab U.S. nationwide de-identified claims database; data include Medicaid, VA community care, Medicare Advantage, and commercial claims
- **Study Population**
 - Females aged 18-45 years
 - Underwent 3-14 day continuous monitoring with Zio® XT or AT device (2018-2022)
 - Required linkage between claims and Zio index report
 - Pregnancy episodes identified using ICD-10, CPT, and DRG codes
 - Availability of delivery claim with known gestational age at delivery
- **Pregnancy and Trimester Definition**
 - Pregnancy window defined for each delivery using gestational age to estimate the conception date
 - Analysis restricted to deliveries with known gestational age
 - Trimester assigned using gestational age

Extended ambulatory ECG monitoring detected arrhythmias in 38% of pregnant patients, with approximately 1 in 7 experiencing clinically actionable events, most (60%) identified after 48 hours.

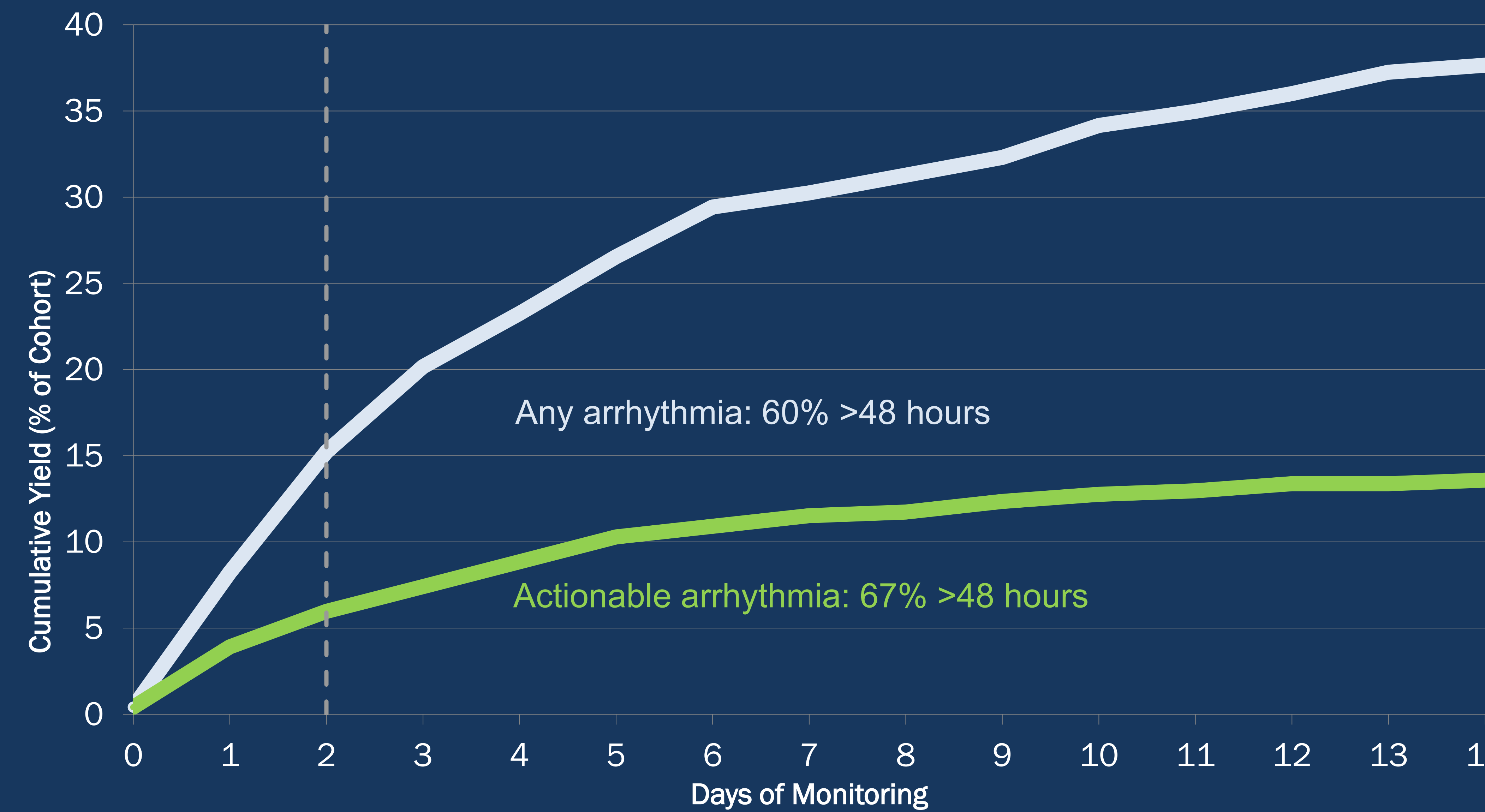


Figure 1. Cumulative Cohort-Level Arrhythmia Yield Over Time

