



An Overview of the Virtual Doctors Service in Zambia

Mr Huw Jones & Dr Michael Thompson

The Virtual Doctors





Huw Jones

MSc. FRGS

Executive Director and Founder



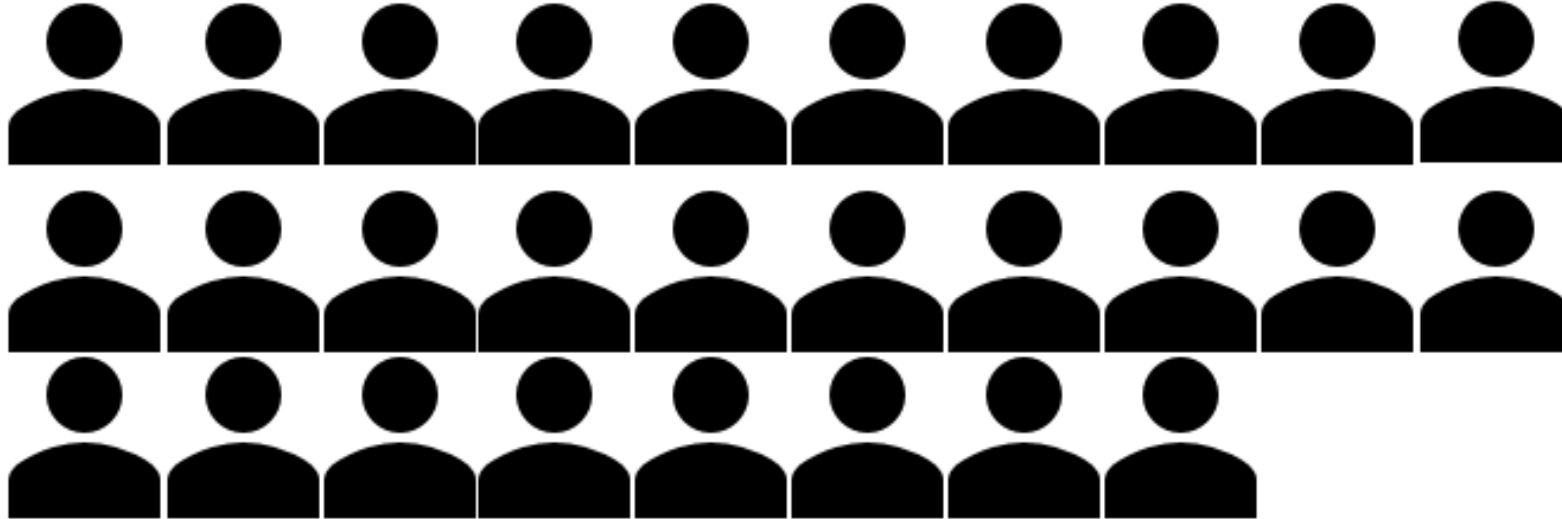


About Rural Zambia



- High level of poverty
- Lack of Infrastructure
- Isolated Clinics
- Insufficient number of doctors in rural areas
- Large catchment areas
- Dispersed population

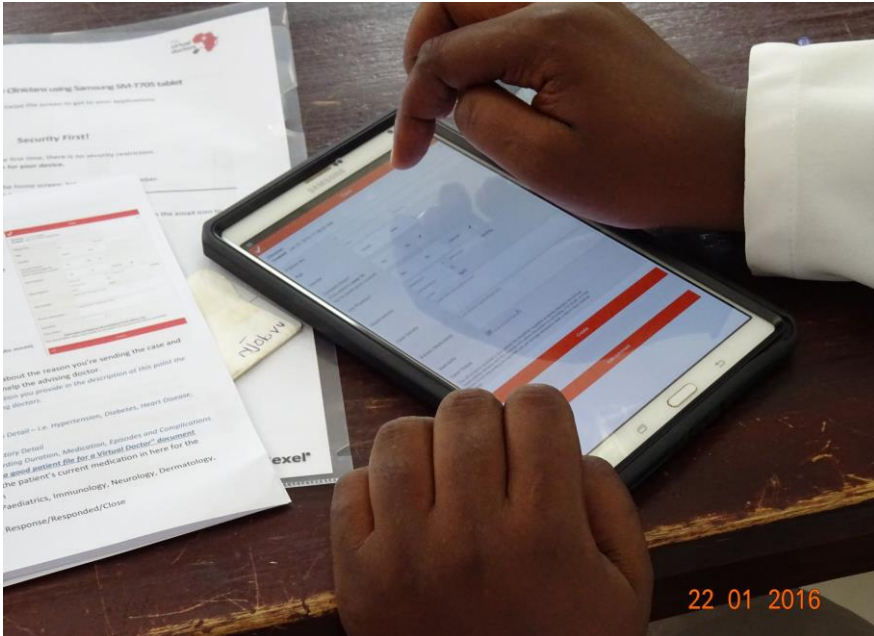
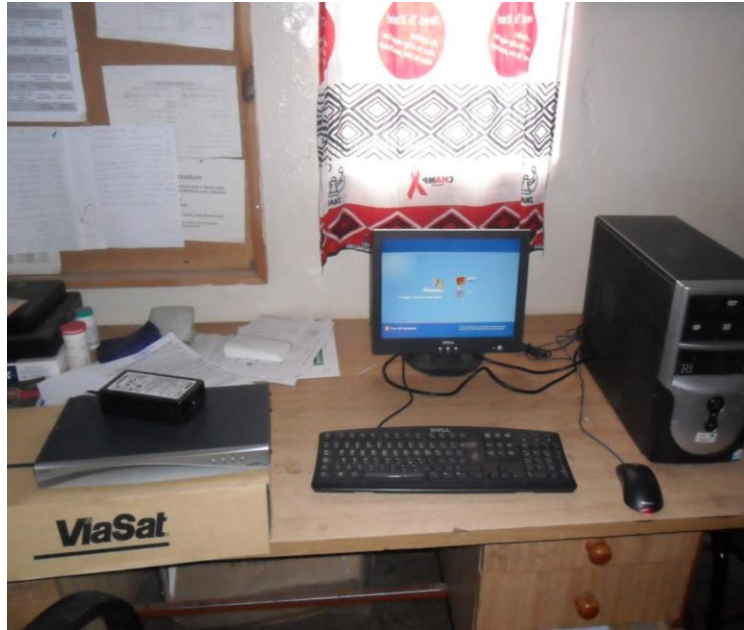
Physicians (per 10,000 people)



