

# Could smart devices contribute to more timely diagnosis in emergency care?

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## OBJECTIVE

We present here a case of ruptured ectopic pregnancy, with contemporaneous data from the patients “smart” watch. In addition we discuss uses of “wearable” data, as well as regulatory and ethical considerations of using wearables in clinical settings.



## BACKGROUND

36 year old, G3P2 normally fit and well. 7/40 by last menstrual period. Diagnosed UTI day 1 (Fig 1). Rested day 2 & 3 (Fig 2&3). Sudden pain escalation day 3, 2200 (circled)- presumed time of ectopic rupture. Attended emergency department. Observations were reported as normal at the time of initial clerking.

## ASSESSMENT

On arrival to the gynaecology assessment unit (Fig 4) her smart watch was alarming showing a heart rate of 130bpm. The patient reported that her watch had alarmed multiple times over the last 3 days showing a high heart rate. O/E Acutely peritonitic abdomen, upper abdominal and shoulder pain on inspiration. TVUSS- empty uterus with extensive free fluid in the PoD. The patient was now haemodynamically unstable.



## OUTCOME

Emergency laparoscopy demonstrated 2000mls haemoperitoneum with ruptured left fallopian tube. The patient recovered well and was discharged 24 hours later.

### Could medical evaluation of smart data contribute to diagnosis in early pregnancy?

The patient reported that over the few days previously her watch had been alarming for a heart rate over 100 on multiple occasions with a significant rise at the point her pain escalated.

Would continuous monitoring demonstrate early signs of deterioration?

Consideration should be given to the concern of safe storage of smart data

Does it pose a problem that these devices are not medically calibrated ?

Should we look to creating formal guidance to incorporate smart data for patient assessment in the acute setting?

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