Table 1. Wear Metrics and Arrhythmia Yield

Wear Metrics and Arrhythmia Yield	Study Population (n=486)
ACM Wear Metrics	
Wear Duration (days), median (IQR)	7.9 (7.1)
Analyzable Time (%), median (IQR)	99.2% (1.8%)
Arrhythmia Yield	
SVT ≥90bpm & ≥4 beats (n%)	147 (30.2%)
VT ≥100bpm & ≥4 beats (n%)	40 (8.2%)
AVB (2 nd deg. Mobitz II, high grade AVB, or CHB) (n%)	11 (2.3%)
Pause ≥3 seconds (n%)	5 (1.0%)
Atrial Fibrillation ≥30s (n%)	1 (0.2%)
Any Arrhythmia (n%)	183 (37.7%)
% symptomatic (n, % of overall)	64/183 (35.0%)
> 2 days (n, % of overall)	109/183 (59.6%)
Actionable Arrhythmias ¹	66 (13.6%)
> 2 days (n, % of overall)	38/57 (66.7%)

¹ Actionable arrhythmia defined as: AF ≥30 seconds, SVT ≥90 bpm and ≥30 seconds, VT ≥100 bpm and ≥4 beats, ventricular fibrillation, pause ≥3 seconds, or AV block (any second-degree or complete heart block).

FREQUENCY OF CARDIAC ARRHYTHMIA DETECTION ON EXTENDED AMBULATORY CARDIAC ECG MONITORING DURING PREGNANCY: RESULTS FROM A LARGE NATIONAL SAMPLE

