



UNIVERSITY OF
TORONTO

McMaster
University



CortiCare: Advances in Quantifying Anxiety

Presenters: Maisha Ahmed, Christy Au-Yeung, Bushra Haque, Casey Hon, Alun Stokes





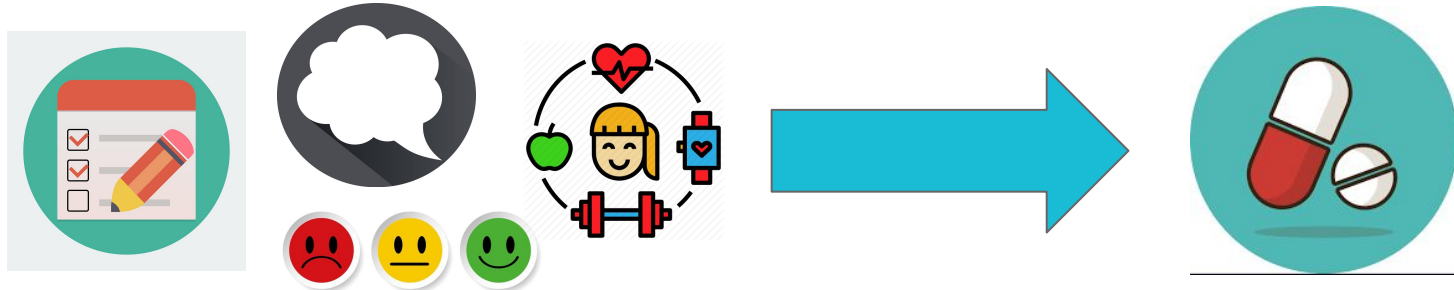
In any given year, 1 in 5 people in Canada will personally experience a mental health problem or illness.

By age 40, about 50% of the population will have or have had a mental illness.

Anxiety disorders affect 5% of the household population, causing mild to severe impairment



Subjective Interpretation by Clinicians

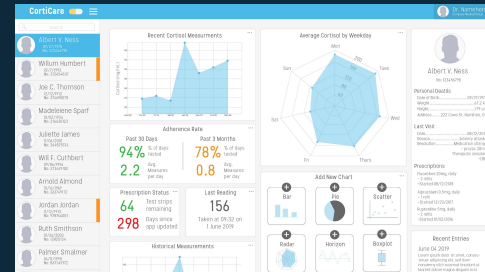
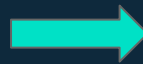


The Problem?

Treatment is heavily dependent on patient's self advocacy and ability to accurately self-report symptoms



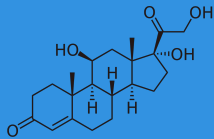
Using technology to create **objective**
testing for anxiety



Stimuli that induces stress

Adrenal gland

Cortisol



Bloodstream



Metabolism



Heart rate



Blood Pressure



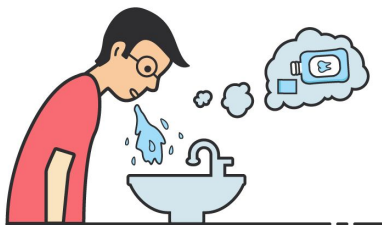
Sleep



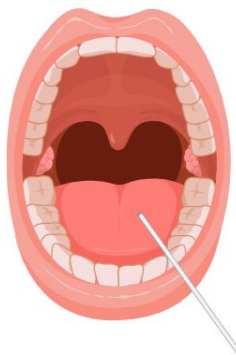
Memory



3 simple steps ...
times a day



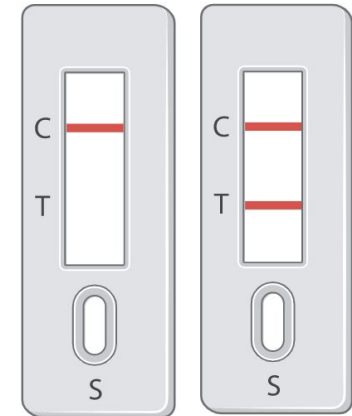
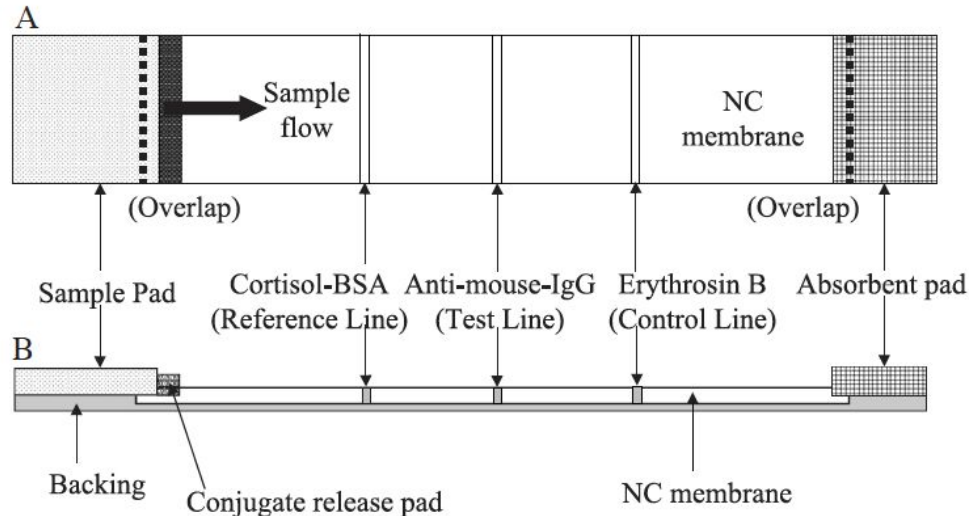
30 mins

