ADHERENCE TO TREATMENT

MONITORING AND INTERVENTION

POST GRADUATE SYMPOSIUM 2014

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Definition: Adherence to treatment

'Compliance…is defined simply as the extent to which a person's behaviour (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical or health advice. The term adherence may be used interchangeably with compliance. The definition is intended to be non-judgmental…However…the term compliance is troublesome to many people because it conjures up images of patient or client sin and serfdom.' (Haynes et al. 1979: 1-2)

HIV AND TB AS EXAMPLE

Background (1)

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- 95% adherence needed in HIV - TB unknown
- Adherence is inadequate
- Variables affecting adherence
  - Patient's situation
  - Therapy-related
  - Disease-related
  - Therapeutic relation
  - Context of therapy

Background (2)

- Direct monitoring of adherence
  - Therapeutic drug monitoring
  - Direct observation of pill intakes
- Indirect monitoring of adherence
  - Self-report
  - Pharmacy refill counts
  - Electronic monitoring devices

Background (3)

- No golden standard for measuring adherence
  - EDMs have shown to be most reliable

- Intervention studies minimal effect
  - Interventions should target multiple factors

Real Time Medication Monitoring

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- Real Time Medication Monitoring (RTMM)
  - Records each opening of pillbox (event)
  - Sends information to database (SMS or data)
  - Control message each night
- Resource limited settings
  - Power
  - Network

Processes in RTMM

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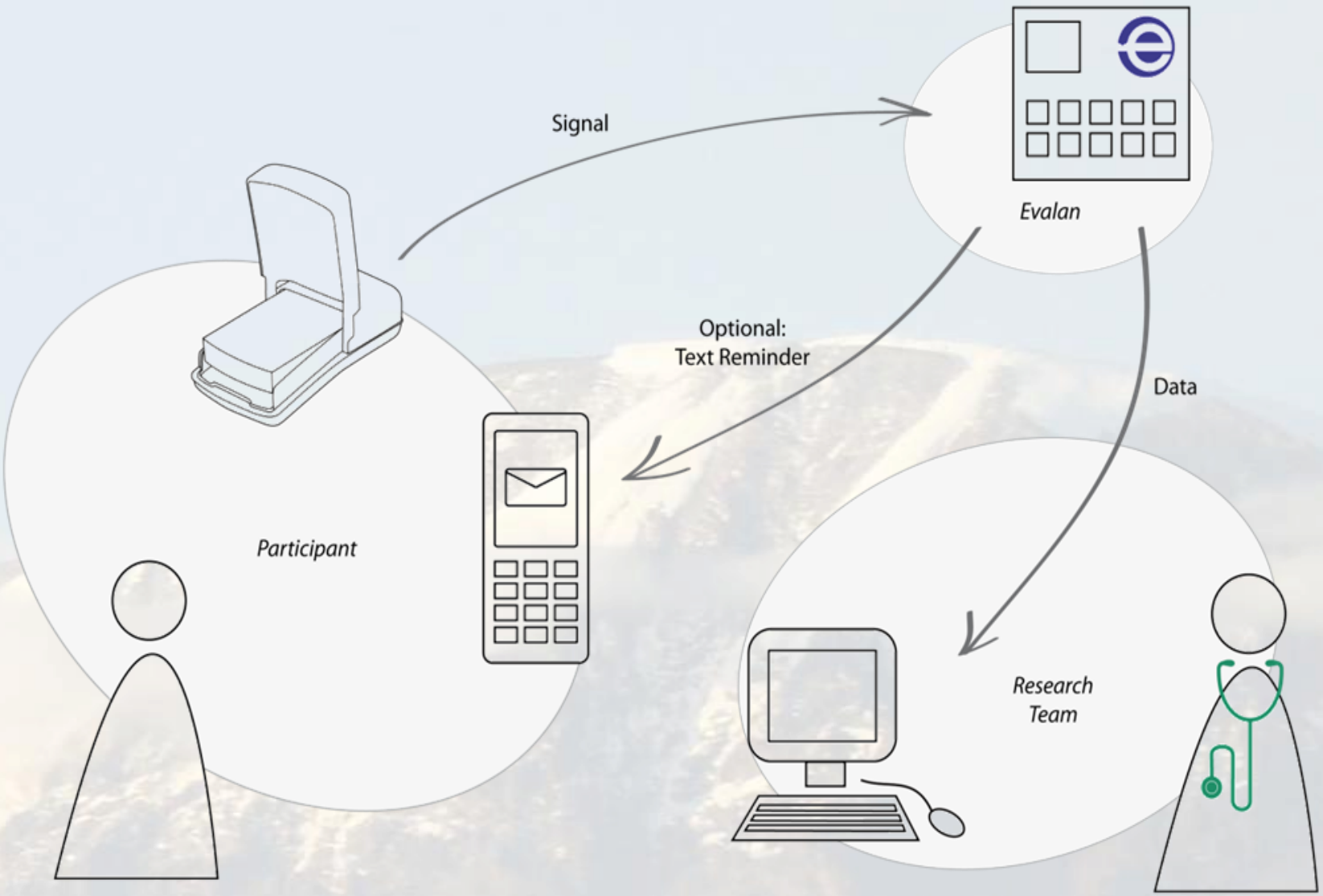