World Health Organization's Global Health Workforce Statistics, OECD, supplemented by country data
Physicians per 1000 population Zambia 0.2 UK 2.8 (2011)

Virtual Doctors Telemedicine Tech Genesis

- Use of Internet telemedicine to transfer patient data
- VSAT Satellite for provision of internet to remote rural clinics
- Off the shelf commercial telemedicine software
- Desktop computers



History of Technology Applied



VSAT

Challenges

VSAT

- Costly and complicated to Set Up
- Bandwidth costs expensive
- Technical support challenging for remote locations
- Requires specialist technicians to address issues

Desktop Computers



Challenges

Desktop Computers

- Fails when mains electricity goes down
- Numerous and bulky components: key board, hard drive monitor, mouse, cables etc.

Commercial Telemedicine Software



Challenges

Commercial Telemedicine Software

- Time consuming to fill in data
- Complicated to use
- Times out. Loss of data when internet goes down
- Not built with the limitations of rural Africa in mind

~~Problems~~

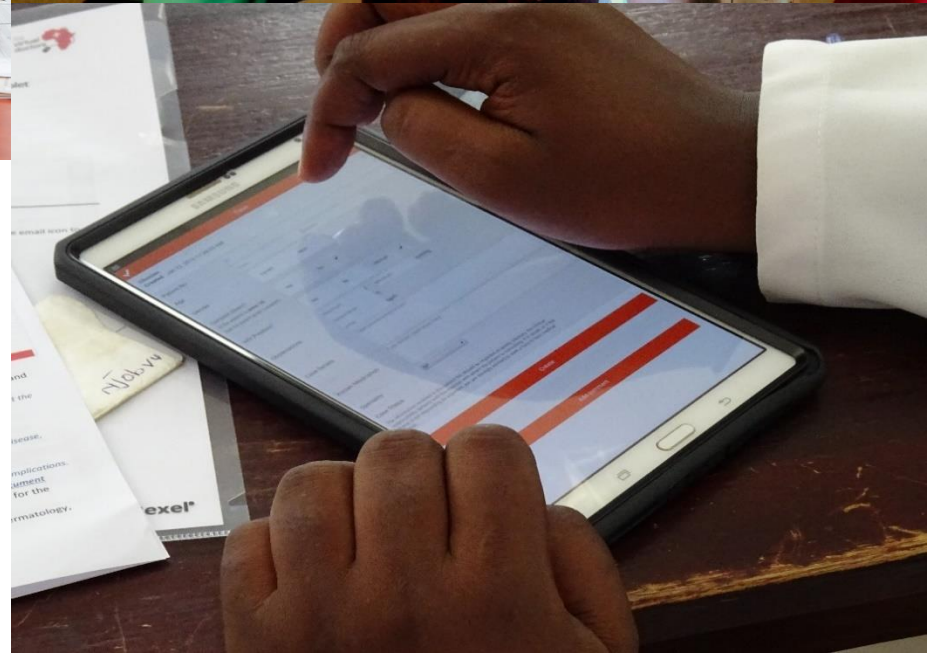
Solutions

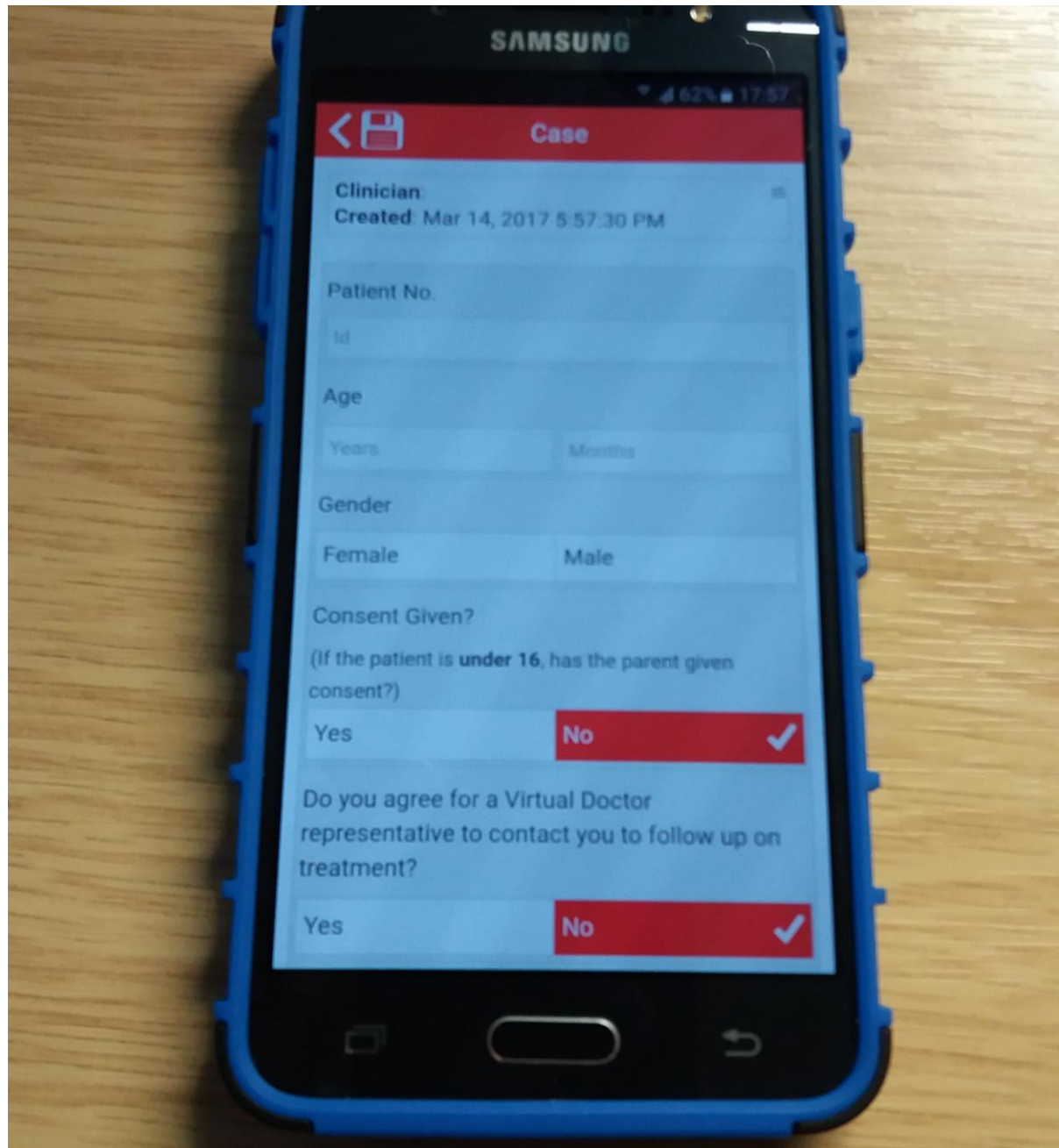
Mobile phone
internet
revolutionising
access to
information



Telemedicine for rural clinics

The Virtual Doctors uses mobile network internet to connect rural health centres and district hospitals with doctors for diagnostic and treatment advice

