



16-18 OCTOBER MEGARON
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GREECE

Droplet digital polymerase chain reaction enables rapid detection and characterisation of bacteremia in chronic parental nutrition patients

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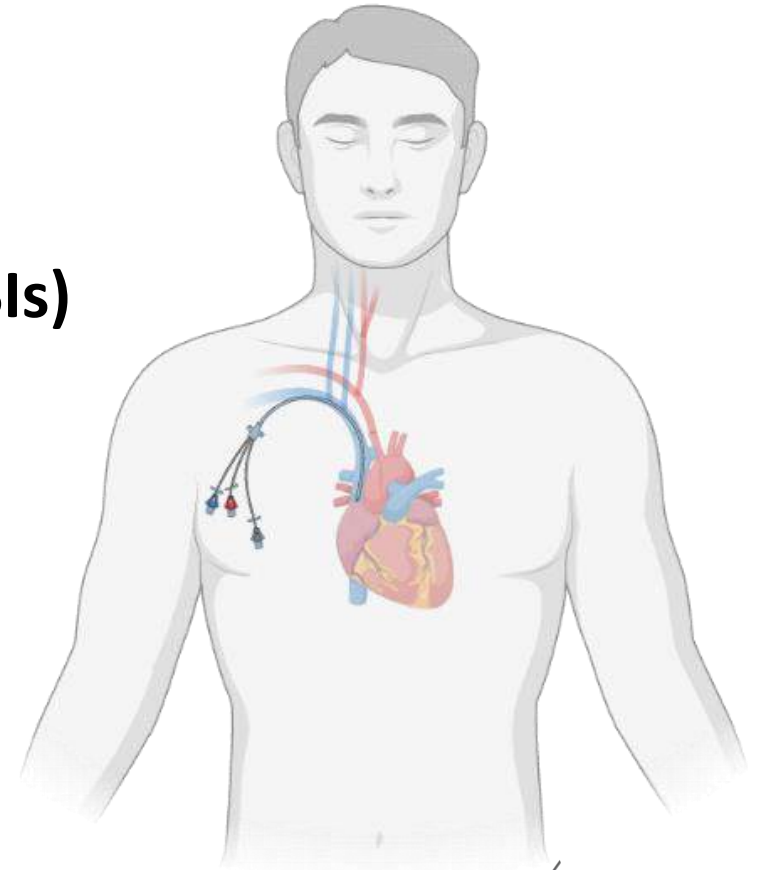


Disclosures

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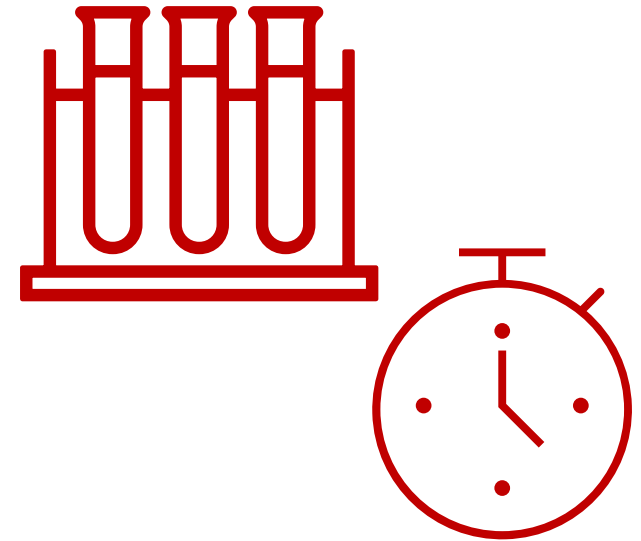
Introduction

- Chronic intestinal failure (**CIF**) patients depend on central vascular access device (**CVAD**)
- Central line-associated bloodstream infections (**CLABSIs**)
- Blood cultures (golden standard)