User information

Identification Code: U-001

Date of birth: 12-02-1970

Gender: Male ◉ Female ○

Start date: 2014-06-20

End date: 2014-09-20

Device: 357465030732618

SMS reminder: Off ◉ On ○

Mobile number for SMS: [redacted]

Time zone: Africa/Dar_es_Salaam

Notes about user:

Uses EFV in the evening and combivir in the morning. Only EFV is stored in the device.

Save

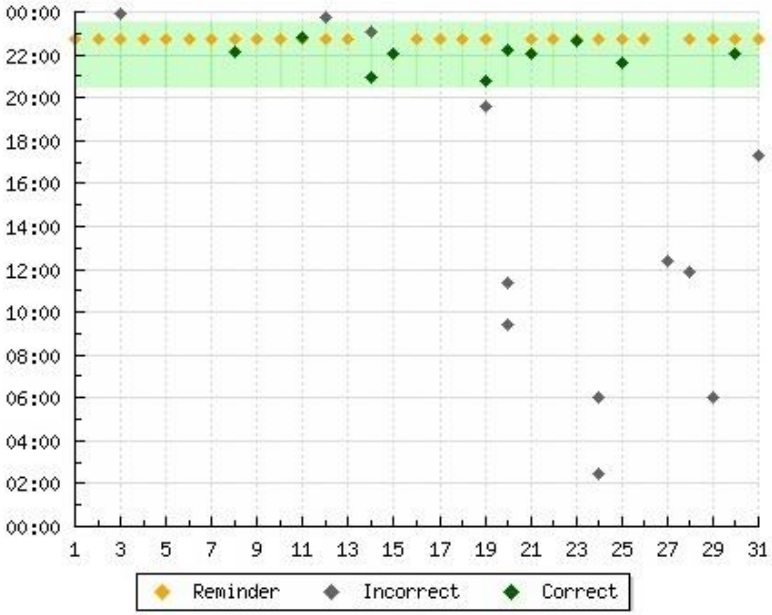
Advanced options

Device | Intakes | Events | Sent feedback

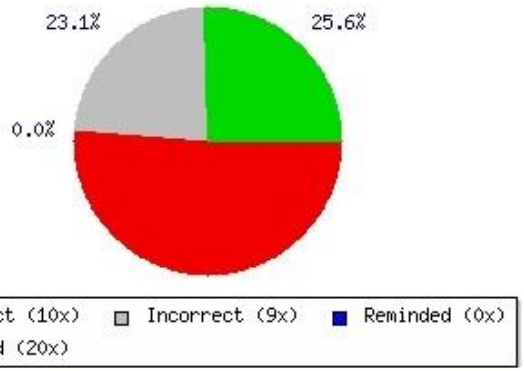
Intakes for August 2014

Previous | Next

Intakes:



Adherence:



Download event data as .csv

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FEASIBILITY OF USING REAL TIME MEDICATION MONITORING (RTMM) AMONG HIV AND TUBERCULOSIS PATIENTS IN KILIMANJARO, TANZANIA – A PILOT STUDY

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Objectives

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The objective of this study is

To investigate whether an RTMM device for monitoring adherence is feasible among HIV infected and TB patients in Kilimanjaro, Tanzania.

Methodology

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- 10 patients (5 HIV & 5 TB)
- Use RTMM to take medication
- Follow-up 3 months
- Data collected through database
  - Events
  - SMS sent and received
  - Battery life
- In-depth interviews
  - Thematic framework analysis

Research themes

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- Experience with device
- Problems & advantages
- Appearance device
- Storage, travelling
- Stigma
- Message
- Effect on adherence
- Ideas about RTMM or other interventions

Results overall

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- Male: 6 (60%)
- Mean age: 43.4
- Events: 1104
  - On time: 922 (84%)
- Reminders: 455
  - Correct: 170 (37%)
- Mean airtime: TSh10936
- Median times charged: 1 (range 0-6)

Results (TB)

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ID	Sex	Age	On time	SMS	Incorrect SMS	Adherence without device	Adherence with device	Extra	Credit	Times charge
1	M	44	99%	57%	92%	96%	99%	3	18380	6
2	M	48	87%	28%	31%	86%	89%	0	8460	1
3	F	44	100%	8%	71%	98%	100%	0	13420	3
4	M	25	97%	27%	76%	95%	100%	1	8460	1
5	M	51	98%	13%	75%	97%	99%	2	8460	1

