

VOICES Project -The m-Health pilot in Senegal



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- **VOI**ce-based **C**ommunity-c**E**ntric mobile **S**ervices for social development
 - EU funded project (2011-2013) involving 12 partners
 - improve **access to content** and mobile ICT services by building a toolbox for the development of voice services that will be made available to African local communities and entrepreneurs as **Open Source**.
 - deliver tool support and methodology that facilitates the local creation of content in **African languages**.
 - provide a **sustainable architecture and business model** co-developed with local partners.
 - enhance **uptake** through community-building (mobile ICT training lab) that offers **education** for local partners and entrepreneurs.
- Two pilots : Agriculture and **Health**

- Explore how disease surveillance and medical laboratory technicians training in Senegal could benefit from mobile and speech technologies
- Deploy and test mobile and speech based m-health services in Senegal to demonstrate that it is possible:
 - to strengthen the transmission of epidemiologic data from peripheral laboratories to the national health authorities
 - to enhance medical laboratory technicians skills
- Partners involved: Orange, ESMT, the Senegalese National Network of Laboratories (RNL) and Fondation Mérieux.

- Orange
 - coordinate the pilot and provides the technical platform (Emerginov)
- ESMT: Multinational High School of Telecommunications
 - role in the project: develop the applications
- Fondation Mérieux
 - NGO whose mission is to enhance local medical capacities in developing countries to reduce the impact of infectious diseases
 - role in the project: support the RNL
- The National Network of Laboratories (RNL)
 - created by the ministry of health in partnership with Fondation Mérieux
 - collects epidemiological data from peripheral laboratories and delivers training to laboratory technicians
 - role in the project: end-user (+ laboratory technicians)



- Field work in Senegal
 - determine end-users' needs
 - meetings and workshops with stakeholders and end-users (laboratory technicians, RNL staff, medical doctors in health centers, the head of the disease surveillance department)
 - visits to three laboratories (two district laboratories and one regional laboratory)
 - interviews with laboratory technicians and head doctors of health centers
- Co-elaboration (with RNL and Fondation Mérieux) of four use cases

- Use case # 1: **Disease surveillance (current situation)**

Department of epidemiological surveillance



Network of Laboratories



Regional Laboratories



District Laboratories

FICHE DE COLLECTE DE DONNEES DE LABORATOIRE POUR LA SURVEILLANCE DES MALADIES PRIORITAIRES

Laboratoire: _____ District: _____ Région: _____
 Mois: _____ Année: _____ Date d'envoi: _____

| Numéro d'identification PPP-RRR-DDD-YY-NNN (same format as AFPtools) PPP = Pays RRR = Région, DDD = District, YY = Année, NNN = Numéro d'ordre durant l'année | Maladie : - Choléra - Diarrhée Sanguinolente (Shigellose) - Méningite - Autres | Numéro d'identifica tion du labo | Nom du Patient | Date du prélève- ment | Date de réception au labo | Etat du produit pathologique 1 = Bon 2 = Mauvais | Agents pathogènes isolés - <i>Vibrio cholerae</i> O1 - <i>Shigella dysenteriae</i> Type 1 - Autres Shigelles - Méningocoque - Autres pathogènes - Pas d'isolement de pathogène | Autres résultats | Date d'envoi des Résultats au District/ ou niveau National | Date d'envoi au Réseau National de Laboratoires |
|--|--|---|----------------|--------------------------------|---------------------------------|--|--|------------------|--|---|
| | | | | | | | | | | |

Nine watched diseases: Cholera, Shigelloses, Meningitis, Tuberculosis, Malaria, Syphilis, HIV, Measles, Poliomyelitis.

