

# Strand's qPCR Reporting Software (PQRS)

## Preface

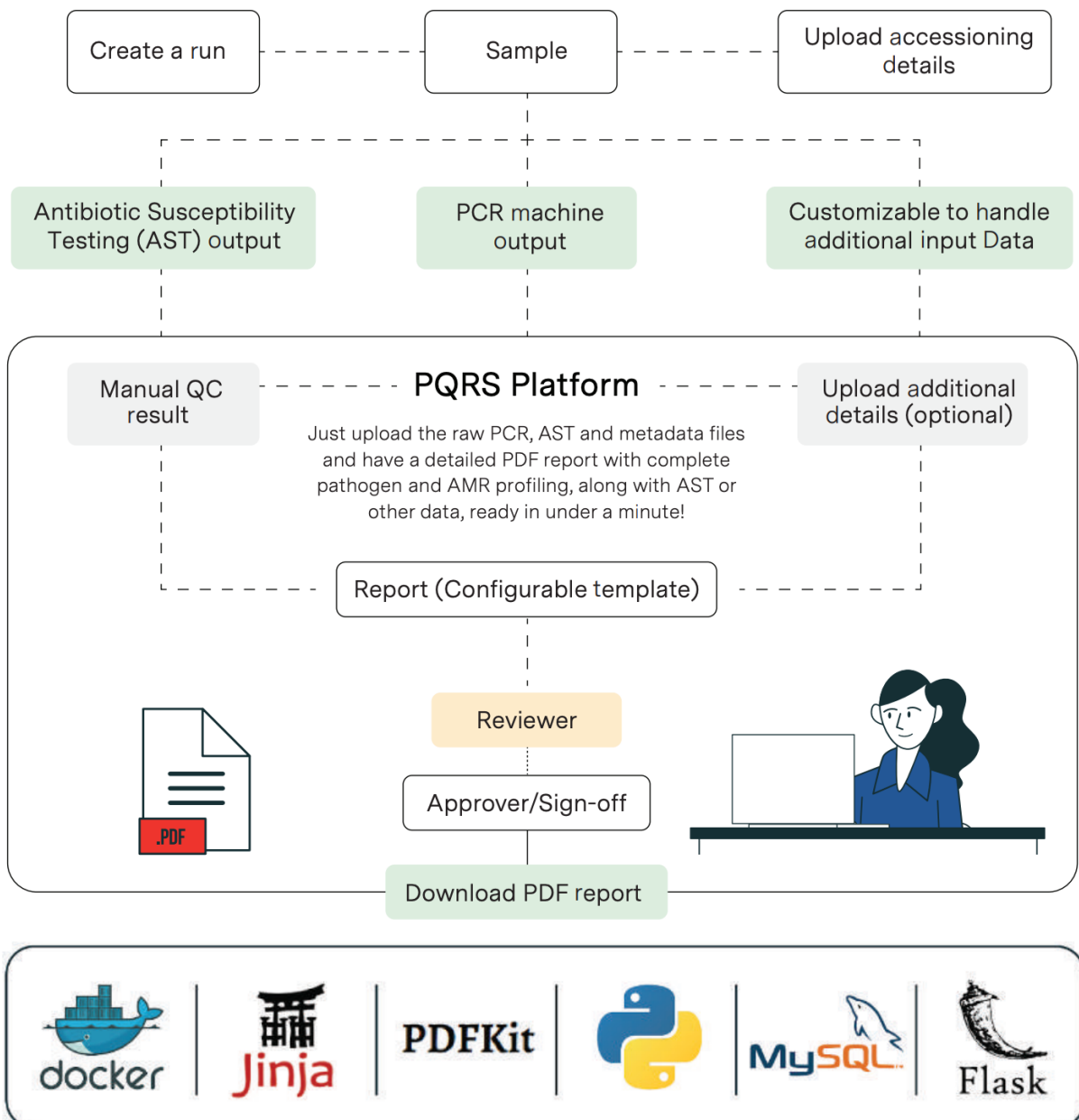
Our in-house infectious-disease reporting solution processes qPCR input, and generates a comprehensive and actionable PDF report with detailed pathogen profiles and antibiotic susceptibility status.





## The PQRS Workflow

- PQRS software offers an end-to-end solution for qPCR reporting.
- The process is initiated by inputting qPCR result files. Additionally, culture test output files.
- Can also be entered into the workflow, thus enabling combined reporting of pathogens, AMR genes and antibiotic susceptibility (AST).
- A manual QC step is performed to ensure accuracy.
- Following this, a comprehensive report based on a configurable template is compiled and generated.
- A brief review by a senior scientist follows and the report is made available to the end user as a PDF download.
- The turnaround time from input to report generation is under a minute.
- This workflow can be seamlessly integrated into any existing LIMS.





# Tailored qPCR and AST Report with Medication Options

Our customizable report offers three key benefits

- 1. Clinician-approved format:**  
We incorporate client-specific requirements into the qPCR report through frequent interactions with the clinician team.
- 2. Combined qPCR and AST reporting:**  
The end report captures the qPCR-identified pathogens, antibiotic resistance genes, as well as antibiotic susceptibility test results, offering insights on infectious pathogens as well as AST status.
- 3. Broad array of medication options:**  
Clinicians can choose from multiple antibiotic recommendations, enabling them to freely make patient-tailored decisions.

The high-level summary in the first page is followed by a detailed account of identified pathogen profiles.

