PRECISE DYAD AIR QUALITY MONITORING SOP

Fieldworker Standard Operating Procedure

Version 1.0 (02 March 2022) Valid from: 02 March 2022

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Overview

This document summarises standard procedures to be followed by fieldworkers when implementing the personal air quality monitoring aspects of PRECIDE-DYAD in Kenya and The Gambia. Data management procedures are detailed in a separate document.

Fieldwork Objectives

Recruit 50 women per health facility to carry a personal air quality monitor for five days during wet and dry seasons, providing data to allow the characterisation of dominant sources of air pollution to which the PRECISE and PRECISE-DYAD cohorts are exposed to, for linkage to health outcome data.

Recruitment Summary

- At least 50 women per health facility will be recruited into the study
- Enrolled women have consented to PRECISE-DYAD to be eligible for recruitment to the air quality and WASH sub-studies
- Enrolled women must be willing and able to participate for 5-days in the wet season and another 5-days in the dry season.
- Preference in recruitment should be given to women close to DYAD visit 1 where possible
- Women should be recruited to the air quality and WASH sub-studies, however, should a participant drop out of the WASH study, they can be retained in the air quality study.
- Participant demographics will be monitored by the KCL core team in liaison with site data teams to ensure that a representative sample of women is achieved across geographies, cooking fuel types and socio-economic status. Field teams may be asked to prioritise certain demographics as recruitment progresses.

Desired Outcomes

- Sensitisation of target communities and households through engagement and explanation of the study and its aims
- Collection of continuous 120-hour data on 50 participants per health care facility
- Completion of fieldwork log sheet for each participant
- Adherence to procedures for the prevention of COVID infection

Air Pollution Equipment

- No interaction by the participant with the technology is required.
- To hold the sensor discreetly and in a way that minimises the impact on the participant, special bags have been designed in collaboration with the site teams. It is vital to the success

of this study that the sensors are carried by the women during the day and placed by her bed during the night, while sleeping (about 1m from her bed).

- In heavy rainfall, fieldworkers must encourage participants to carry the bag with the air quality monitor vent facing inwards (facing their body) to avoid rain entering the monitor and to cover it in waterproof material when it is safe to do so during the rain.
- When it stops raining participants must remove the waterproof covering and carry the bag the normal way with the vent fully exposed to continue capturing air pollution elements

Field procedures summary

Identifying candidate participants

- Participant recruitment and selection is the responsibility of the PRECISE DYAD research teams.
- Once general recruitment procedures are completed and the participant has agreed to participate in the Air Quality component of the study, the research team will compile a list with contact details and plan the next visit schedules.
- The Air Quality Site Lead will share a weekly list of participants with the field research team for initiating participants into the air quality research component.

Sensitization messaging – Key Points

- Field workers to explain scope of the study and study procedures.
- Women should be willing to carry a sensor bag (with sensor inside) for both seasons and stay in the local area during monitoring (one or two days away are acceptable).
- The bag will be worn by the participant over 5 days during her day-to-day activities and placed by her bedside at night.
- The sensor inside will measure the level of pollutants in the air believed to be a major contributor to adverse pregnancy outcomes and poor child development.
- Data will be anonymised and cannot be tracked back to individual participants at analysis.
- As a token of appreciation women who participate in the study will be given a token bag similar to the one used in the study but with a local fabric and design. This will be given on completion of the second season monitoring period.
- After analysis of data collected from the study, findings will be communicated to community leaders and stakeholders.
- No individual level information will be fed back to the participants
- *Study teams to add additional messaging they consider important to their communities.*

Monitor Deployment

- The number identifying each bag is written at the back of each bag.
- Ensure everything is fully connected and working in the sensor bag
- Before giving the sensor to the participant, a fieldworker will switch on the fully charged unit and it will switch itself off when the battery is flat.

- Ensure that battery is connected to the sensor at the point of issuing out the bag. (**Connect battery cable to black USD power port on the battery – See arrow on the battery**)