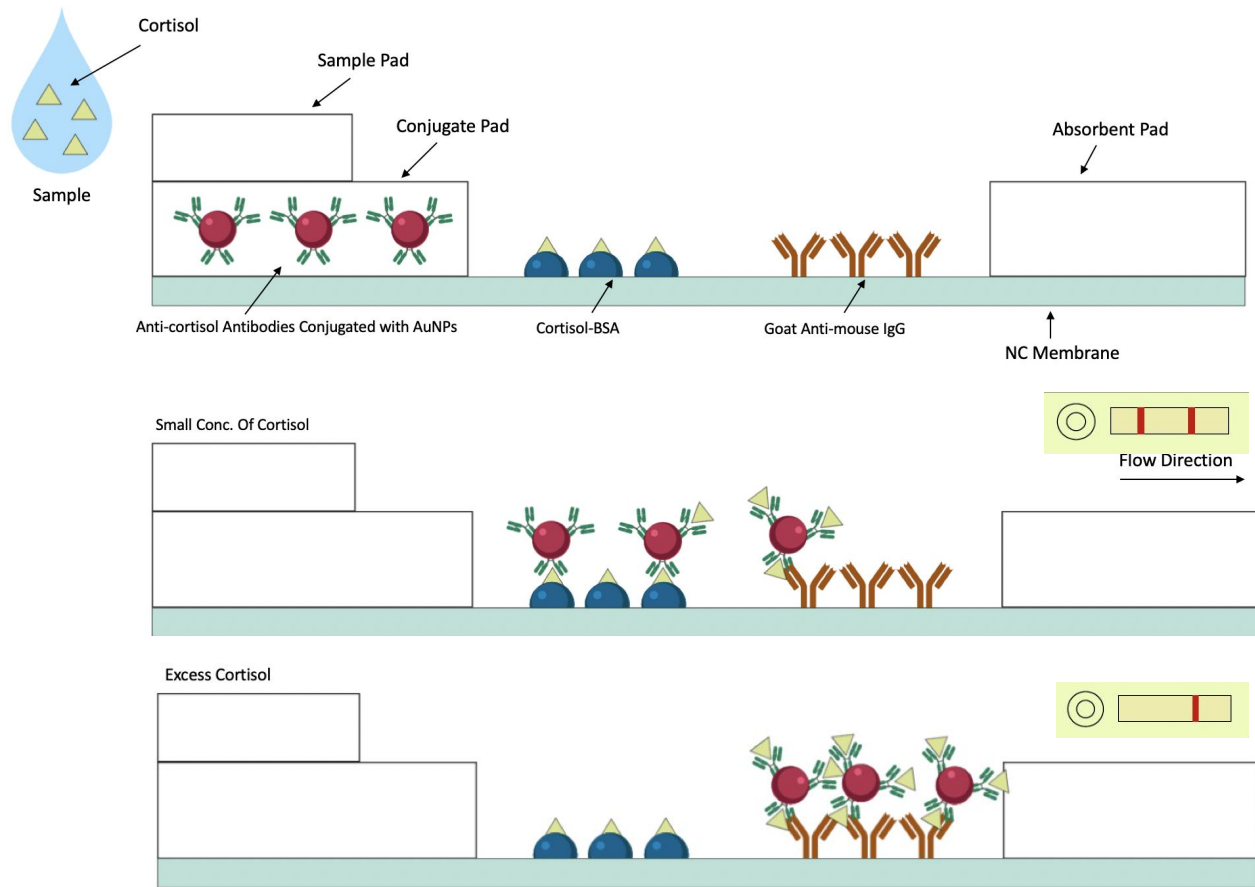


10 mins

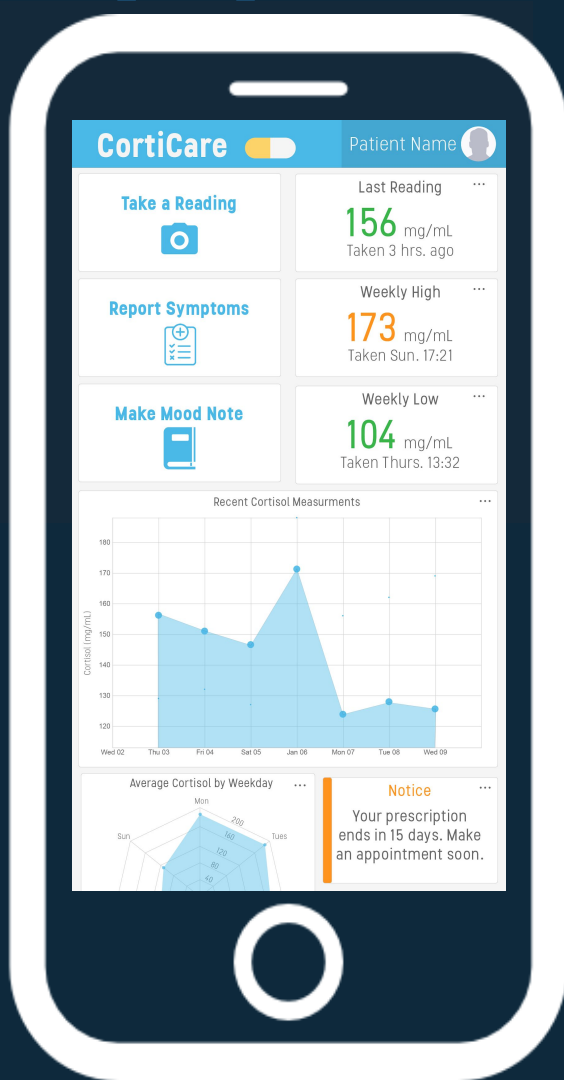
Lateral Flow Immunoassay (LFIA)

- ◇ Confirms the presence/absence of a target analyte (e.g. cortisol) to produce qualitative and quantitative results
- ◇ Common application: pregnancy tests





* Control line not shown for simplicity



RGB → HSB signal data

Signal data compared to calibrated values and known cortisol concentrations to deliver output





Search



Albert V. Ness

09/27/1978
No: 123456790

Willum Humbert

02/7/1993
No: 372654837

Joe C. Thorson

12/12/1912
No: 374690070

Madeleine Sparf

01/02/1934
No: 216430123

Juliette James

11/06/2001
No: 364825134

Will F. Cuthbert

09/06/1996
No: 273649102

