



República de Moçambique
Ministério da Saúde
Direcção Nacional de Saúde Pública

upSCALE: A digital health platform for effective health systems

- From 2009 to 2016, Malaria Consortium tested a number of interventions to **improve the quality of care provided by community health workers** in Mozambique, locally known as *agentes polivalentes elementares* (APEs), including a smartphone application introduced in Mozambique's Inhambane province through the inSCALE project.*
- Building from this success and in order to link APEs with the national health information system, Malaria Consortium worked in collaboration with the Ministry of Health and UNICEF to develop the **upSCALE platform** – a digital strategy to **strengthen health systems** and community health delivery.
- The platform collects **real time data** entered by APEs who deliver health services in the remote areas in which they live.
- The upSCALE platform is currently being implemented in the Mozambique provinces of Inhambane, Cabo Delgado and soon in Zambezia.
- The upSCALE platform is to be scaled up in all provinces to create **a national mHealth system led by the Ministry of Health**. By doing so, it will be the first country to scale up a digital health strategy to this extent.

Malaria Consortium believes that effective digital health strategies can help governments manage malaria and disease control programmes better. In the countries we work in, we have explored areas where technology can play an important role, particularly to improve the motivation and supervision of community health workers, to provide effective diagnostic tools, and to strengthen surveillance and data management.

Malaria Consortium has over seven years of expertise in health system strengthening to deliver quality assurance and technical oversight for large-scale implementation of a government-owned digital platform.

* The inSCALE project (2009-2016) was funded by the Bill & Melinda Gates Foundation and led by Malaria Consortium in collaboration with the London School of Hygiene and Tropical Medicine and University College London's Institute for Global Health.

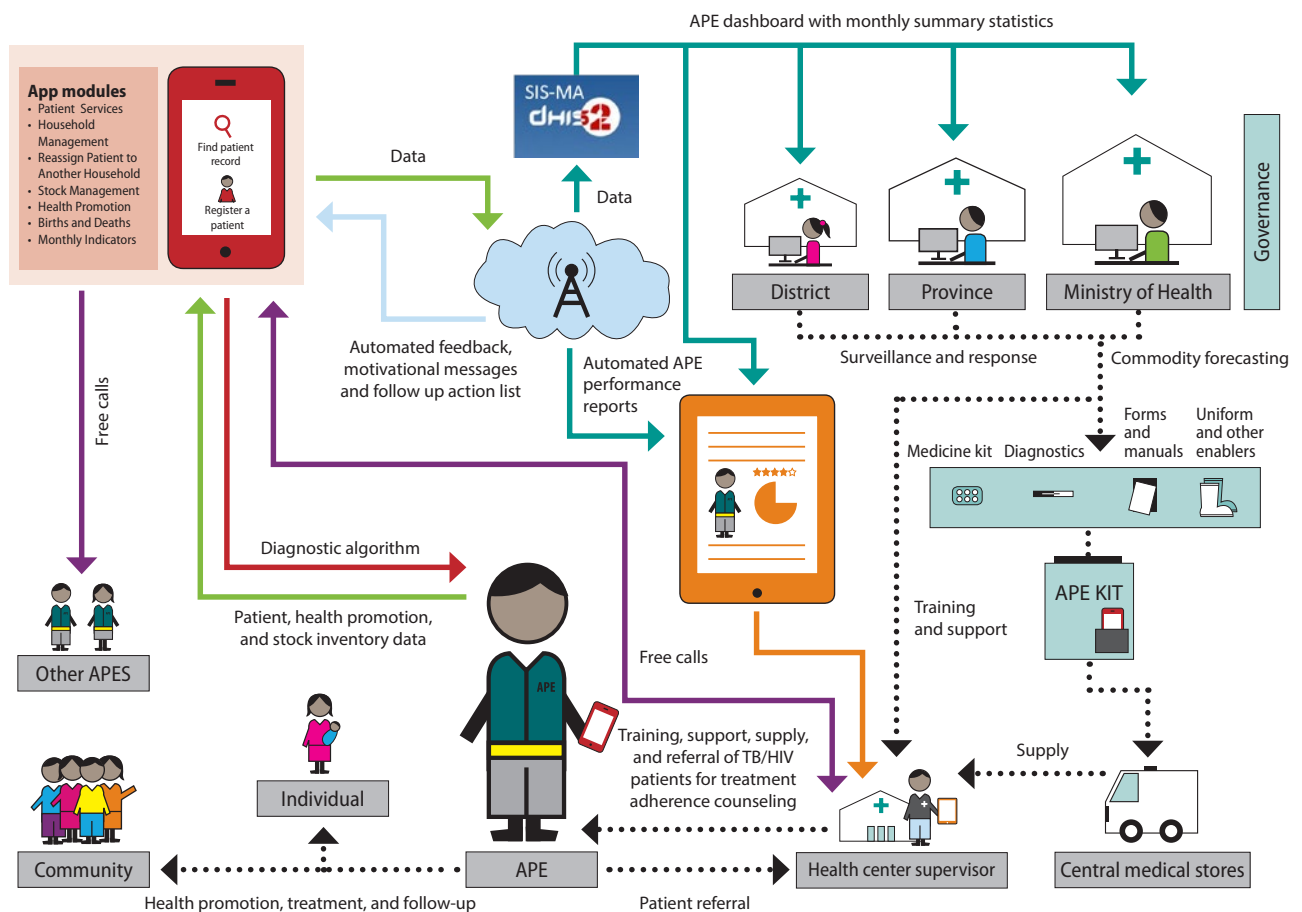
upSCALE is funded by the UK Department for International Development via UNICEF and is implemented with the following partners: The Mozambique Ministry of Health, Cabo Delgado and Inhambane Provincial Health Authorities, UNICEF and Dimagi.