• Use case # 1: **Disease surveillance (m-Health scenario)**

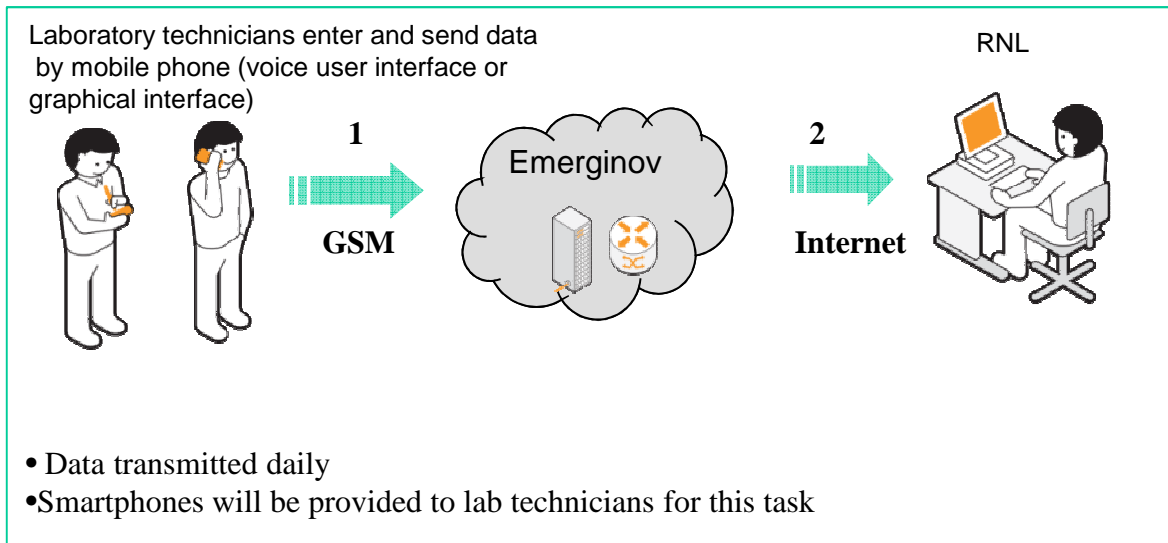
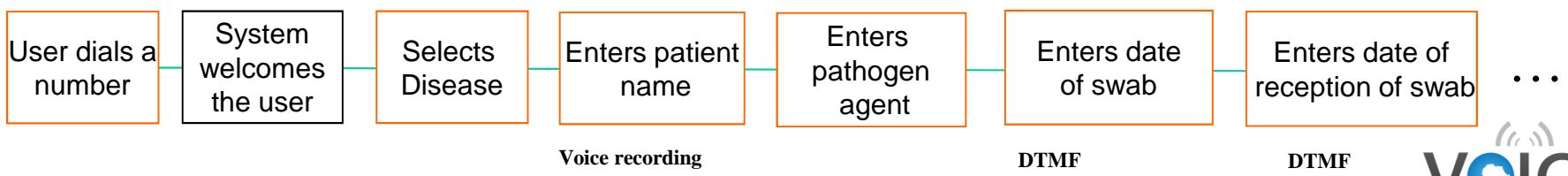