Arnold Almond

10/16/1969
No: 263749172

Jordan Jordan

11/12/1913
No: 978764001

Ruth Smithson

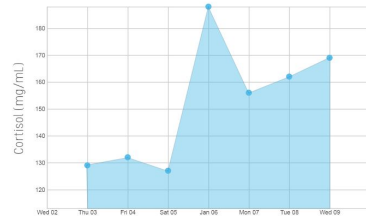
01/26/2003
No: 12825134

Palmer Smalmer

04/11/1990
No: 867349172

Joe C. Thorson

Recent Cortisol Measurements



Adherence Rate



Prescription Status

64 Test strips remaining
298 Days since app updated

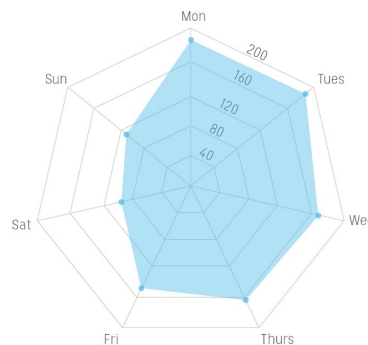
Last Reading

156 Taken at 09:32 on 1 June 2019

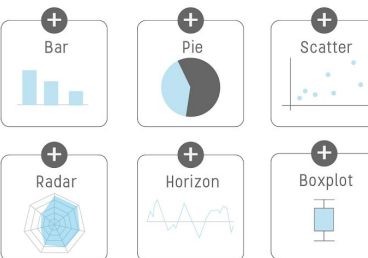
Historical Measurements



Average Cortisol by Weekday



Add New Chart



Albert V. Ness

No: 123456790

Personal Details

Date of Birth.....09/27/1978
Weight.....67.2 kg
Height.....179 cm
Address.....222 Cows St. Hamilton, ON