An integrated and sustainable platform

- upSCALE integrates the entire Ministry of Health's APE curriculum into one platform: an interactive mobile phone application that covers all community health services, guiding them through patient registration, routine health checks, diagnosis, treatment, referral and follow-up.
- The upSCALE platform has a complementary tablet-based application for supervisors which enables them to **improve APEs' performance** and strengthen communication and feedback to APEs.
- upSCALE integrates APE level indicators into Mozambique's electronic District Health Information Software 2 (DHIS2) platform called SIS-MA – enabling access to and visualisation of aggregated community data at all levels of the health system in real-time.
- Working within Mozambique's existing health structures enables upSCALE to achieve **maximum efficiency and sustainability**.
- As a result of the platform, Ministry of Health officials receive real-time data from APEs in a user-friendly format allowing them to **ensure data-driven decision-making** around investments for APE programmes, surveillance and responses to infectious diseases including malaria, and early detection of disease outbreaks.
- These unique features make upSCALE an attractive platform for other ministries of health wishing to implement a digital health strategy.

The upSCALE platform



What can upSCALE do for you?

▶ *Agentes polivalentes elementares* (APEs)

- Job aid for patient consultations
- Tracking illness history of patients
- Treatment and dosage aid
- Tools for patient counselling
- Reminders for patient follow-up
- Simplified and rapid reporting of data
- Stock management assistance
- Free calls to supervisor and other APEs

▶ APE supervisor

- APE activity monitoring
- APE performance and competency tracking
- APE stock monitoring
- Tools for planning and APE supervision
- Troubleshooting guides for upSCALE - hardware and software
- Free calls to APEs

▶ District and provincial APE coordinators

- Timely APE data
- Weekly summary reports
- Continuous monitoring of APE and supervisor performance
- Timely identification of areas requiring further technical support
- Facilitation of stock management of medicines
- Support for APE programme management

▶ District and provincial statisticians

- Real-time data on household indicators
- Timely APE monthly indicators
- Dashboards for data visualisation
- Supports disease surveillance and response including early detection of disease outbreaks

▶ Community members

- Quality case management and appropriate treatment
- Improved quality of counselling from APEs
- Information for increased knowledge regarding individual and collective health

upSCALE CommCare software



upSCALE is programmed using CommCare – an open access software running on Android phones

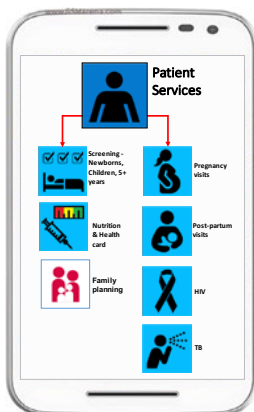
- To login to CommCare, a username and password is created for the user by a platform administrator
- The first time the user logs in, an internet connection is needed
- After the first login, the system can be used offline without an internet connection

upSCALE application



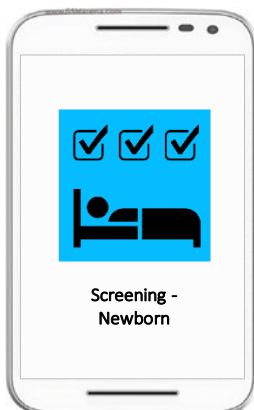
The upSCALE APE app has seven modules:

- ▶ Household and patient file
- ▶ Management of household information
- ▶ Moving patient to another household
- ▶ Medicine management
- ▶ Community health talks
- ▶ Birth and death registration
- ▶ Monthly activity report



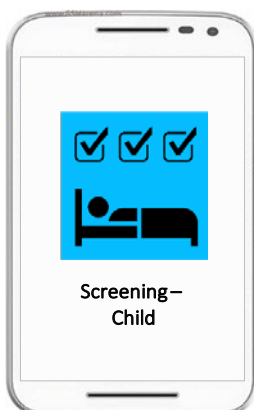
▶ Patient services

- Register new patient or select existing patient from list
- Enter or review patient information
 - Name, sex, birthday/age, civil registration number, HIV and TB diagnosis and treatment
- Available for all patient ages
- Different patient service modules dependent on age, sex, pregnancy, HIV and TB status



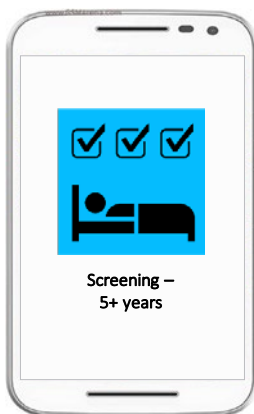
Screening newborn

- Check for danger signs, refer if present
- Check for other referral symptoms (infected umbilical cord, red eyes/pus in eyes, low birth weight), refer if present
- Give pre-referral treatment for fast breathing/pneumonia
- Check feeding practices, refer if not breast feeding or attaching well
- Check vaccinations, refer if missing
- Counsel on breast feeding, cord care and vaccinations



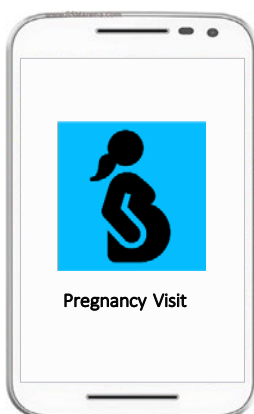
Screening child

- Check for danger signs, refer if present
- Check for referral symptoms (severe forms of diarrhoea/dehydration, febrile illness, pneumonia), refer if present
- Provide pre-referral treatment for severe malaria and severe pneumonia
- Check for non-severe illness (malaria, pneumonia, diarrhoea), treat if present
- Check malnutrition, refer if present
- Check vaccinations, refer if missing
- Counsel caregivers on illness prevention, referral and treatment adherence



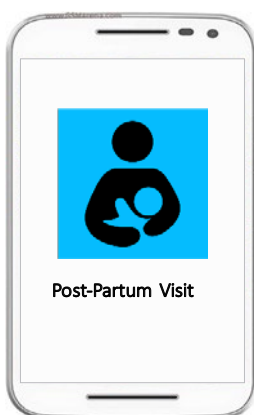
Screening 5+ years

- Check if pregnant or post-partum
 - Pregnancy related danger signs, refer if present
 - Iron tablets and folic acid, supply if missing
 - Counsel on antenatal care (ANC) and iron and folic acid supplements
- Check for general danger signs, refer if present
- Check for non-severe illness (malaria, pneumonia, diarrhoea), treat malaria and diarrhoea if present
- Pre-referral treatment for severe malaria (<6 years old)
- Counsel patients on illness prevention



Pregnancy visit

- Check for pregnancy danger signs, refer if present
- Check ANC visits and vaccinations, refer if missing
- Check iron tablets and folic acid, supply if missing
- Counsel on ANC, birth preparedness, home care, prevention of post-partum haemorrhage, immediate newborn care, and early breast feeding
- Schedule a follow-up visit



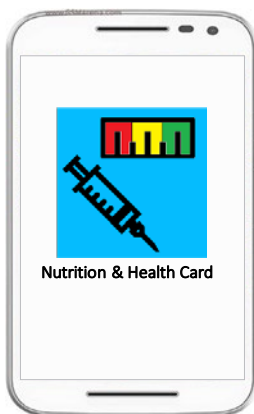
Post-partum visit

- Record baby as a new household member
- Check for newborn and maternal danger signs, refer if present
- Check baby for feeding problems, refer if present
- Review chlorhexidine administration, apply if missing
- Check vaccinations in baby, refer if missing
- Check iron tablets for mother, supply if missing
- Check post-partum visits completion, refer if missing
- Counsel on post-partum checks, feeding (mother and baby), temperature control, hygiene, care of small babies, malaria prevention, danger signs, family planning, child development
- Schedule a follow-up visit