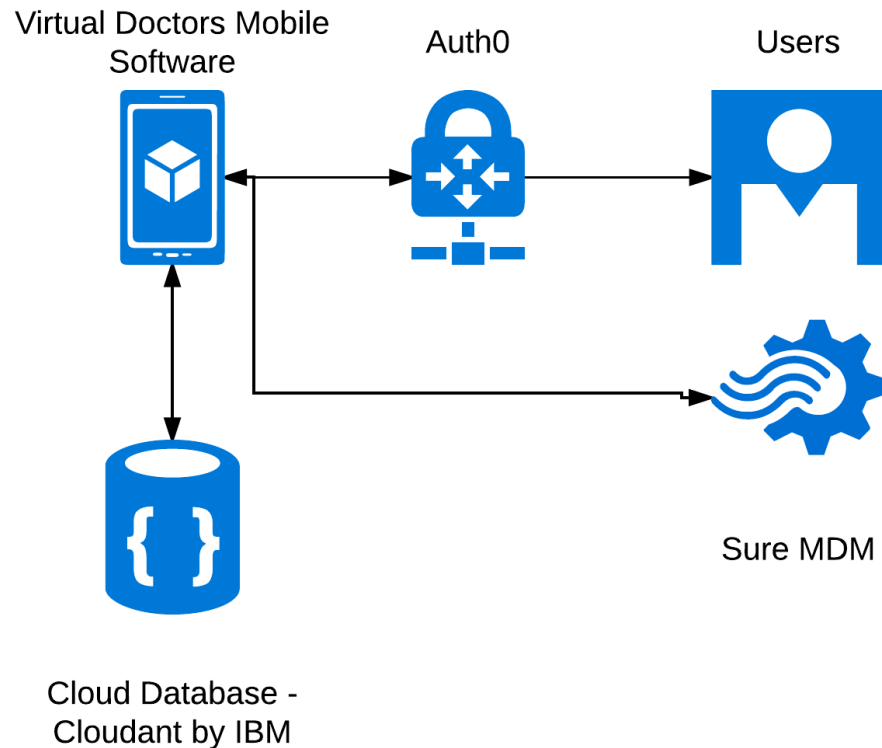




Data Protection



Data Transfer



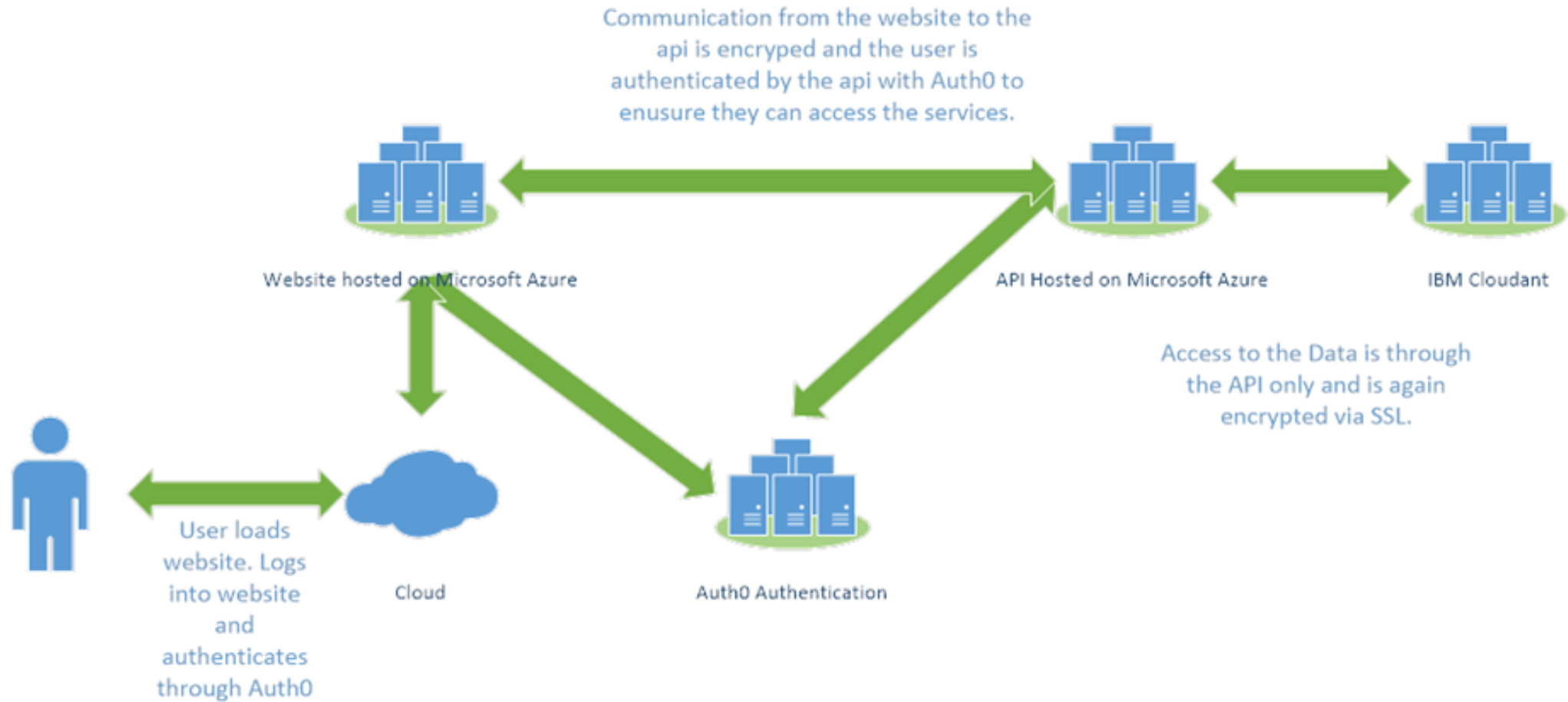
The mobile software authenticates with Auth0 the Clinician's credentials. Auth0 verifies the user against its database and if successful returns a token and allows the Clinician to log in.

Once authenticated, the software uses the token (email address) returned from Auth0 and connects to the cloud database.

The Cloud Database returns all cases relating the Clinician and this then synced locally to a local instance of the database.

The device is locked down and protected using Enterprise Mobility Management provided by Sure MDM which further secures the device.

Data Transfer





Dr Michael Thompson

MB BS, MRCP, DRCOG, DCH, DTM&H
Trustee Virtual Doctors





VDrs App

Virtual Doctor

Add new case

Responded Awaiting Closed

Search

Sep 21, 2016 4:04:47 PM

Sep 22, 2016 9:00:25 AM

Case

Clinician:
Created: Sep 26, 2016 3:28:12 PM

Patient No.
Id

Age
Years Months

Gender
Female Male

Consent Given?
(If the patient is **under 16**, has the parent given consent?)
Yes No ✓

Do you agree for a Virtual Doctor representative to contact you to follow up on treatment?
Yes No ✓

