SOAP
Covid 19 Decision Support // Technical Brief
Managing a pandemic in an enclosed space like a camp requires different tools for each “chapter” of the disease. SOAP is designed around 3 separate modules, each tailored to one of these chapters: monitoring, containment, and triage. An early warning system monitors the progress of the disease and identifies at risk groups within the camp. This allows camp administrators to make plans for acquisition and distribution of resources such as PPE and sanitiser where necessary, as well as plans for isolation, if possible. If infection rates within the camp start to rise, containment tools are made available in order to direct "track-trace-test" in the most efficient manner. In the case of high infection rates, resource triage tools can be turned on to assist in the allocation of scarce resources such as beds, oxygen, and medication according to patient vulnerability and prognosis.
MINIATURE // SOAP

1 MONITOR
QUESTION Has an outbreak started?
VARIABLE Increase in flu-like symptoms
OUTCOME Prioritise PPE or lockdown

2 CONTAIN
QUESTION Who should get tested?
VARIABLE Increase in Covid-specific symptoms
OUTCOME Isolate probable case

3 TRIAGE
QUESTION Who needs urgent treatment?
VARIABLE Clinical deterioration in probable cases
OUTCOME Prioritise clinical resources

RESIDENTS  ALL WORKERS  MEDICAL WORKERS
SOAP provides a user-friendly web interface for guided self-interviews. Using either a pre-assigned unique ID, individuals are walked through regular self-reports of current symptoms and closest contacts.

SOAP uses a “next best question” algorithm to establish the order of questions during self-interview based on clinical and demographic risk factors and previously submitted data. Questions are localised for the relevant communities so they are clear and accessible to non-experts.

For camp administrators, SOAP provides an early warning system for population health, issuing alerts for notable increases in infection or infection risk, and identifying vulnerable individuals within the camp.
While SOAP’s monitoring tools serve as a precautionary measure, additional tools for infection containment are also automatically brought online when certain alert thresholds are met. Containment protocols can use pre-established quadrants, or SOAP can suggest zones of control based on camp geography, demographics, and infection risk. SOAP can also assist in the management of side camps for vulnerable populations.

In a containment scenario, SOAP transitions from a data gathering tool into a diagnostic “track and trace” system, using its data to sort priority for testing. If camp administrators are authorised to move individuals, SOAP can also provide lists for isolation and contact tracing.
As infection rates rise in the camp, SOAP can be used to facilitate the management of scarce medical facilities and resources. By targeting clinical risk factors and using specific signs of morbidity (e.g., drop in blood O2 levels without corresponding dyspnea), SOAP can prioritise the assignment of beds, as well as triaging oxygen supplies and low quantity treatments and medications. This can be critical in cases where camps have constrained resources, high numbers of infected, and a pressing need to direct care to where it is needed most.
While this version of SOAP is specifically tailored to the signs and symptoms of Covid-19, as a platform, it could be adapted to monitor, contain, or manage other infections or pandemics. SOAP’s data collection tools also make it well-suited for longitudinal studies that can help establish symptom sequences for novel infections.
// HOW WE USE DATA

Demographic risk factors (e.g., age or gender) are used to identify individuals who are vulnerable to dying from Covid-19, and this could help in prioritising zones and camps with higher demographic risk.

Clinical risk factors (e.g., pre-existing medical conditions that increase likelihood of complication or death once infected) can be established by medical workers at check points, or through camp workers helping residents answer questions such as “Do you take medication for your heart?” for establishing cardiovascular conditions, such as heart attacks or high blood pressure. Signs and symptoms (e.g., Glasgow scale, drops in blood O₂ levels) are collated on an individual level in order to extrapolate to the population level and can also help establish risk of morbidity and monitor recovery.
// SAFE + SECURE

SOAP is designed for high security, end-to-end, and explicit user names are never required. Suggestions are always optional and always based on the latest research and standards, e.g., guidelines prescribed by NICE. SOAP also meets the requirements of data security and privacy; users are granted access to the system only after multi-factor authentication, and system data is protected by a block-chained SHA256 cryptographic hash algorithm. Special permissions are required to import or export information, and patients are anonymised by default; authorised clinicians can only gain access to data for their patients. SOAP embraces a "no black boxes" philosophy, providing audit trails for all system suggestions if required.