

cardioversion and 28.7% chemical cardioversion. 40.6% of patients who underwent chemical cardioversion subsequently required electrical cardioversion (Table 1). 84.8% of patients felt they had some knowledge of atrial fibrillation. 23.0% of patients presented to the ED because of reasons relating to fear and anxiety. 43.3% of patients believed they would have suffered stroke, myocardial infarction and/or death had they not presented to the ED. 89.6% of patients with this belief had been to the ED for AF in the past. Those who were treated with cardioversion were significantly more satisfied when asked “how satisfied were you with the care you received in the ED” than those who did not receive this intervention (8.31/10 compared to 5.71/10,  $p < 0.001$ ).

**CONCLUSION:** Almost half of the patients presenting to the ED with AF, when questioned up to 4 weeks later, have fear of a life-threatening consequence of this arrhythmia, and have more subjective satisfaction with treatment if they receive electrical or chemical cardioversion compared to those not cardioverted. These findings suggest a need for better patient education on the goals of AF management.

Table 1: Baseline characteristics stratified by intervention received in the emergency department

	Total (N=356)	Any CV (N=188, 52.8%)	Electrical CV (N=127, 35.7%)	Only chemical CV (N=61, 17.1%)	No CV (N=168, 47.2%)
Mean age (+/- SD)	67.3 (13)	65.5 (13)	62.8 (13)	71.1 (10)	69.4 (13)
Female (%)	160 (45%)	75 (40%)	42 (33%)	33 (54%)	85 (51%)
CHF	34 (9.6%)	18 (9.6%)	7 (5.5%)	11 (18.0%)	16 (9.5%)
HTN	164 (46.1%)	80 (42.6%)	54 (42.5%)	26 (42.6%)	84 (50.5%)
DM	38 (10.7%)	22 (11.7%)	3 (2.4%)	9 (14.8%)	16 (9.5%)
Stroke/TIA	35 (9.8%)	14 (7.4%)	1 (0.8%)	9 (14.8%)	21 (12.5%)
MI/PAD	37 (10.4%)	24 (12.8%)	13 (10.2%)	11 (18.0%)	13 (7.7%)
Prior AF ED Visits: 0	30 (8.4%)	11 (5.9%)	10 (7.9%)	1 (1.6%)	19 (11.3%)
1	75 (21.1%)	31 (16.5%)	18 (14.2%)	13 (21.3%)	44 (26.2%)
>1	239 (67.1%)	145 (77.1%)	98 (77.2%)	47 (77.0%)	94 (56.0%)

\*CV = cardioversion, CHF = congestive heart failure, HTN = hypertension, DM = diabetes mellitus, TIA = transient ischemic attack, MI = myocardial infarction, PAD = peripheral arterial disease. All specified comorbidities were present prior to the index visit.

**P078  
PREVALENCE OF UNREPORTED ATRIAL FIBRILLATION IN ELECTROCARDIOGRAMS WITH VENTRICULAR-PACED RHYTHM: A MULTICENTER EXPERIENCE**

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**BACKGROUND:** Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia and a major preventable cause of stroke. The diagnosis of AF on electrocardiogram is through the recognition of absent p waves and an irregularly irregular ventricular rhythm. However, in ventricular-paced patients, the rhythm on electrocardiogram (ECG) is often regular and may obscure AF diagnosis. Thus, unrecognized AF on ECG poses a potential risk among untreated ventricular-paced patients. There is scant published data reporting the prevalence of underrecognized and untreated ECG-detected AF among ventricular-paced patients.

