HEWS empowers individuals, communities and governments to act in short time and in an appropriate manner so as to reduce the possibility of personal injury, loss of life, damage to property and the environment and loss of livelihoods, in case an infectious disease outbreak, natural hazard or a man-made disaster occurs.

The existence of systematic surveillance of potentially adverse conditions for health status of the population could drastically contribute to avoid epidemic situations, resulting in gains in health and lives. To do so, sound evidence of causal relation or of highly correlation between considered conditions (climatic, pollution, etc.) and health indicators (mortality, hospital admissions, etc) must be sought. Adequate warnings and interventions must be designed and implemented.

HEWS Solution
HEWS will give end-users the possibility to improve their performance:

- wider real-time perspective of events and their management;
- integration of all the knowledge on any specific disease or threat;
- access to remote areas;
- access locally disrupted situations;
- logistic support, reduced need of carrying extensive and heavy equipment to locations;

Satellite Potential
Satellite communication current capabilities represent an enormous opportunity to integrate information and existing knowledge, accessible in real time anywhere in the world. The uploading of new data and information from multiple sources ranging from field laboratory teams, automatic weather stations and so on, to a central management unit is possible without increasing enormous efforts. HEWS is a system able to integrate information using satellite communications, and therefore drastically contribute to health and life additional gains in crisis situations.

Communication Needs
In fact the occurrence of several unusual, extreme events has shown that there is a need of improved communications systems. The use of satellite communication is important and effective whenever usual communications lines experience breakdown, saturation or simply are not available because of geographical location or absence of infrastructure.

HEWS Features
- Data collection, storage, processing, fusion, analysis, distribution;
- Metadata storage, processing, fusion, analysis, distribution;
- Data-mining and training of personnel for data-mining;
- Security and management;
- Openness of the envisaged service platform;
- Modular approach;
- Set-up of a network of communication for surveillance and monitoring of health risk indicators;
- Scale up of communication network in case of Alert or Emergency including horizontal communication between field teams.

HEWS is a project co-financed by ESA in the frame of the Health and Telemedicine via Satellite Program.

Objectives of the project are:

- To develop a flexible system for horizontal and vertical communication through satellite for health organisations and institutions capable of improving early alert and response to health threats.
- To provide health organisations and institutions with a system tailored to their needs for natural or manmade health emergency situations.
- To provide an intelligent system for the monitoring and surveillance of health threats supporting epidemiological services.
- To involve health actors in the system definition and validation in order to apply it to their operational and sustainability framework.

HEWS Consortium

Paulo Nogueira (Project Manager)
Instituto Nacional de Saúde Dr. Ricardo Jorge
E-mail: paulo.nogueira@insa.min-saude.pt
Phone +351-919206752

Lara Próspero (Technical Manager)
TEKEVER, S.A.
E-mail: lara.prospero@tekever.com
Phone +351-962025790

Paolo Barattini (Quality Manager)
Ridgeback, S.A.S
E-mail: paolo.barattini@yahoo.it
Phone +39-0172-575087

About 50 km from an African capital a suspect case of and infectious disease is reported. Field teams are deployed by local ministry of Health, international organisations and NGOs. They have to assess the actual situation. A mobile laboratory is deployed. The decision makers must, on the basis of the field reports, immediately declare an emergency. Timely reporting from different locations is needed in order to provide insight in epidemics evolution and organise a prompt response. Horizontal coordination, and logistic support to mobile teams must be provided. Feedback information about road access, water, food, drugs, medical disposables is needed. When the emergency is declared, the limited resources distribution must be optimised.

Sub-Saharan African Scenario

A terrorist attack in an European capital downtown, with for instance Anthrax spores or nervous gas, causes panic among the citizens, traffic jam and saturation of GSM network. The rapid confluence of civil protection and health operators is hindered by the lack of coordination of the response effort, lack of field information, lack of downward information about decontamination measures and treatment protocols. The Civil Protection needs to coordinate the field teams, to request medical personnel from hospitals or to rapidly move patients to hospitals.

European Urban Scenario

The system will be tested in two different operational scenarios, one European and one African, involving infectious diseases in settings in which the use of satellite communication represents the best option. These are representative of the foreseen operational framework.