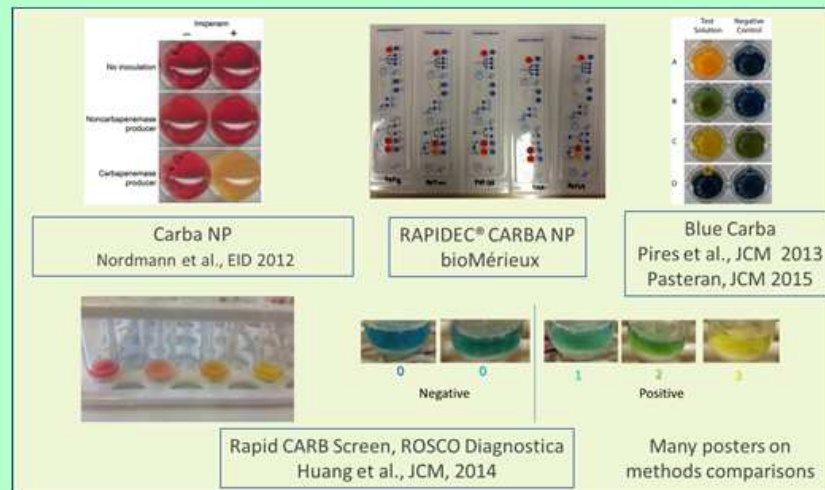


Context

Accurate detection of CPE constitutes a major laboratory diagnostic challenge. Recently, several colorimetric imipenem hydrolysis-based tests have been developed in order **to detect CPE** with sometimes interpretation difficulties



We also designed and validated an **electrochemical technique (BYG test v1.0, Bogaerts et al.)** which detects CPE from a concentrated bacterial suspension (10 μ l loopful bacteria). Here we have evaluated the **BYG test v2.0 (BYG 2.0)** which relies on a **simplified and faster protocol**.

The reader

Disposable electrode

The System including Software

Electrochemical detection of imipenem hydrolysis

Sensor Polyaniline (PA)

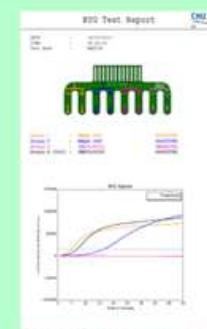
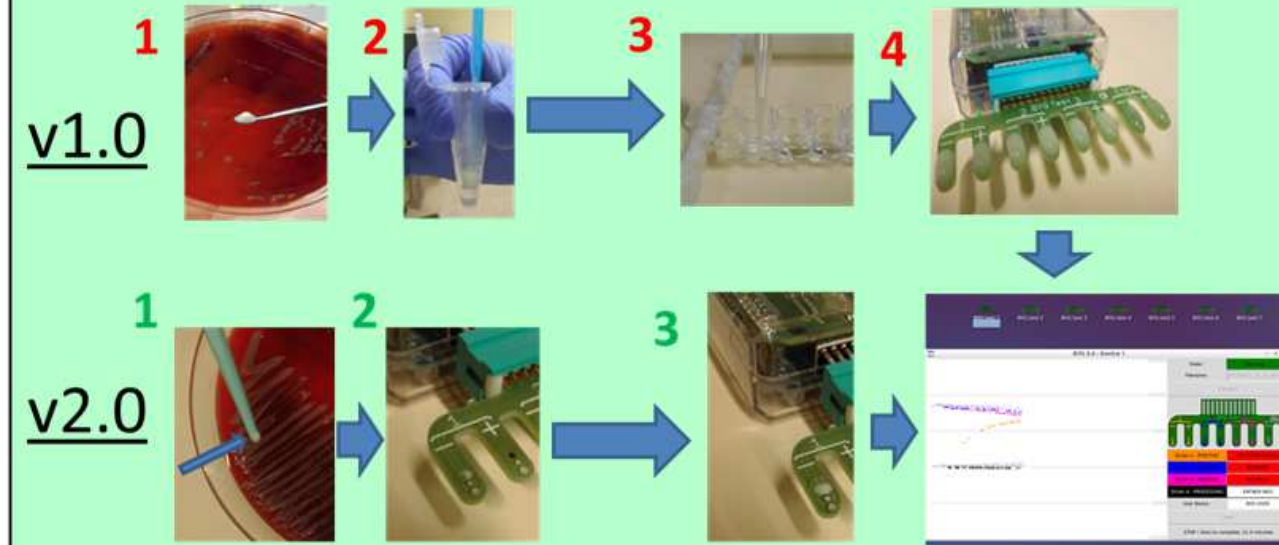
↓