Illustration of the graphical interface

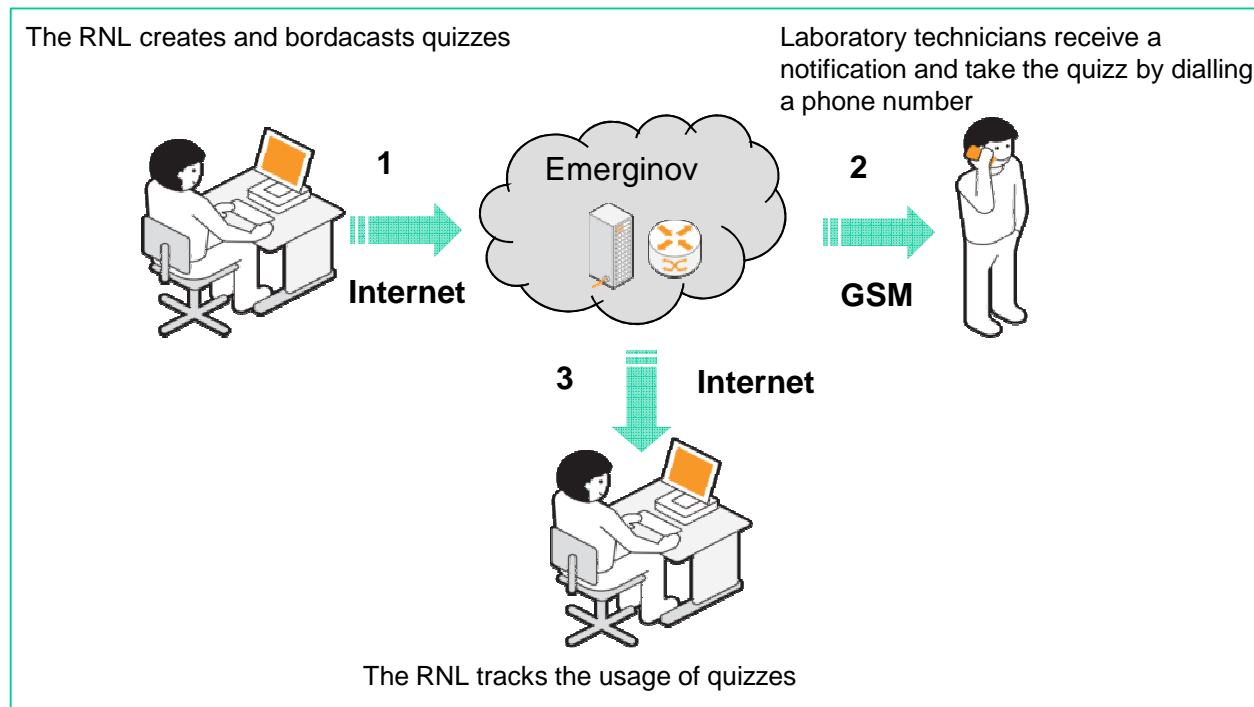


Comparative testing

Illustration of a voice interaction pattern



- Use case # 2: To enhance technicians' skills through **Quizzes**



- Use case # 3: **Information of the Month.** To enhance technicians' skills through the delivery of educational content.

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Le Sénégal se prépare à lutter contre le choléra

COMITE DE LUTTE CONTRE LE CHOLERA

Des épidémies de choléra sont notées dans certains pays d'Afrique, notamment dans la sous région Ouest-africaine, depuis plusieurs semaines à quelques mois.

LE CHOLERA EN UN MOT

Définition, Epidémiologie, Clinique

Le choléra est une toxi-infection intestinale, maladie infectieuse à déclaration obligatoire, très contagieuse, lié à l'espèce bactérienne *Vibrio cholerae*,

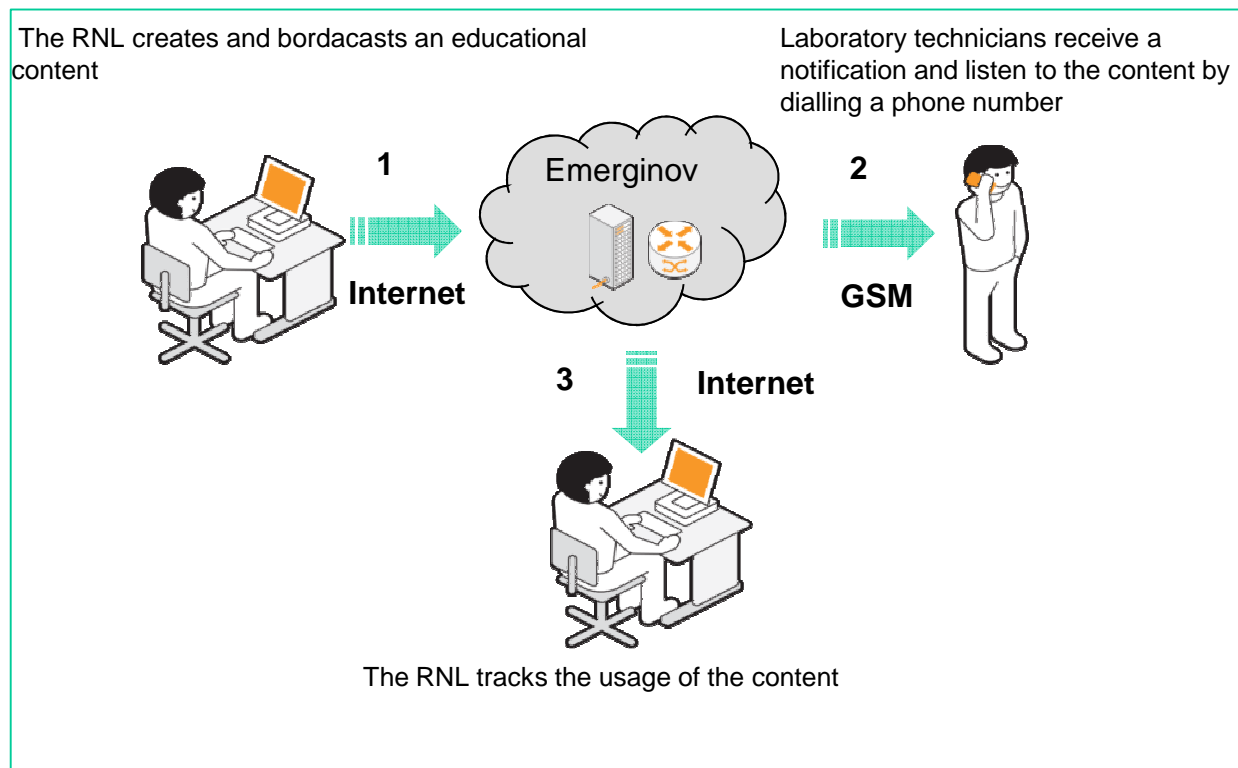
Un cas de choléra doit être soupçonné quand :