**METHODS AND RESULTS:** In the first part of this study, we aim (1) to determine the prevalence of AF and unreported AF on ECGs with ventricular-paced rhythm obtained across all hospitals in Winnipeg, Manitoba, Canada. Using data obtained from (1), we then aim (2) to report the rates of untreated and unreported ECG-detected AF among ventricular-paced patients with an indication for anticoagulation, (3) to describe the length of delay in AF recognition and treatment among patients who should be considered for anticoagulation at the time of ECG-detected AF and (4) to identify possible strategies that can improve reporting of AF on ECGs with ventricular-paced rhythm using our institutional software (MUSE Editor ©). This is a retrospective multicenter review of ventricular-paced ECGs. ECGs will be reviewed and confirmed by two independent cardiologists who are blinded from the MUSE interpretation of the ECGs. Of the sample of 1500 ECGs with ventricular-paced rhythm from 2017-2019, 2 independent cardiologists agreed that AF was present in 622 ECGs (41.5%). Of these, 251 (40.4%) were not reported by the interpreting physician to have AF.

**CONCLUSION:** Our study shows that there is a high prevalence of unreported AF on ECG in patients with ventricular-paced rhythm in our local facilities. Further studies are warranted on describing whether this impacts treatment and outcomes among ventricular-paced patients. This study also highlights the importance of identifying possible strategies to improve reporting of AF on ECGs with ventricular-paced rhythm.

**P079  
QUANTITATIVE COMPARISON OF ELECTROCARDIOGRAM FROM SKIIN FULLY TEXTILE CHEST BAND AGAINST STANDARD GEL ELECTRODES**

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**BACKGROUND:** The Skiin Underwear system is a wearable medical device in the form of undergarments that comes with a magnetically attached recording module. The system captures 3 channels of ECG besides temperature and activity and transmits them via Bluetooth Low Energy (BLE) to Skiin companion software, and from there to backend and a web portal.

**METHODS AND RESULTS:** Ten adult participants (5 men and 5 women) worn appropriate-size Skiin chestband (M-XL for men and 2XS-S for women) at subpectoral level, and gel electrodes were placed at closest locations beneath the chest band electrodes (Figure 1). Skiin under the chest band was moisturized without any residue of the moisturizer (Lubriderm). A reference ECG recording system (NorthEast DR200) was used for simultaneous ECG recording of the same ECG leads. The study was performed under the study approved by the University of Toronto Research

Ethics Board (RIS HP #00041274). For each subject, ECG recordings were aligned using cross correlation analysis. Signals were filtered 0.5-35Hz using a 4th order butterworth filter and smoothed with a 3 point moving average. Then, sample by sample root mean square error (RMSE) was calculated for 30 sec of signals. The RMSE was 0.069 mV on average (0.032 to 0.185 mV). The RMSE expressed as a percentage of R-peak-to-peak amplitude was 5.3% on average (3.7% to 7.7%). The peak-to-peak amplitude was systematically higher with Skiin ECG with textile electrodes ( $1.23 \pm 0.61 \text{ mV}$ ) compared to the clinical standard with gel electrodes ( $0.83 \pm 0.52 \text{ mV}$ ), supposedly as gel electrodes were placed beneath the band, further from the heart. Table 1 presents the detailed results. To further compare the details of ECG waveforms, the average template beats were obtained for each 30 sec of recorded ECG, and plotted for each channel overlaid (Figure 1). Visual comparison highlighted that the wireless Skiin system with fully textile electrodes provided the same information as the clinical standard device with gel electrodes at sitting position.

**CONCLUSION:** The results obtained in this study show that the ECG obtained from the Skiin chest band at sitting position is comparable to the reference ECG system. The small difference in ECG amplitude was likely due to the slightly lower placement of the gel electrodes compared to the Skiin chest band.

Table 1 - RMSE values, average peak-to-peak amplitude, and RMSE as a percentage of R-peak-to-valley amplitude for Channels 1,2, and 3 for chest band data.