Sensor Polyaniline

BYG measures the **modification of the conductivity** of PA during the hydrolysis

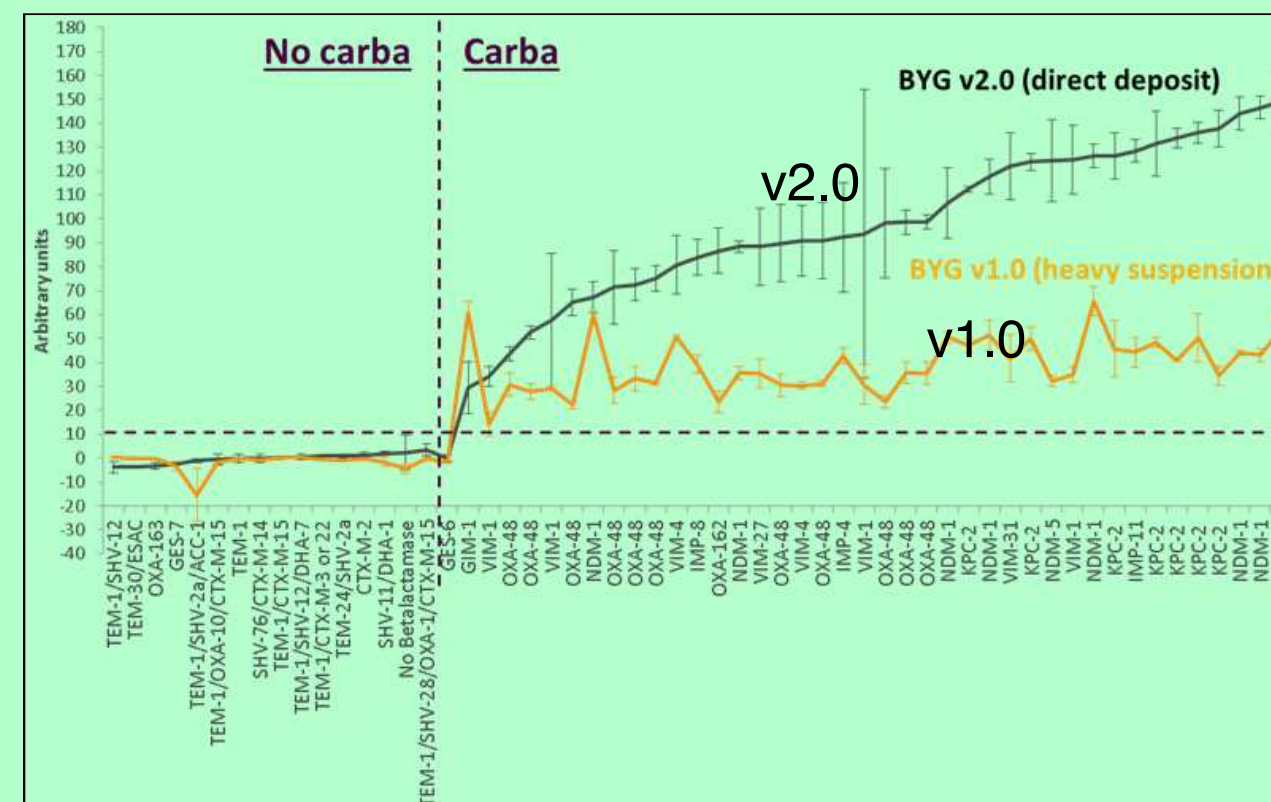
BYG for carbapenemase detection: Electrochemical sensor