- dans une région apparemment épargnée par cette maladie, un malade âgé de 5 ans ou plus,

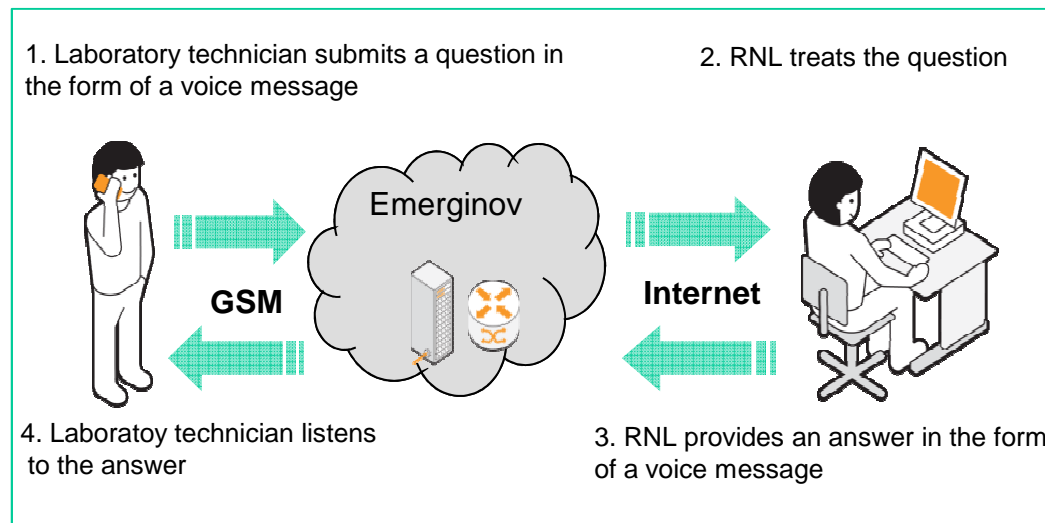
- Prescrire un antibiotique recommandé (fonction du profil de résistance des souches), secondairement à la mise en oeuvre de la réhydratation, surtout en cas de