ID	Channel 1			Channel 2			Channel 3		
	RMS E (mV)	Average Peak-to-Peak Amplitude (mV)	RMSE as percentage of Peak-to-Peak Amp (%)	RMSE Ch2 (mV)	Average Peak-to-Peak Amplitude (mV)	RMSE as percentage of Peak-to-Peak Amp (%)	RMSE (mV)	Average Peak-to-Peak Amplitude (mV)	RMSE as percentage of Peak-to-Peak Amp (%)
ID01	0.068	1.541	4.4	0.151	2.943	5.1	0.185	3.481	5.3
ID02	0.056	0.677	5.3	0.070	1.266	5.6	0.067	1.185	5.6
ID03	0.078	1.605	4.9	0.065	0.983	6.6	0.083	1.554	5.4
ID04	0.041	1.106	3.7	0.079	1.418	5.6	0.090	1.983	4.5
ID05	0.046	1.121	4.1	0.043	0.749	5.8	0.038	0.708	5.3
ID06	0.054	1.097	4.9	0.102	1.823	5.6	0.095	1.821	5.2
ID07	0.046	0.917	5.0	0.069	1.392	5.0	0.074	1.532	4.8
ID08	0.055	0.962	5.7	0.053	0.872	6.1	0.061	0.963	6.3
ID09	0.032	0.792	4.1	0.068	1.456	4.7	0.051	1.349	3.8
ID10	0.052	1.122	4.7	0.046	0.593	7.7	0.077	1.082	7.2
Mean	0.051	1.094	4.7	0.075	1.349	5.8	0.082	1.566	5.3
Stdev	0.014	0.294	0.6	0.032	0.674	0.9	0.040	0.777	0.9

**P081**  
**RELATIONSHIPS BETWEEN LEFT VENTRICULAR MASS AND QRS DURATION IN HYPERTROPHIC CARDIOMYOPATHY AND HYPERTENSIVE HEART DISEASE: A NEW DIAGNOSIS TOOL**

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**BACKGROUND:** LVH in hypertensive heart disease (HHD) is known to increase QRS duration while Hypertrophic Cardiomyopathy (HCM) could be associated with narrower than normal QRS expected. Current diagnosis of HCM and HHD is based on imaging but suffers from considerable overlap and lack of specific feature. We aim to compare the relationship between left ventricular mass (LVM) and QRS duration in HCM and HHD to create a new diagnostic tool to identify HCM.

**METHODS AND RESULTS:** We conducted a retrospective study in France (at the University Hospital of Toulouse and Bordeaux) and in Canada (at the University Cardiology and Pneumology Institute of Québec) comparing LV mass (LVM) and QRS duration according to different types of LV hypertrophy. Automatic measurement of LVM on MRI was correlated to automatic measurement of QRS duration on ECG. Uni- and multivariate analyses were performed comparing the relationship between QRS duration and LVM in HCM and HHD. A logistic regression formula was constructed with previously identified variables as associated with HCM

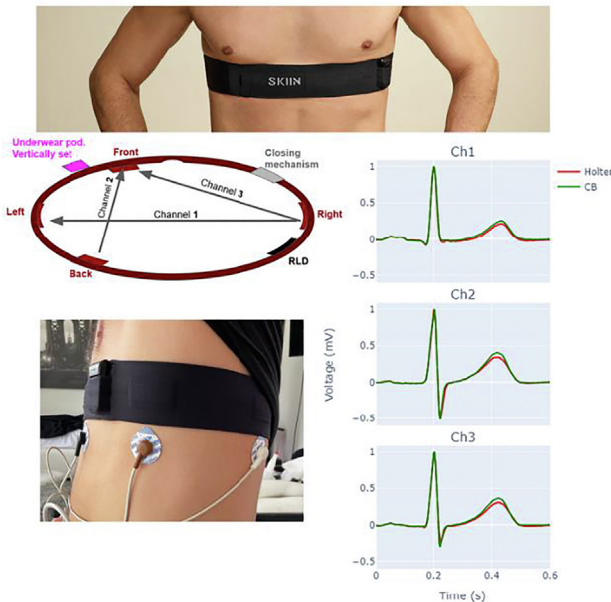


Figure 1 - Skiin Chestband (top); Lead definition and electrodes position around the chest (left middle); Gel electrode locations vs textile chestband (left bottom); Compared template ECG beats in 1 participant (textile in green, gel in red) (right).