Last Visit

Date.....08/12/2018
Reason.....Anxiety attacks
Resolution.....Medication change
- prozac 20mg
Therapeutic sessions
- DBT

Prescriptions

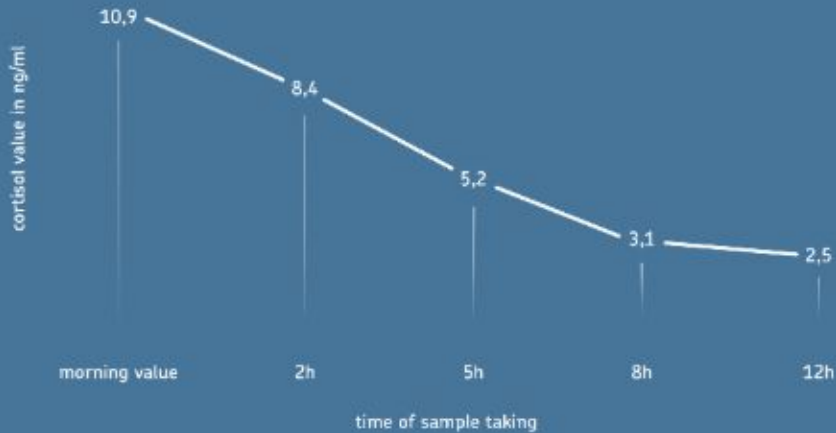
Fluoxetine 20mg, daily
- 3 refills
- Started 08/12/2018
Alprazolam 0.5mg, daily
- 1 refill
- Started 12/23/2017
Risperidone 5mg, daily
- 3 refills
- Started 01/02/2016

Recent Entries

June 04 2019
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim

Cortisol Fluctuations

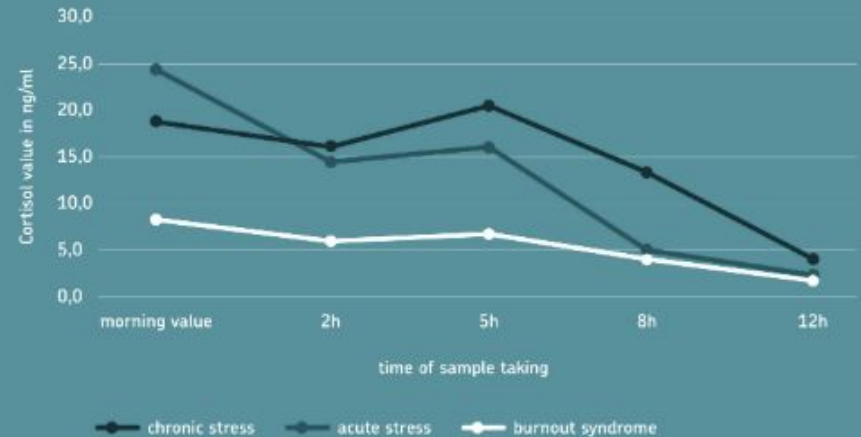
Ideal diurnal cortisol profile



Example of a normal "diurnal" cortisol profile

© cerascreen 2018

Example of a diurnal cortisol profile in various stress situations



© cerascreen 2018

Who is this for?

1

Accurate **Diagnosis**

2

Treatment
approach/
dosage adjusted

3

Stopping
medications

Aging population



Undiagnosed/ Misdiagnosed

Language barrier



Non verbal, Young children



Inability to self report

ASD





\$6.35 per week!

\$0.25 per test strip



\$0.0043 per capillary tube



\$0.05 per test holder

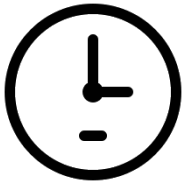




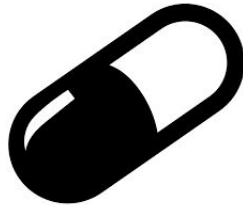
Unique solution to help patients & doctors!



15



30-50 min wait time



overprescribed drugs



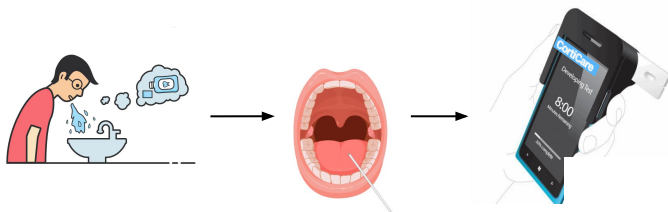
80% undiagnosed



quality of patient life



3 simple steps.



16 overprescribed drugs



30-50 min wait time



80% undiagnosed



quality of patient life