Quarterly bulletin sent by the RNL to laboratories

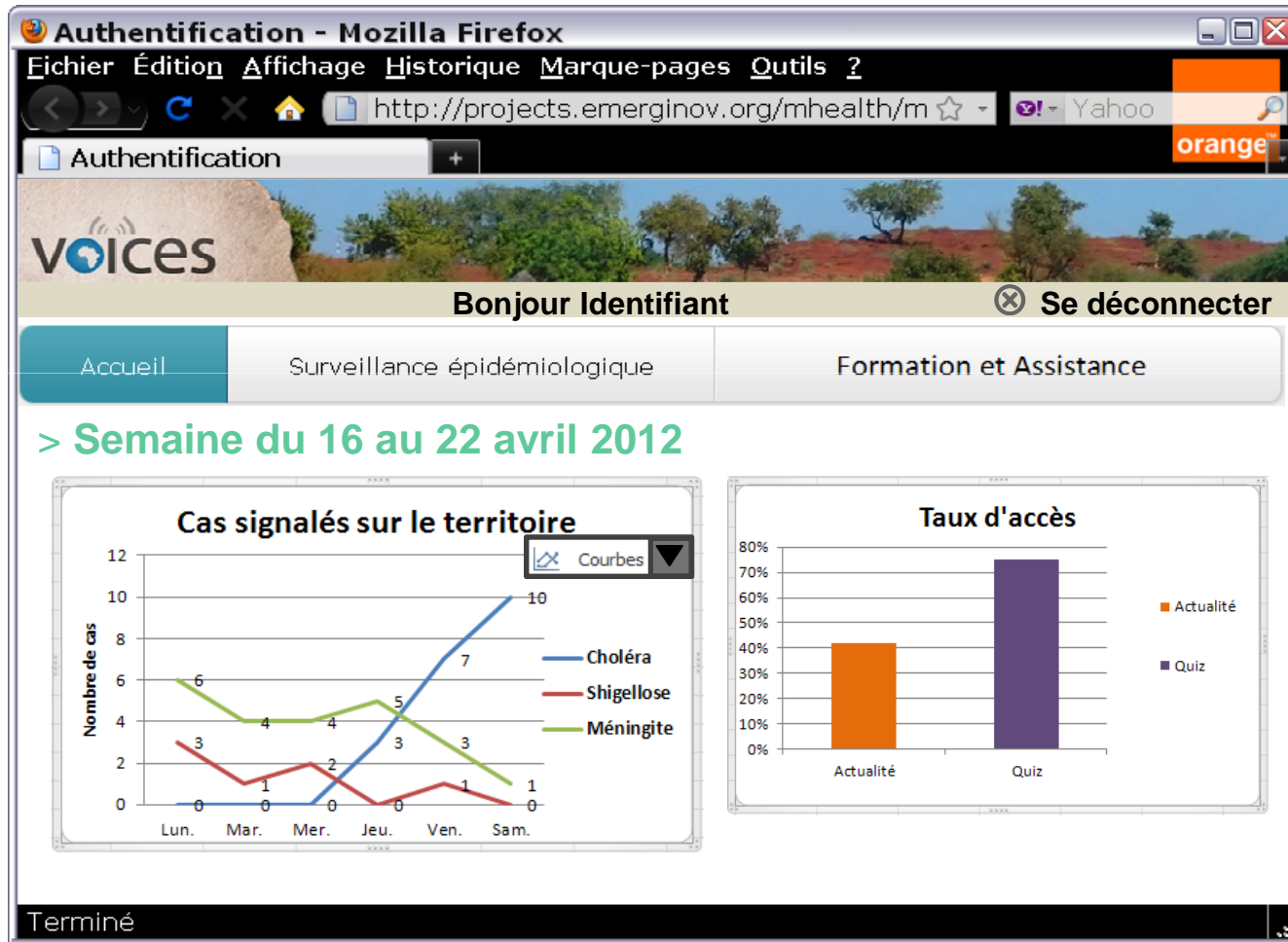
- Use case # 3: **Information of the Month.** To enhance technicians' medical knowledge through the delivery of educational content.



- Use case # 4: **Expert support.** To enable technicians to post questions to the RNL via a voice service. Could contribute to the development of lab technicians' skills.



- Web interface for the RNL



- Usability tests of the applications (except expert assistance) conducted recently in Dakar
 - the RNL and 6 technicians found the applications useful for their activities
 - for scenarios 2 & 3: Human voice was preferred to speech synthesis
 - need to improve the usability of the applications
- Next steps
 - fine tune the applications
 - deploy and test the services with six laboratories by the end of May
 - launch the second phase of in-situ testing by July with 14 labs
 - define a “business” model that ensures long-term sustainability of the services.
 - other issues: network coverage, integration to the health systems, maintenance and upgrading of the applications, etc.

Thank you for your attention !