**Urinary Tract Infection Report**

**Patient Information:** Name: [REDACTED], ACOF: [REDACTED], DOB: [REDACTED], Sex: [REDACTED]

**Specimen Details:** Specimen type: Nasopharyngeal Swab, Collection Date: 5/31/2023, Received Date: 5/31/2023, Report Date: 01/25/2024

**Provider Information:** [REDACTED]

**Final Test Report:** Pathogen Identification and Antibiotic Resistance Profiling

**Comments:** Approved

**Pathogen and Antibiotic Resistance Gene Identification by PCR**

**Positive By PCR:** +

**Following pathogens were detected:**  
- *Klebsiella pneumoniae* (K. pneumoniae), Ct: 14.924

**Following antibiotic resistance genes were detected:**  
- blaCTX-M\_Group  
- blaSHV  
- dfr\_Group  
- sul\_Group

PCR Ct Ranges	Ct < 20	Ct 20 - 23	Ct 23 - 25	Ct 25 - 28	Ct 28 - 30
Estimated CFU/mL	>1x10 <sup>8</sup>	1x10 <sup>7</sup>	1x10 <sup>6</sup>	1x10 <sup>5</sup>	<1x10 <sup>4</sup>
Suggested Interpretation	Very high pathogen abundance. Most likely causative infectious agent, including a polymicrobial infection.	High pathogen abundance. Likely significant causative infectious agent.	Moderate pathogen abundance. Potentially causative infectious agent or organism. Risk depends on underlying catheter.	Low pathogen abundance. Unlikely causative infectious agent, but in certain clinical settings may be regarded as potentially causative, above threshold with patient's symptoms and medical history.	Very low or no significant pathogen abundance. Most likely organism focus or contamination. In certain clinical settings, could be considered a possible emerging pathogen for recurrent infection.

**Medication Choices:**  
K. pneumoniae: Amikacin, Aztreonam, Ciprofloxacin, Fosfomycin, Gentamicin, Levofloxacin, Nitrofurantoin, Plazomicin

Laboratory Director: [REDACTED] CLIA [REDACTED] Page 1 of 8

**Culture and Antibiotic Susceptibility Profiling**

**Pathogen Identification by culture method:** *Klebsiella pneumoniae*, Heavy growth

Detected Organism	Antibiotic Susceptibility															
	Amikacin	Aztreonam	Clindamycin	Clotrimazole	Colistin	Cefepime	Colibactin	Cefazolin	Colistin/Imipenem	Ceftazidime	Ceftiofur	Ceftriaxone	Cefuroxime	Doxycycline	Ethambutol	Fosfomycin
K. pneumoniae	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S

Detected Organism	Antibiotic Susceptibility	
	S	R
K. pneumoniae	S	S

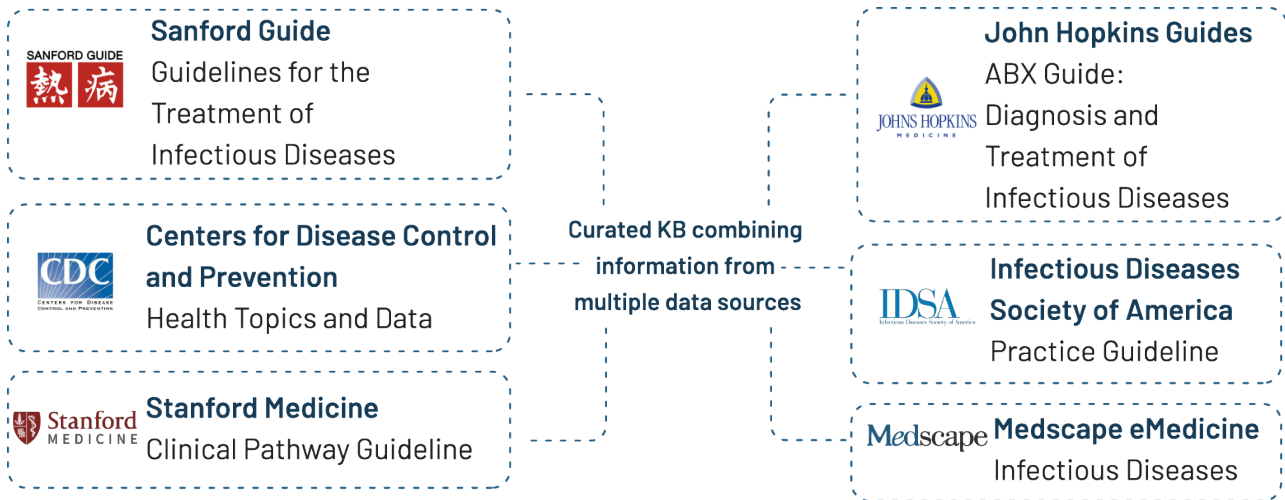
**Sensitive (S):** indicates the organism(s) is susceptible to the antibiotic.  
**Intermediate (I):** indicates the organism(s) is susceptible to the antibiotic but not at a level required to ensure effectiveness.  
**Resistant (R):** indicates the organism(s) is not susceptible.  
**Grey Box:** Agent not assayed against pathogen

Reference method and interpretive criteria based on the Clinical and Laboratory Standards Institute (CLSI) M100 document, 32nd edition.

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## Reference Databases in PQRS

- The PQRS platform is equipped with an infectious-disease knowledgebase curated by Strand's scientists and reviewers.
- The database was curated by referencing various well-known publicly available (e.g., Medscape) as well as licensed data sources dedicated to infectious-disease reporting.



## Recent Stories

We worked with a US-based CLIA/CAP-certified diagnostic laboratory offering infectiousdisease testing to deliver a bespoke PQRS solution:

1. We customized the report to include all medication choices without details on tiers, route of administration, or dosage.
2. The antibiotic choices provided in the report were filtered for those approved in the US and referred to by their US trade names instead of generic names.
3. The report generation process was modified to require a medical director's approval.
4. The report was made available in both PDF and JSON formats.

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