

ASSESSMENT OF THE ROBOTIC TELE-ULTRASONOGRAPHY PILOT STUDY AT LANNEMEZAN HOSPITAL



FEEDBACK:



USE OF THE ROBOTIC TELE-ULTRASOUND SYSTEM AT LANNEMEZZAN HOSPITAL

PART 1: ASSESSMENT OF THE PILOT STUDY BEFORE LAUNCH

I. ORGANIZATION OF THE PILOT STUDY

1. Planning

Pilot study over the period between 1/20/14 and 2/19/2014 in 3 stages:

- Stage 1: pilot between the outpatient consultation and treatment unit at the Lannemezzan prison (UCSA) and the radiology department at Lannemezzan Hospital (CHL)
- Stage 2: pilot within CHL, in collaboration with other hospital departments (including gastrointestinal surgery and emergency units)
- Stage 3: pilot between CHL and the teleradiology company CGTR, with Dr. SENETERRE based in Bordeaux
- On 2/13/2014: demonstration organized for the Ambassador of Moldova between CHL and Vendôme Hospital (Dr. LEFEBVRE).

2. Professionals participating in the experiment

10 medical and paramedical professionals participated in the pilot.

2.1. Internal to Lannemezzan Hospital:

UCSA attending physician and paramedical team (prison medicine)

The radiology department head physician, radiology technician and manager

Physician in charge of the emergency department

2.2. External to Lannemezzan Hospital

A teleradiologist from the company CGTR

Dr. LEFEBVRE, staff physician at Vendôme Hospital

3. Approach

Tests were performed on real and on fictitious patients (including UCSA prisoners and emergency patients), after providing information to the patient and obtaining written consent.

II. EVALUATION OF THE PILOT STUDY BY MEDICAL AND PARAMEDICAL PROFESSIONALS

1. Quality of the training (duration, content):

- Rating: 4/5
- Comments: Additional information requested about maneuvering the robot's arm for better understanding.

2. Ease of learning how to operate the device (user friendliness):

- Rating: 4/5
- Comments: Rating of 5 for the radiology department but only 3 for UCSA: this is because the UCSA does not have an examination table with an adjustable height, so maneuvering the robot was more difficult.

3. Quality of images:

- Rating: 4.5/5
- Comments: None

4. Amount of time to perform the ultrasound:

- Saves time compared to a traditional ultrasound
- Same amount of time as a traditional ultrasound
- Loss of time compared to a traditional ultrasound

5. Would you recommend continuing the operation beyond the test period?

- Yes, with no conditions
- Yes, subject to conditions
- No

Desirable conditions:

- More clearly identify the medical indications and the type of patient (need cooperative and able-bodied patients, etc.)
- Need the physician or radiology technician present to maneuver the robot
- Adjustable height imaging table (*currently being procured as a result of the pilot study*)
- Train all technicians on how to operate the robot and adjust staff headcount for additional workload
- Reconsider the setup of the ultrasound room.

6. Comments from medical and paramedical professionals at CHL:

Point of view of the radiologist:

- The device is very powerful and very reliable
- The device lends itself very well to the UCSA and emergency services
- It is preferable for the radiologist to be able to configure the device remotely
- The device should only be used with cooperative patients (not agitated, non-mobile or unconscious patients) and for specific examinations (for detecting stones or dilations, for example)

Point of view of the UCSA manager and head physician:

- Prisoners for whom the robotic ultrasound prevented extraction were satisfied
- It would be useful to make the device smaller
- Very innovative concept. Widely accepted by the inmate population.

III. TECHNICAL EVALUATION

⚠ *Rating scale* ⇨ *Rating of 1: Poor - Rating of 5: Excellent*

- Technical quality: 4/5
- Ease of installation: 4/5
- Responsiveness of technical support staff: 4,5/5

- **Would you recommend continuing the operation beyond the test period?**

Yes, with no conditions

Yes, subject to conditions

Desirable conditions: have a high-quality network with sufficient bandwidth and provide remote physicians with secure access to the tele-ultrasound system behind a firewall.

No

IV. OVERALL RATING BY THE HOSPITAL

Advantages of the robotic tele-ultrasound system:

- Reliable and powerful device, expands the medical services offered
- Able to overcome the lack of medical resources and expands ultrasound capabilities, particularly for emergencies (2000 ultrasounds per year)
- Improves the quality of patient care (lowers wait times for ultrasounds, reduces the number of exams with exposure to radiation)
- Improves the quality of prisoner care (fewer extractions: approximately 40 extractions could be avoided every year)
- Saves the community money (cost of one extraction: €700 to €2000).

Drawbacks of the robotic tele-ultrasound system:

- Financial model: significant cost for purchasing the robot, financing method to be established for the teleradiologists
- Limited robot mobility.

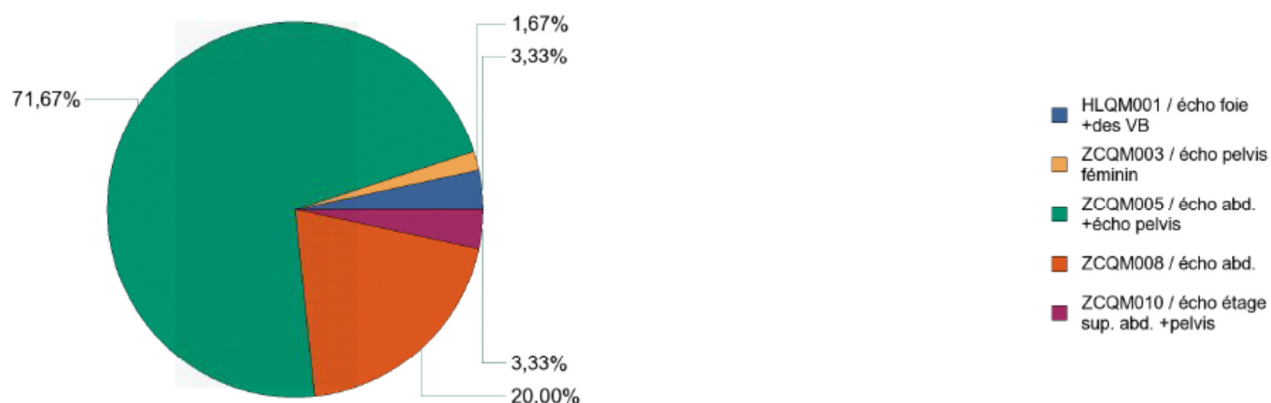
PART 2: ASSESSMENT AFTER 18 MONTHS OF OPERATION

A half-day tele-ultrasound shift began in March 2015 in collaboration with the company ETIAM, who manages the facility's teleradiology operation, and under the conditions that had been highlighted during the pilot study:

- Medical indications and the type of patient (need for cooperative and able-bodied patients, etc.) were defined before the launch by the medical expert, then tweaked as the device began to be used
- Technician always present in radiology to maneuver the robot, initially technician advisors, then training for entire team

A teleradiologist advisor is provided by the company ETIAM. A second teleradiologist is now trained, but it is difficult to schedule with the current radiology room openings.

Répartition en % des actes réalisés en télééchographie en 2015



Répartition des actes réalisés en télééchographie en 2016