Family planning

- Record if client is a new user of family planning
- Record users' preference is for family planning
- Record which method the user selected
- Record which method was administered
 - Female/male condoms
 - Pills (Microgynon or Microlut)
 - Injection (Depo or Sayana)
- Refer if chosen method is not available from APE (IUD or implant)
- Schedule a follow-up visit



Nutrition and health card

- Check if child is either well or ill, start the sick child form if child is not well
- Check malnutrition, refer if present
- Check vaccinations, refer if missing
- Check if deworming tablets and Vitamin A has been administered, refer if missing
- Counsel caregivers on vaccinations, deworming and Vitamin A
- Counsel caregivers on child nutrition



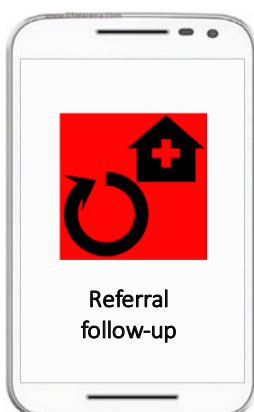
HIV

- Only for patients on HIV treatment
- APE records what type of visit took place:
 - Treatment adherence counselling
 - Referral counselling for defaulters



Tuberculosis

- Only for patients on TB treatment
- APE records what type of visit took place:
 - Treatment adherence counselling
 - Referral counselling for defaulters



Referral follow-up

- Triggered when there is a referral to the health facility created in the short-term illness, vaccination/malnutrition, pregnancy or post-partum visit forms
- Checks for referral adherence
- Records referral date
- Advises on the next follow-up visit (using treatment follow-up form)



Treatment follow-up

- Triggered when there is a referral to the health facility created in the short term illness, vaccination / malnutrition, pregnancy or post-partum visit forms
- Checks for referral adherence
- Records referral date
- Advices on the next follow-up visit (using treatment follow-up form)



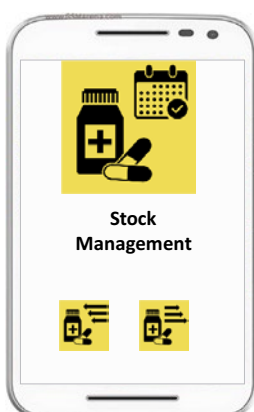
Malnutrition follow-up

- Triggered by red or yellow MUAC measurement from short term illness, vaccinations / malnutrition or pregnancy visit forms
- Checks for referral adherence
- Records referral date
- Checks if patients was seen by a health professional
- Advices on the next follow-up visit (weekly until recovery)



▶ Household management

- Enter in 'Household Information'
 - Name
 - Contact number
 - GPS location
 - Additional description of house location
- Modify or remove households
- Home visit checklist
 - Hygiene, water and sanitation
 - Malaria prevention
 - Nutrition of children and pregnant women
 - Women and children's health
- Treatment adherence
- Relocate patient to another family



▶ Stock management

Stock inventory:

- End of the month
 - Register current stocks and justify discrepancies identified in the app
- Beginning of the month
 - Register stocks received
 - APE and supervisor/community leader signs (on screen) to confirm amounts
- Stocks used
 - Register stock used or distributed (outside of what is already registered in the app)



▶ Health promotion

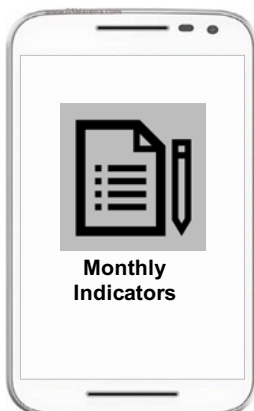
Completed once a week by APE to record information on:

- Health talks given
 - Date of talks
 - How many people attended
 - Topics covered
- Latrines built
- Other community health promotion activities