Case

If yes, please enter mobile contact details here:
Mobile Phone Number

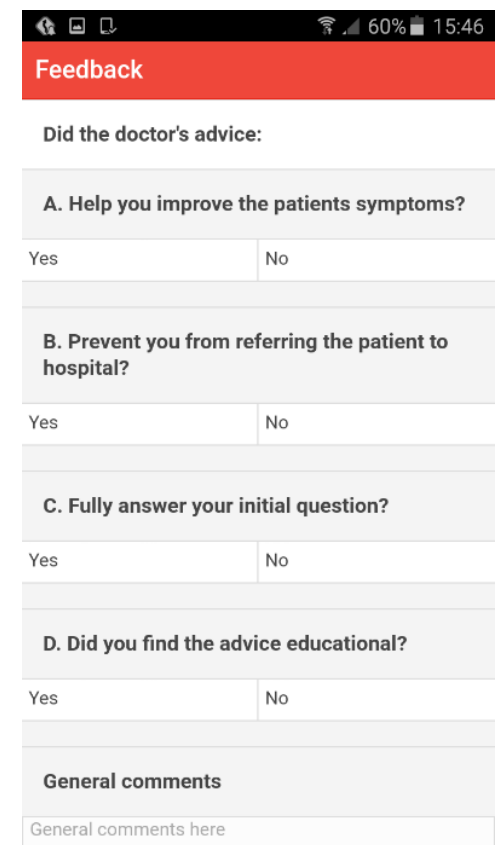
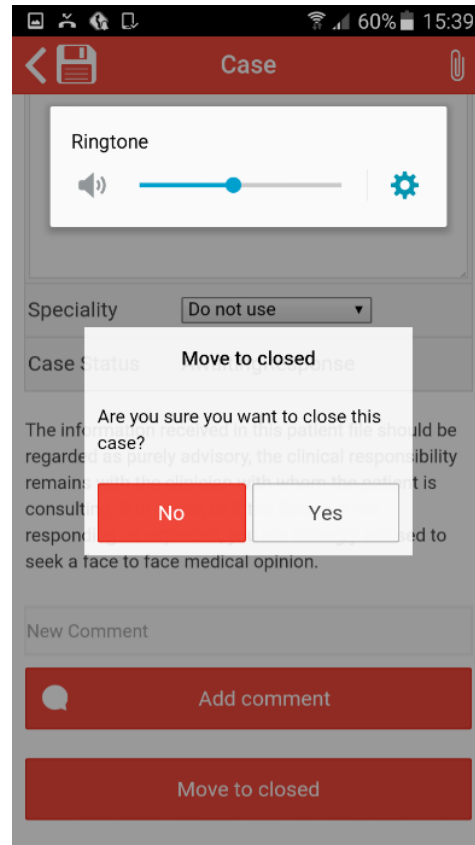
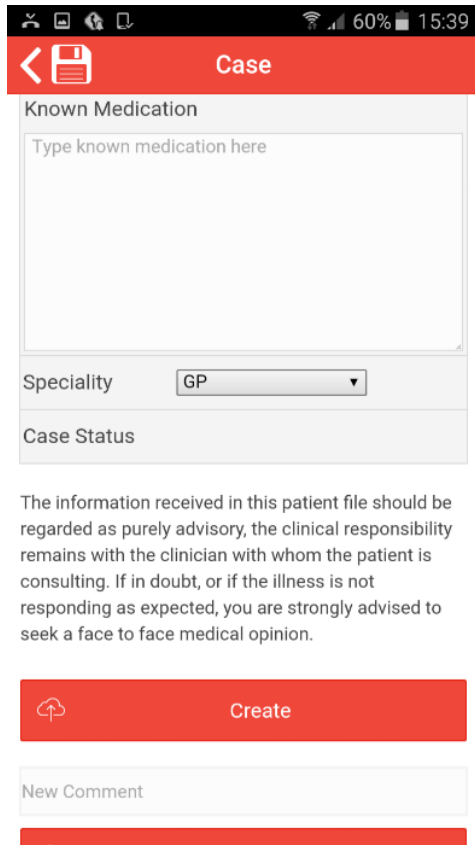
HIV Positive
Yes No Unknown ✓

Blood Pressure (mmHg)
Minimum Maximum

Temperature (°C) Pulse (BPM)
Temperature Pulse

Case Details
Type case description here

Examination Findings



VDr's App

Volunteer
Doctors

the
**virtual
doctors**



Case Details

Age	7 years
Consent Given	Yes
Blood Pressure (mmHg)	Unknown
Pulse (bpm)	97
Temperature (°C)	36
HIV Positive	Yes
Description	Patient presented with rash on face, upper trunk and extremities. rash has mild itchiness for two years. Mother and father are dead. died from hiv infection. child was born with the disease.
Known Medication	Abacavir, lamivudine, efavirenz and today commenced on topical betamethasone and emulsifying ointment.
Examination Findings	Hyperpigmented patches and macula symmetrically distributed on face and upper extremities. some areas of scales and papula

Are normal but the skin eruptions have been there from the very first day I saw this child 7 months ago



Patient is being managed by me from our mobile centre. she is currently on abacavir, lamivudine and efavirenz. patient has just taken treatment for a month now. the base line cd4 was 127 cell/ml, the liver and renal function 7 months ago



clara thompson 7 months ago

This looks very unusual. I would be suspicious of fungal infection and potential folliculitis especially around the chin and on the arms. Who is managing her HIV and medicines? Do we know what her CD4 count and viral load is, or is there a clinic that she attends where this could be looked into. I'm afraid that I don't know how HIV is managed where you are - could you clarify? I would stop the betamethasone in the first instance and put in topical antifungal and antibiotic treatment, but I do worry that her HIV is not under control. I look forward to hearing from you. Kind regards Clara



Clinician	wesley.kalunga@virtualdoctors.org
Clinic	Kafuedh
Speciality	Paediatrics

clarajthompson77@gmail.com

Reassign

Patient	02/2016
---------	---------

clara thompson

7 months ago

Thanks it will be interesting to see how things progress. Clara

I have followed or initial suggestion

7 months ago

Thank u for your concern will do the next cd4 in September. the lesions on the chin are papular and non itch I will see the patient on Tuesday just for a follow up and will update u

7 months ago

clara thompson

7 months ago

Thanks that is really helpful. So as she is really very immunosuppressed at the moment making it highly likely that she has a fungal skin infection and those papular lesions could represent herpes zoster (are they in a dermatome?). I would suggest oral aciclovir for 5 days and topical antifungal treatment for a prolonged course. Let me know how things progress. When will you next repeat her CD4 count?



Clinician	wesley.kalunga@virtualdoctors.org
Clinic	Kafuedh
Speciality	Paediatrics

clarajthompson77@gmail.com

Reassign 

clara thompson

7 months ago

Great news.