Improvement of the protocol v2.0: Only few colonies are needed



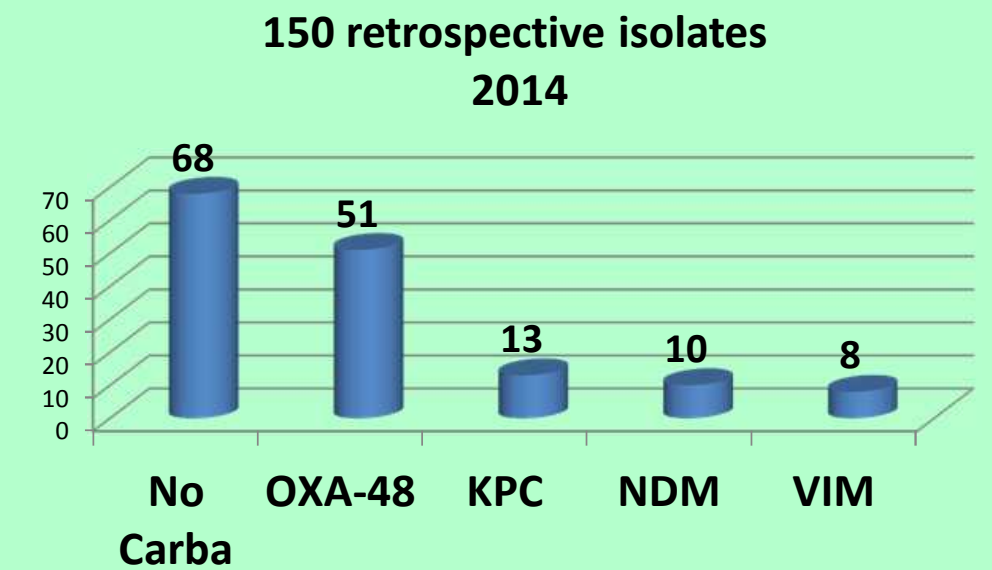
Software with Real-time detection and Pdf report

57 collection isolates

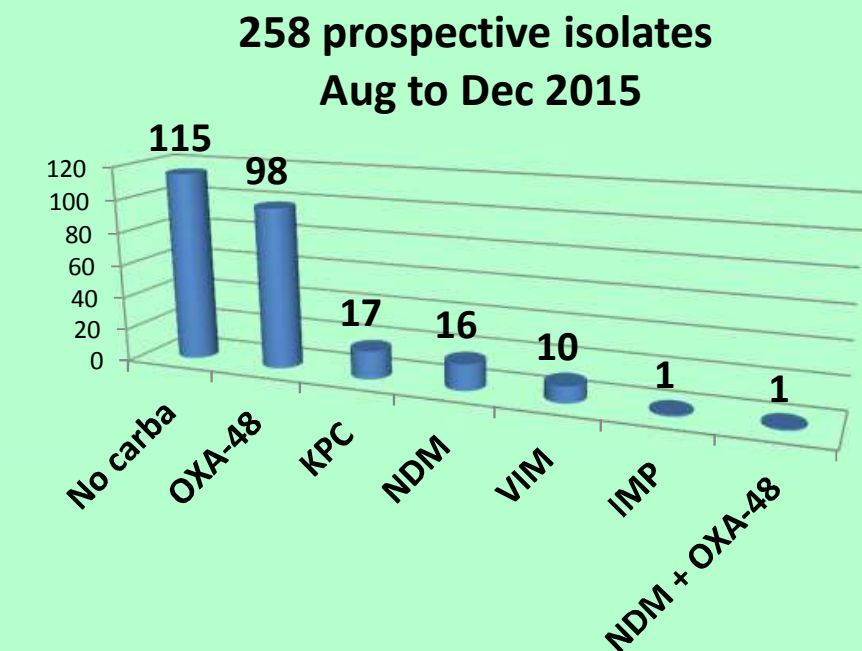


Signal comparison between BYG v1.0 and BYG v2.0

v2.0: even better signal



Sensitivity and specificity 100 %
93% of the positive detected in less than 10 min



Sensitivity 99,3 % and specificity 99,1 %
94% of the positive detected in less than 10 min

1 OXA-48 like undetected
1 *E. cloacae* false positive

Conclusions

1. Only few colonies are needed
2. Most of the carbapenemases including OXA-48 detected in less than 10 min.
3. Objective semi-quantitative traced results