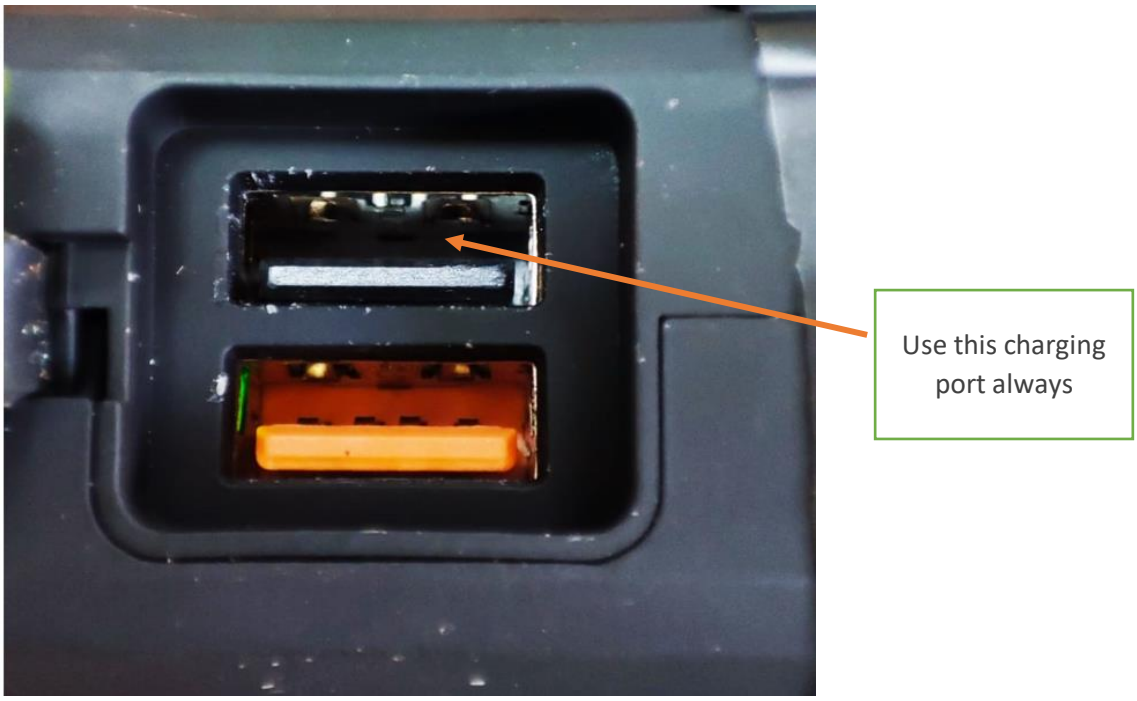

Figure 1: Black USD power port on the battery

- Place the black power USB into the black USB input in the top of the battery (do not use the orange USB input).
- Give the participant the sensor bag, ensuring the battery compartment is locked.
- Explain to the participant that the black zip with the battery (locked using a green tie wrap (Gambia) and black-tie wrap (Kenya)) is to remain locked and that they should not tamper with or remove any part of the equipment
- Explain that the air pollution inlet (the black plastic inlet at the front) should not be covered during monitoring as this will impede the air pollution readings.
- The women will be asked to wear the bag for 5days continuous during the day and place it by their bed at night.
- If less than 48 hours of valid data are recorded during a participant deployment, they should be asked to repeat the 5-day period.
- In case it rains heavily, ask participants:
    - Not to carry the bag in heavy rainfall.
    - To carry it facing inwards if it is necessary
- Where women express the possibility of travelling for more than two days over their monitoring period, they should be asked to return later for a full 5-day monitoring campaign.

- Monitors will continuously measure air pollution, temperature, humidity, and mobility (GPS) from participants as they carry the bag.
- Tell participants when they can stop carrying the bag.
- After five days, the device will be collected by the study team for office preparations before the next deployment.
- The device will then be re-charged ready for use by the next participant.

Visit in the opposite season

- This will be done during the opposite season to the first visit to enable the research to make a comparison of air quality in different seasons.
- Women will be contacted by the Air Quality team to plan when she will have the device for Visit 2.
- Once this is agreed, if the woman is coming to the health facility for a study appointment, a sensor will be given at the study visit and the process from Visit 1 will be repeated. If the woman is not attending a study visit, a researcher will take the sensor to the woman's home, set her up with it and then return five days later to collect the device.
- Participants should be reminded not to carry the bag in heavy rainfall.

Midweek spot checks on protocol adherence

- Field workers to conduct spot check visits on selected participants to check that they are following instructions on carrying the bag

Collection of Air Quality Monitors

- Field workers to ensure that all deployed monitors are collected at the end of the field monitoring campaign, reducing downtime in the next monitoring cycles if monitors take long to be collected and charged.
- Collect the sensor bag from participant
- Check that battery, sensor bag cover, lock and air pollution monitor are there and intact
- Note down any issues with the monitoring unit or bag

Researcher's Records - Completing Post-monitoring Log sheet

- The field worker must complete a post monitoring log sheet for every participant taking part in the study (See Appendix 1 – Post Monitoring Log Sheet
- Field worker must note down key behaviour changes noted during the monitoring week. These are behaviours likely to be different from her normal way of life but with a bearing on the levels of exposure experienced during the monitoring week.
- Information to be captured must include:
    - Date
    - Participant ID

- Sensor bag ID – format: 4 numbers (this record will need to be shared with the Air Quality Co-investigators for equipment calibration purposes)

Emergency Contacts

- Give the participant the site Air Quality contact person's telephone details and well as those of the Site Air Quality Lead
- Get phone number of the participant and/or family members

Collecting and disinfecting sensor bags

- While wearing protective gloves wipe down the bag with alcohol wipes upon receipt. Do not wipe inside the air pollution inlet as this could break the device.
- Wipe the inside of the small front pouch bag, checking that there are no personal belongings left behind by the participant.