The guardian did not bring the patient for follow up but sent word that the rash the girl had has disappeared they will be coming to show us anytime. they did not have transport to travel to the clinic. Thank you clara for your advice

Welcome

7 months ago

clara thompson

7 months ago

Thanks it will be interesting to see how things progress. Clara

I have followed or initial suggestion

7 months ago



Diversity of Patient Cases

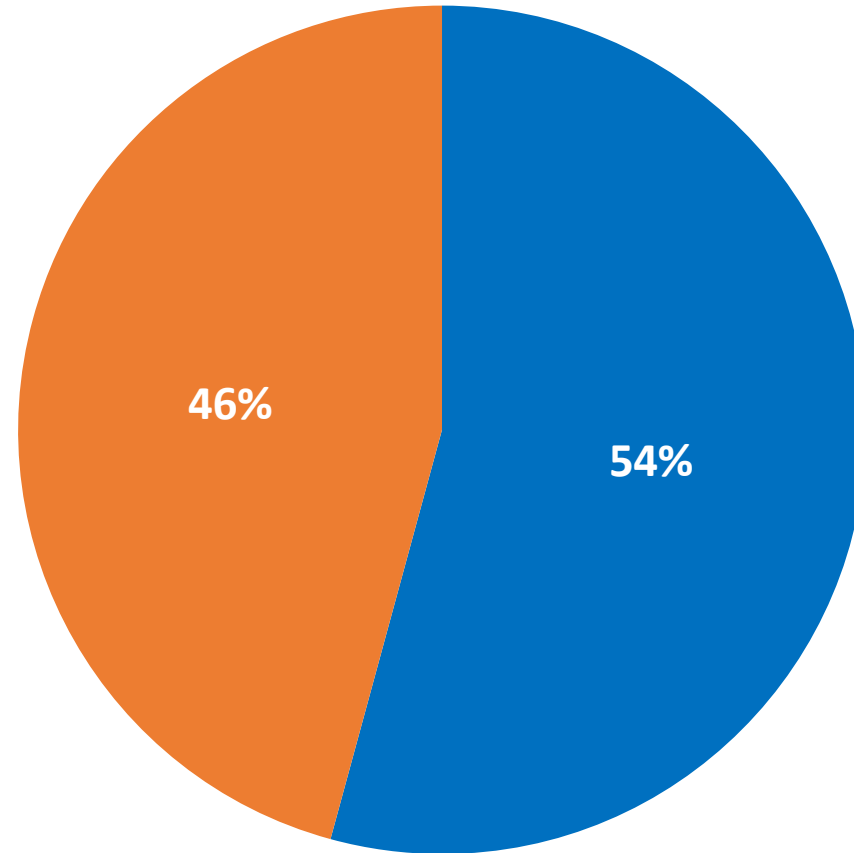




Why not use Skype, Facetime or WhatsApp?