Results (HIV)

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ID	Sex	Age	On time	SMS	Incorrect SMS	Adherence without device	Adherence with device	Extra	Credit	Times charge
1	M	44	43%	75%	22%	42%	54%	0	15880	0
2	F	33	59%	83%	12%	29%	98%	0	8460	3
3	M	44	99%	40%	59%	84%	99%	1	10920	1
4	F	44	59%	72%	12%	41%	68%	0	8460	1
5	F	57	100%	10%	100%	100%	100%	0	8460	1

Preliminary results interviews (1)

- Device very useful, especially in reminding time and medication safety (most patients)
- Easy to get medication from the device compared to using a piece of paper when leaving home
- Patients tried to avoid getting the SMS by keeping time

Preliminary results interviews (2)

- Unnecessary reminder SMSs (annoyed)
- Difficulties in taking the device when out of home due to the size and privacy (some patients)
- Difficulties with charging: “Is it full?”
- Others may think it is a tape-recorder
- Burden to use the device cause they feel they have to keep time. TB patients were already tired of taking medication

Preliminary results interviews (3)

- Reduce the size of the device
- Include an alarm on the device
- Device with use of other sources of power (solar)
- Accurate network to avoid reminder SMS
- Reminder a few minutes before medication and a few minutes after delay

Challenges

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- Network: signal not send (median SMS not needed=65%)
  - May lead to overadherence (extra intakes)
  - May lead to ignorance
- Power: villages with no power (mobile and device)
- No insight in available credit of device
- Costs of production and use
- Appearance device (size)
- Charging the device
- Burden to use: avoid SMS

Conclusions

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- RTMM is good for monitoring adherence
- Real time intervention possible in areas with good network
- Intervention study needed to test effect on adherence
  - Real time intervention: SMS
  - Delayed intervention: tailored feedback from nurse counselor

Recommendations

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- Improve RTMM in sending signals
  - Increase attempts to send signal
  - Improve antenna/design
- Use SIM-cards with no limitation in credit/access to available credit
- Change device: size, alarm
- Improve battery life/solar power
- Future studies
- SMS before intake and after delay

RTMM in other conditions

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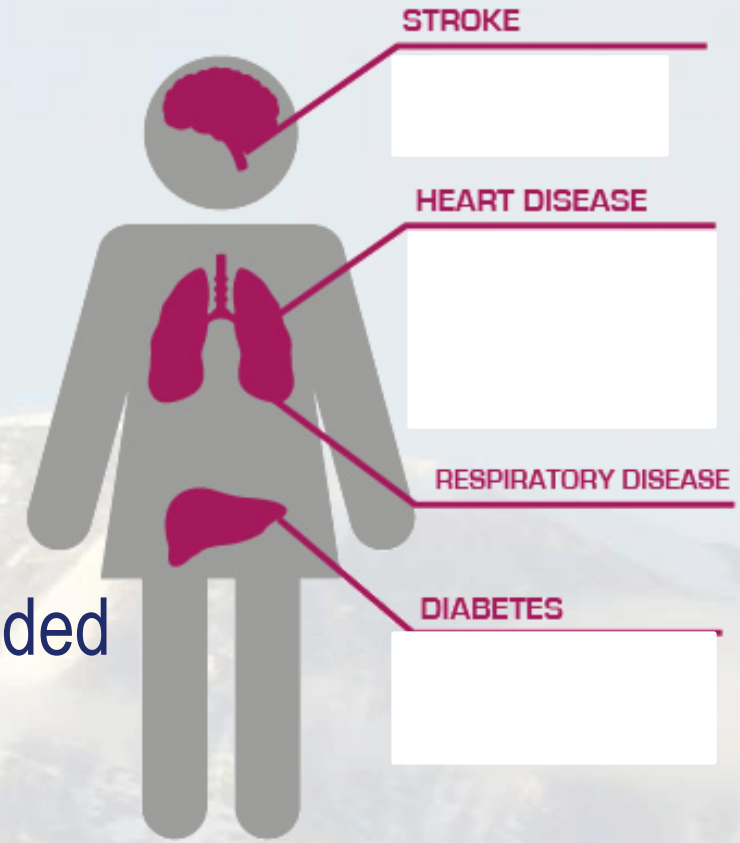
- Diabetes
- Hypertension
- Other infectious diseases for which long treatment course is needed
- Other chronic diseases



Acknowledgements

- Participants
- KCRI administration
- Krisanta Kiwango
- KCMC IDC
- Mawenzi Hospital (TB clinic)
- TB team KCRI
- HIV team KCRI
- Ms Lyimoo
- Ms Malema

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Thank you for your attention!!!