used in clinics and hospitals. This is where newer technologies such as digital health devices excel, since they are ultra-portable devices that are user-operated and offer the ability to record ECGs regardless of location. Apple Watch Series 4 (AW4) and KardiaMobile 2-lead model (KM) are two of the most popular devices that are officially approved by the FDA. However, there is still a lack of knowledge regarding the AW4's and KM's ability and accuracy to detect both sinus (SR) and atrial fibrillation (AF) rhythms in clinical situations. This paper aims to determine the practicality of using digital health devices, such as the AW4 and KM, in modern medical practice by assessing and comparing their accuracies in identifying heart rhythms and heart rate.

METHODS AND RESULTS: A total of 200 patients, all of whom were scheduled for a visit to the at Toronto Heart Centre clinic were enrolled from Jan 2018 to Dec 2019. A 12-lead electrocardiogram (ECG) was obtained, followed by AW4 (WatchOS 5.3) and KM, within 5 minutes of one another. Each session with every patient consisted of an ECG recording from a 12-lead ECG, from KM's ECG function, from AW4's ECG function (AECG), and a heart rate recording from AW4's photoplethysmography function (APPG).

Of the total 200 patients, the mean age was 63 years ± 15 and they were predominantly male at 59%. There were 162 (81%) patients who were in sinus rhythm and 38 (19%) who were in atrial fibrillation. Rhythm detection accuracies for sinus rhythm were: 100% for AW4 and 99.03% for KM, meanwhile those for Afib were: 90.48% for AW4 and 100% for KM. Heart rate accuracies for sinus rhythm were: 94.39% for KM, 90.65% for Apple PPG (APPG), and 96.26% for Apple ECG (AECG). Heart rate accuracies for Afib were: 91.30% for KM, 82.61% for AP, and 86.96% for AE.

CONCLUSION: The results demonstrate that both AW4 and KM are highly capable in detecting rhythm and HR. There is a non-significant trend in favour of KM in rhythm detection and accuracy, compared with AW4. The difference is mainly due to artefacts (e.g. tremors) and strap size fitting for AW4.

P070
REMDESIVIR (VEKLURY) FOR TREATING COVID-19 PATIENTS: WHAT TO EXPECT FROM A CARDIAC ELECTROPHYSIOLOGICAL PERSPECTIVE

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BACKGROUND: Remdesivir was authorized with conditions in Canada on July 27, 2020 for the treatment of severe COVID-19 in adults and youth (aged ≥ 12 years) with pneumonia requiring supplemental oxygen. In the Canadian Veklury® monograph, it is mentioned that current non-clinical and clinical data do not suggest a risk of QT prolongation, but QT prolongation has not been fully evaluated in humans. Interestingly, in a recent small series of 67 patients treated with remdesivir alone daily (200 mg Day 1, 100 mg Days 2-7);

although no instance of torsades de pointes was reported, there was a mean 24.4-ms increase in the QTc, with 9% of all QTc ≥ 500 ms and 9% of all DQTc ≥ 60 ms. Our aim was therefore to further evaluate the effects of remdesivir on cardiac electrophysiology.

METHODS AND RESULTS: 1) Ex vivo Langendorff retroperfusion experiments: Isolated hearts from male Hartley guinea pigs were either let at their natural sinus rhythm (SR) or paced at basic cycle lengths (BCL) of 250 or 200 ms. They were allowed to stabilize and were then exposed for 15 minutes to either remdesivir 3 (n=7), 10 (n=7) or 30 (n=5) μmol/L to assess drug-induced effect on monophasic action potential duration measured at 90% repolarization (MAPD90). 2) In vivo wireless cardiac telemetry experiments: Guinea pigs (n=3) implanted with radio transmitters were administered i. p. daily doses of remdesivir (5 mg/kg on Day 1 and 2.5 mg/kg on Days 2-10) and continuous ECG recordings were made. Results: See Tables.

CONCLUSION: Previous clinical studies have shown peak plasma concentrations of remdesivir in the 5-10 μmol/L range after the 200 mg Day 1 dose. In the present study, remdesivir had hardly any significant ex vivo effect on MAPD90 at clinically relevant concentrations (3-30 μmol/L). However, in vivo, the drug caused significant prolongation of the QT at Day 1 and Day 10 and of QTcF at Day 10. Interestingly, a trend toward bradycardia was observed in vivo after each administration of remdesivir. More in vivo experiments are therefore required to rule out any QTc-prolonging effects of remdesivir at clinically recommended dosage.

Ex vivo Langendorff experiments

	MAPD$_{90}$					
	3 μmol/L (ms)		10 μmol/L (ms)		30 μmol/L (ms)	
	Baseline	Remdesivir	Baseline	Remdesivir	Baseline	Remdesivir
BCL 200	123.6±7.9	127.0±10.8 (p=NS)	118.0±5.0	119.9±8.9 (p=NS)	113.5±4.7	113.0±4.2 (p=NS)
BCL 250	135.5±5.5	141.0±11.0 (p=NS)	135.0±6.2	139.5±8.6 (p=0.04)	129.4±6.8	129.6±3.5 (p=NS)
SR	219.5±11.5	226.3±18.3 (p=NS)	220.4±11.1	221.9±15.7 (p=NS)	207.3±6.0	193.7±14.4 (p=NS)

In vivo telemetry experiments

	Baseline (ms)	Day 1 Remdesivir 5 mg/kg (ms)	Day 10 Remdesivir 2.5 mg/kg (ms)
RR	204.3±18.1	214.7±18.7 (p=NS)	228.0±4.0 (p=0.06)
PR	66.7±4.2	66.7±4.5 (p=NS)	69.0±5.3 (p=NS)
QT	112.7±13.0	124.0±10.4 (p=0.03)	133.7±13.4 (p=0.007)
QTcF	190.3±17.8	209.0±7.2 (p=0.08)	214.7±15.3 (p=0.02)

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P071
SODIUM-GLUCOSE CO-TRANSPORTER INHIBITORS AND ATRIAL FIBRILLATION: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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BACKGROUND: Sodium-glucose co-transporter (SGLT) inhibitors reduce heart failure (HF) hospitalization and cardiovascular death in several populations, including patients