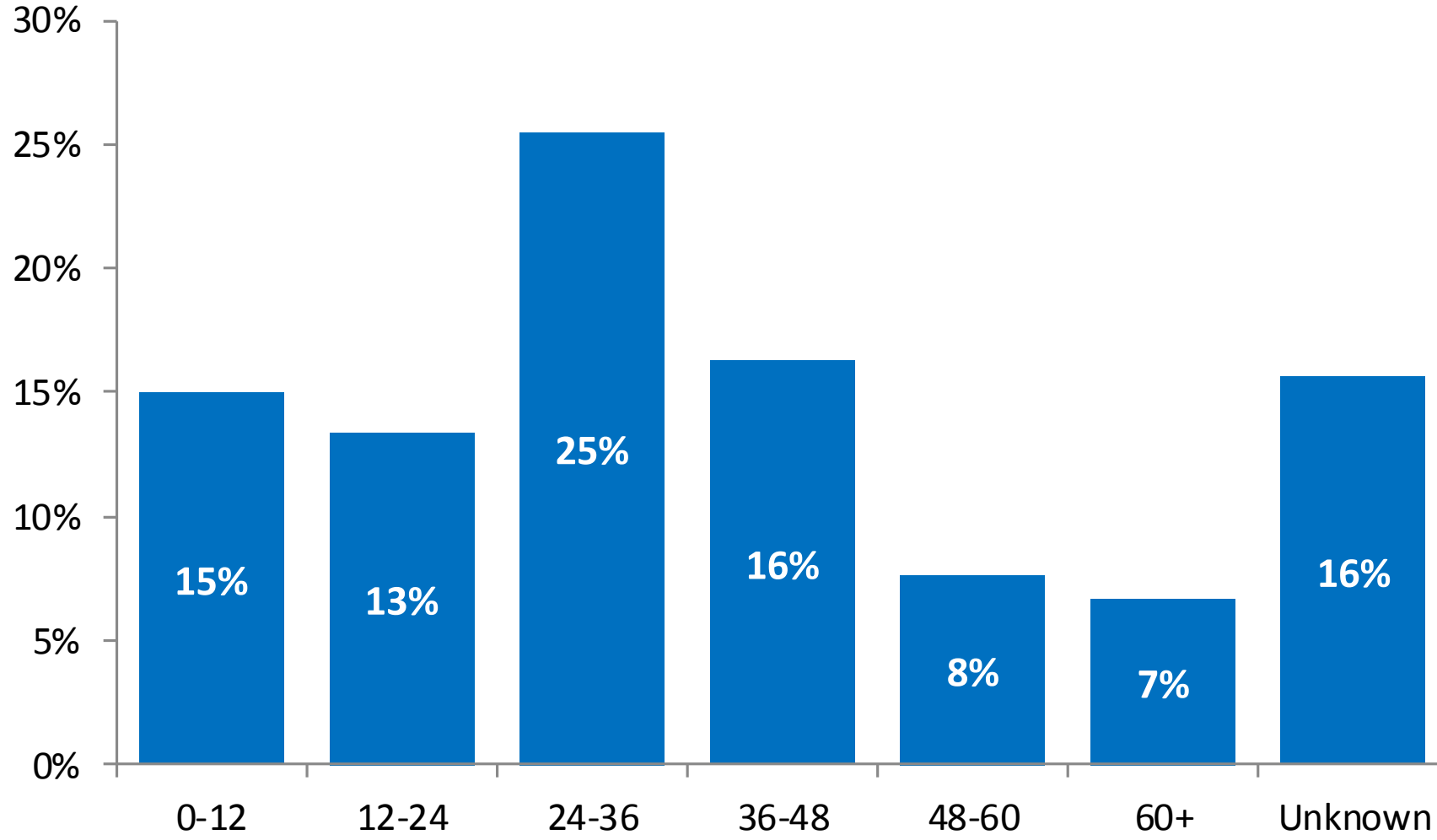


Gender

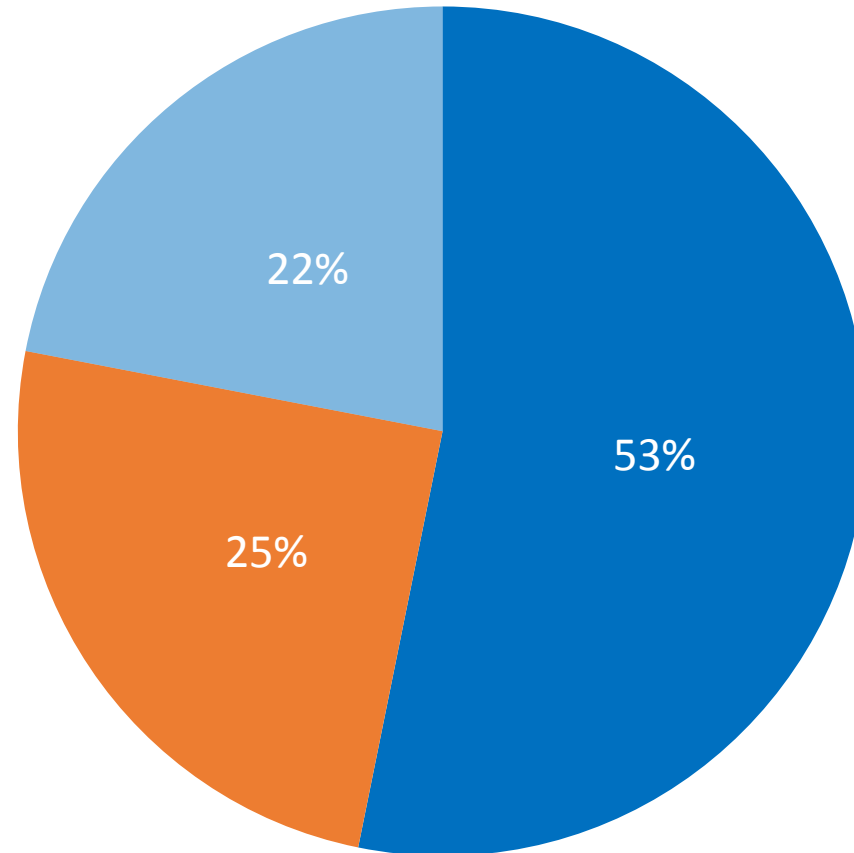