▶ Births and deaths

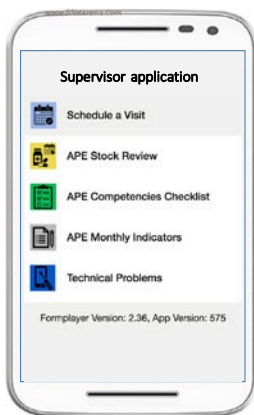
- Register births and deaths in the community
- If deceased is registered in the app, removes the patient from the list
- Instructs APE to fill out the paper death form and inform the health facility



▶ Monthly indicators

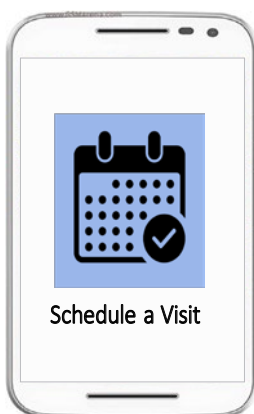
- Summarises the APE activities in a monthly report format
- Updates automatically on a monthly basis
- APEs can transfer data to their paper based monthly reports

Supervisor application



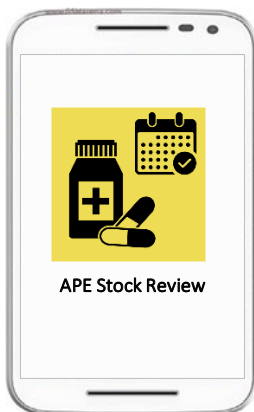
upSCALE supervisor tablet app has modules to:

- ▶ Schedule a supervisory visit
- ▶ Check APE stock
- ▶ Review APE competencies
- ▶ See APE monthly indicators
- ▶ Troubleshoot technology issues



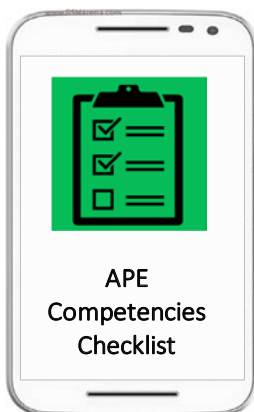
▶ Schedule a visit

- Register the name of an APE
- Plan the next supervisory meeting



▶ APE stock review

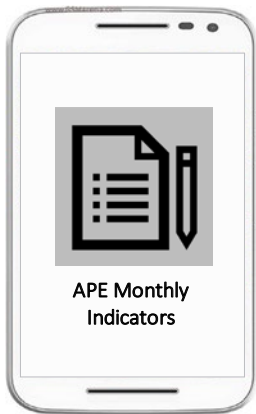
- Status of all stocks:
 - Green (Good)
 - Yellow (Running low)
 - Red (Out of stock)



▶ APE competency checklist

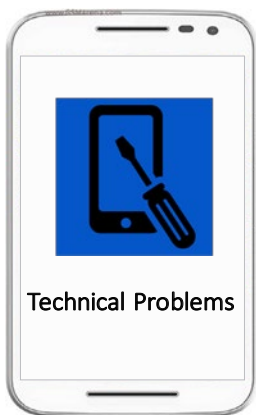
Evaluates APE performance based on:

- APE general checklist
- Nutrition and health card check
- Newborn screening and follow-up
- Sick child screening and follow-up
- Sick over five-year old screening and follow-up
- Pregnancy ANC visit
- Post-partum visit
- Stock management
- Health talks



▶ APE monthly indicators

- Summarises the activities in a monthly report format for each APE
- Updates automatically on a monthly basis



▶ Technical problems

- Advice and solutions to the following problems:
 - The phone is broken
 - The phone is locked
 - CommCare does not open
 - CommCare does not sync
 - CommCare is slow
 - CommCare is locked
 - Something is missing
 - The GPS is not working
 - The battery is not working
 - It cannot make calls or SMS
 - There is no sound
 - An accessory is lost or broken
 - Other

upSCALE DHIS2 integration



upSCALE DHIS2 integration

- Visualise household indicators in real time
- Visualise APE monthly indicators
- Identify stock-outs
- Review APE performance
- Dashboards tailored to user level
- Supports disease surveillance and response - including early detection of disease outbreaks

Malaria Consortium

*Development House, 56-64 Leonard Street, London EC2A 4LT, UK
info@malariaconsortium.org | www.malariaconsortium.org
UK Registered Charity No: 1099776 / US EIN: 98-0627052*

Malaria Consortium Moçambique

*Rua Joseph Ki-Zerbo 191, PO Box 3655
Coop, Maputo, Moçambique
Tel: +258 21 490254*

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