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Results

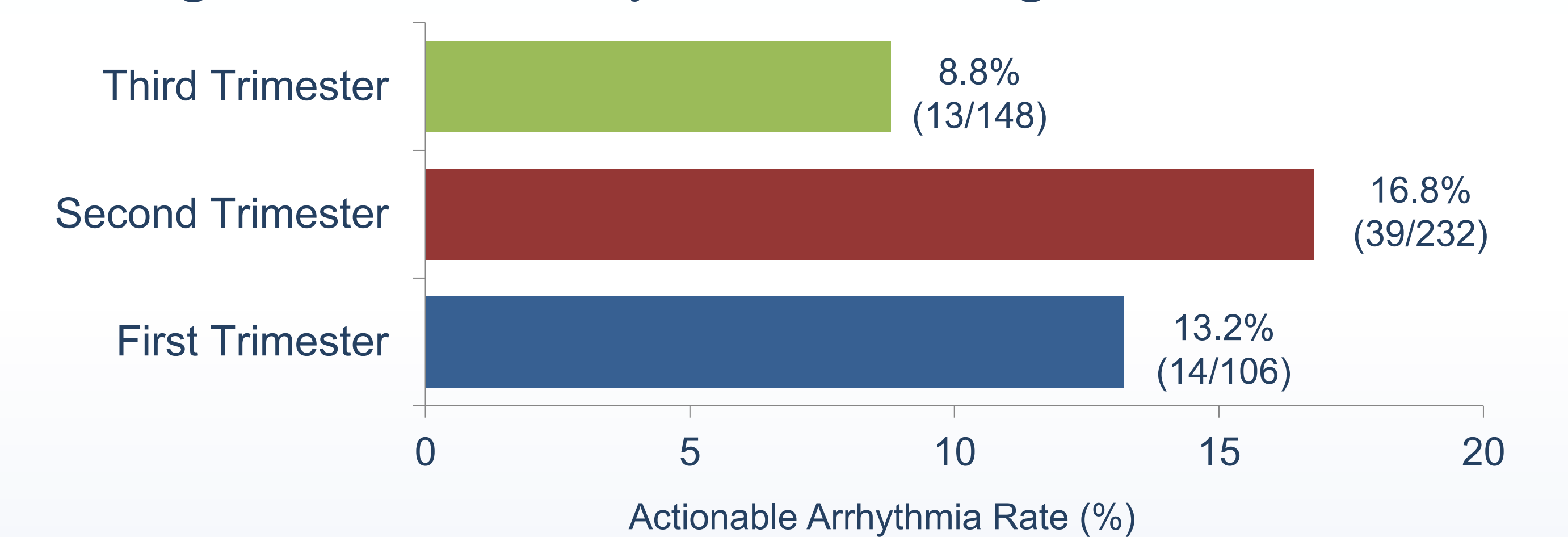
- **Cohort:** 486 pregnant patients with low baseline cardiovascular comorbidity; 62.8% monitored for palpitations and 24.7% had advanced maternal age (aged ≥35 years)
- **Monitoring quality:** Median wear 7.9 days with 99.2% analyzable time
- **Arrhythmia yield:** Arrhythmias detected in 37.7%, with 13.6% actionable; SVT most common. Actionable arrhythmias most common in the second trimester.
- **Time to detection:** Majority of arrhythmias were identified after 48 hours (59.6% any; 66.7% actionable), with continued detection over time

Table 2. Demographics and Baseline Characteristics

Demographics and Baseline Characteristics	Study Population (n=486)	Demographics and Baseline Characteristics	Study Population (n=486)
Age		Baseline Comorbidities	
≥35 years	120 (24.7%)	Chronic Hypertension	9 (1.9%)
Race¹		Preexisting Diabetes	6 (1.2%)
Asian	13/262 (5.0%)	Thyroid Disease	12 (2.5%)
Black	24/262 (9.1%)	Structural Heart Disease	9 (1.9%)
White	223/262 (85.1%)	Heart Failure (non-PPCM)	2 (0.4%)
Other	2/262 (0.8%)	History of Arrhythmia	12 (2.5%)
Obstetric Characteristics		Palpitations/syncope history	16 (3.3%)
Multiple Gestation	85 (17.5%)	Top Indications for Monitoring	
Preterm Delivery	54 (11.1%)	Palpitations	305 (62.8%)
Hypertensive Disorders	121 (24.9%)	Tachycardia, unspecified	56 (11.5%)
Preeclampsia	34 (7.0%)	Syncope / Collapse	36 (7.4%)
GDM/OGTT Proxy ²	79 (16.3%)	Dizziness	16 (3.3%)
		Cardiac Arrhythmia, Unspecified	12 (2.5%)

¹ Among patients with known race, race was unknown in 224 patients
² Gestational diabetes mellitus (GDM) or oral glucose tolerance test (OGTT) proxy

Figure 2. Actionable Arrhythmia Yield Was Highest in the Second Trimester



Disclosures
 • N Vatankhah, V Fokin and AJ Battisti are employees of and have received equity from iRhythm Technologies, Inc.
 • MP Turakhia has received equity from iRhythm, Connect America, Evidently, PocketRN, AliveCor, and Hippocratic.ai. Dr Turakhia is an employee and corporate officer of iRhythm Technologies Inc.