■ Female ■ Male

Cases by Age Range

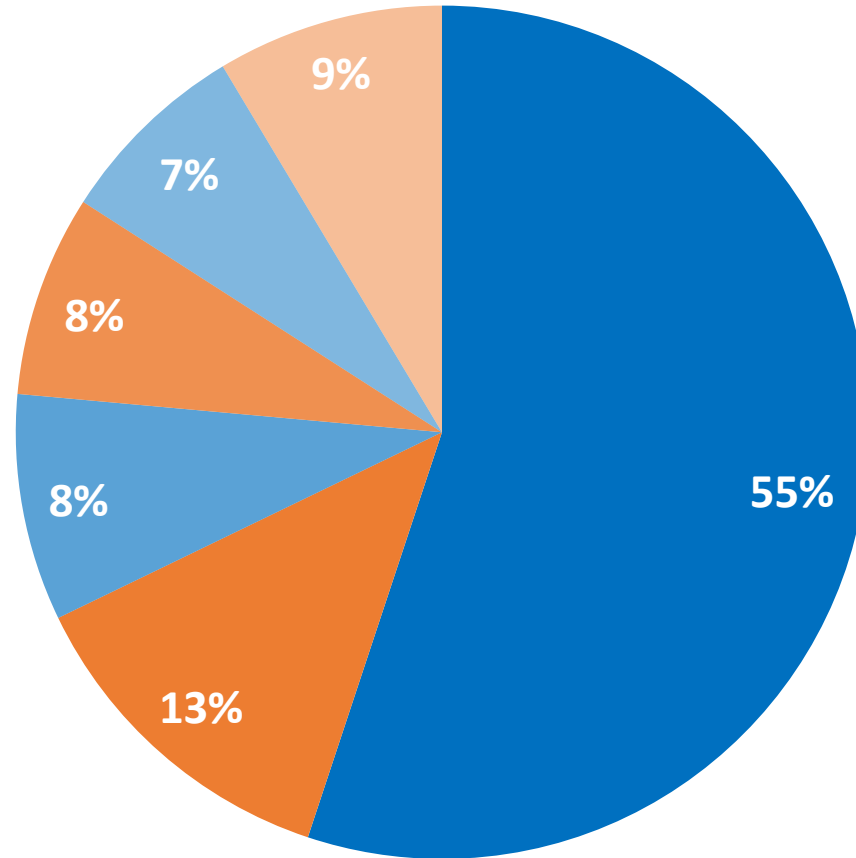


HIV Positive?



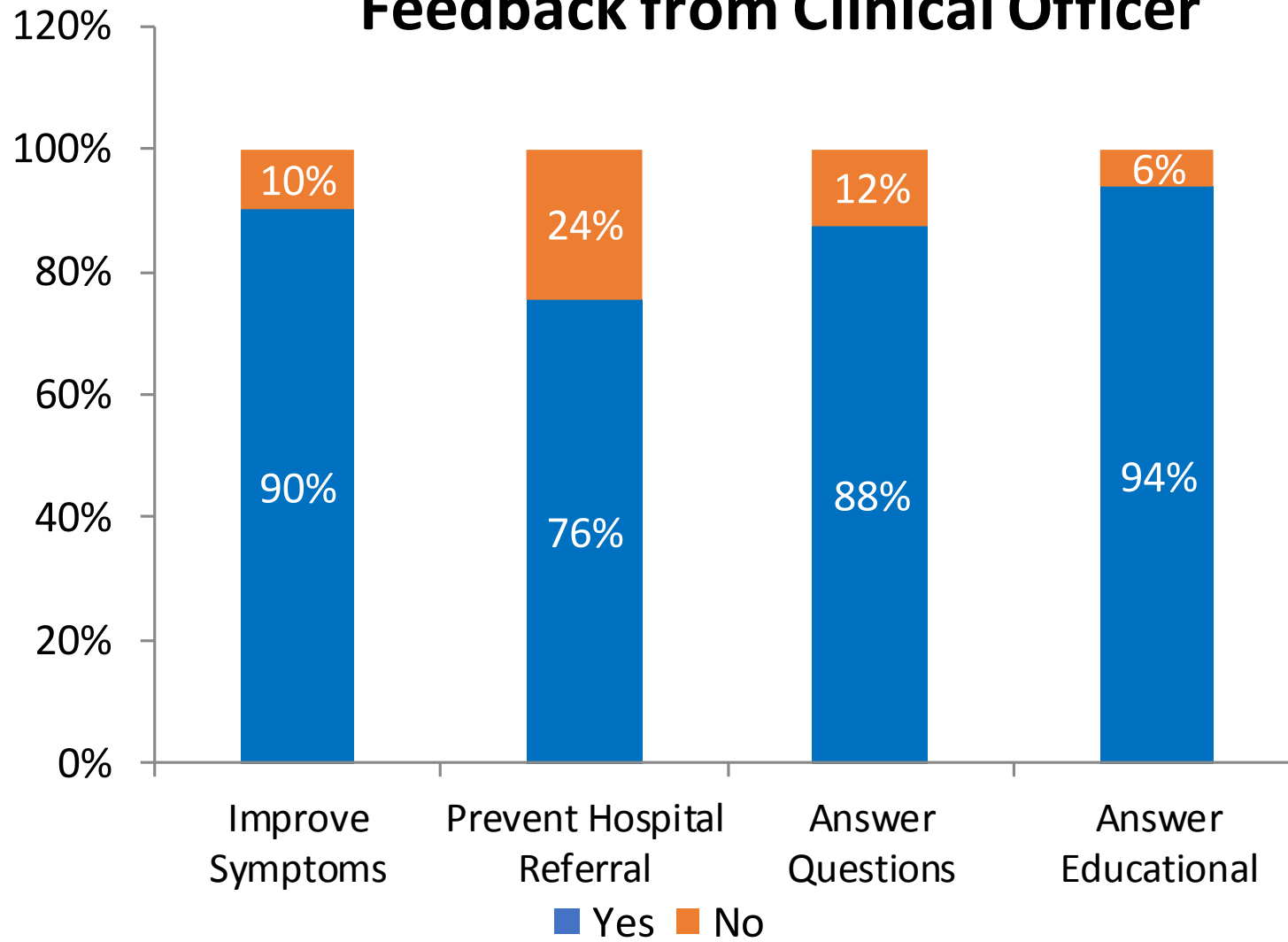
■ No ■ Unknown ■ Yes

Speciality



■ GP ■ Paediatrics ■ Dermatology ■ Gynaecology ■ Infectious diseases ■ Other

Feedback from Clinical Officer



Qualitative feedback from Clinical Officer

- “The new app is better, with examination finding provision. Plus learning is taking place at every consultation.”
- *“VD very helpful. As the programme does not only benefit the patients but also increases knowledge for the healthy provider.”*
- “The interaction with the Doctor helped me manage the case better. Thankful very much for the advice from the Doctor.”
- *“Virtual doctors is helping me learn more new things every day. I really appreciate”*
- “The Information is very educational. Timing is good. Less than 24 hrs you have the answers.”

the
virtual
doctors



Aims

Aims of the Virtual Doctors

- Better care for individual cases and improved health outcomes
- Reduce unnecessary referrals
- Sustainable capacity building in rural primary care
- Reduce professional isolation
- Problem-based education and mentoring of health professionals
- Bespoke and flexible system with ability to be incorporated into existing health system
- Data collection

What is special about the VDrs app?

- Bespoke to local needs
- Able use after 1 hour of tuition
- Patient file can be completed in 5 mins
- Includes CO feedback and patient feedback
- Samsung units available in Zambia, superior camera important for patient condition imagery
- VDrs app only 180 kb per file sent

V Drs Service Coverage

- 750,000 rural population covered (29 rural health centres, 3 district hospitals)
- 50 clinics and hospitals by end of 2017
- Expansion into Malawi and Tanzania 2017
- Other countries in region 2018

The Future

- Evolution of Technology
- Support for acute/emergency cases
- Real time telemedicine and mentorship

What the Virtual Doctors Needs

- Funding to increase rate of expansion to other districts in Zambia and to other Sub Saharan countries
- Support in developing educational aspect of programme
- Support for further software development
- Introduction to potential supporters in Hong Kong

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