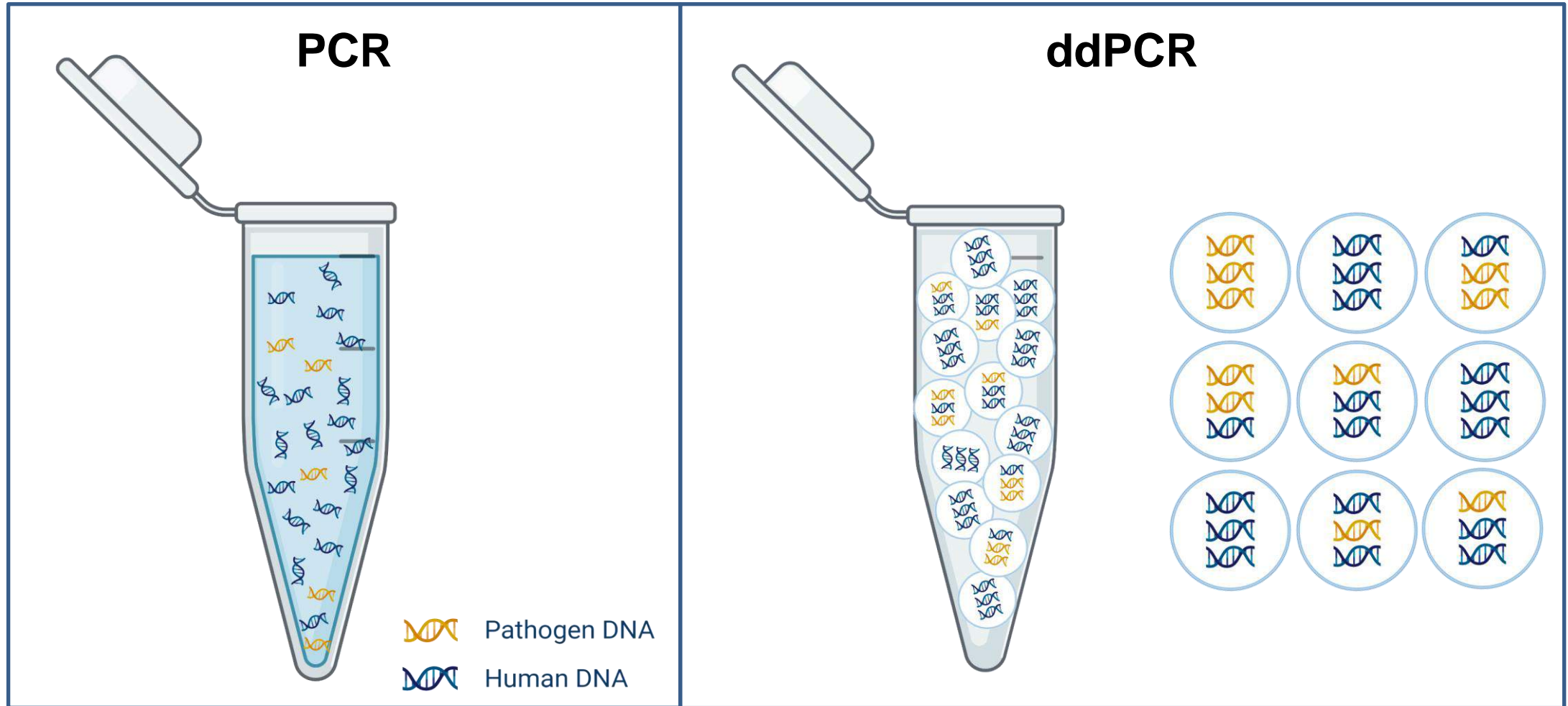


Rapid diagnostics

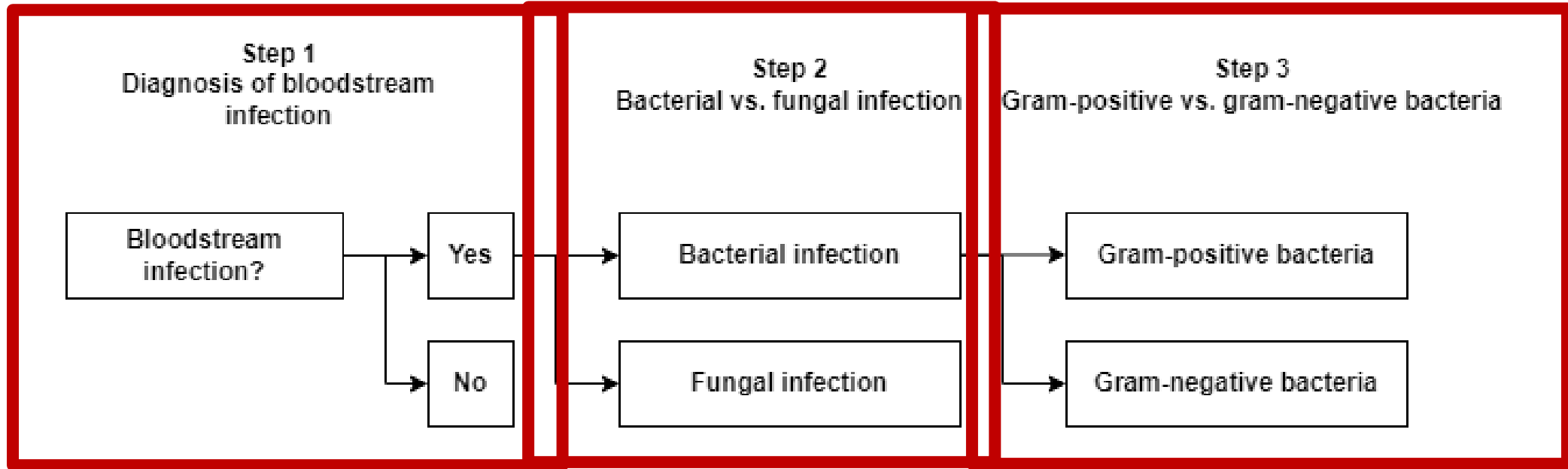
- Advantages
 - Adequate treatment
 - Less antibiotic resistance
 - Increased salvage rate
 - Shorter hospital stay
- Examples
 - SeptiFast
 - MagicPlex
 - ddPCR



Droplet digital polymerase chain reaction (ddPCR)

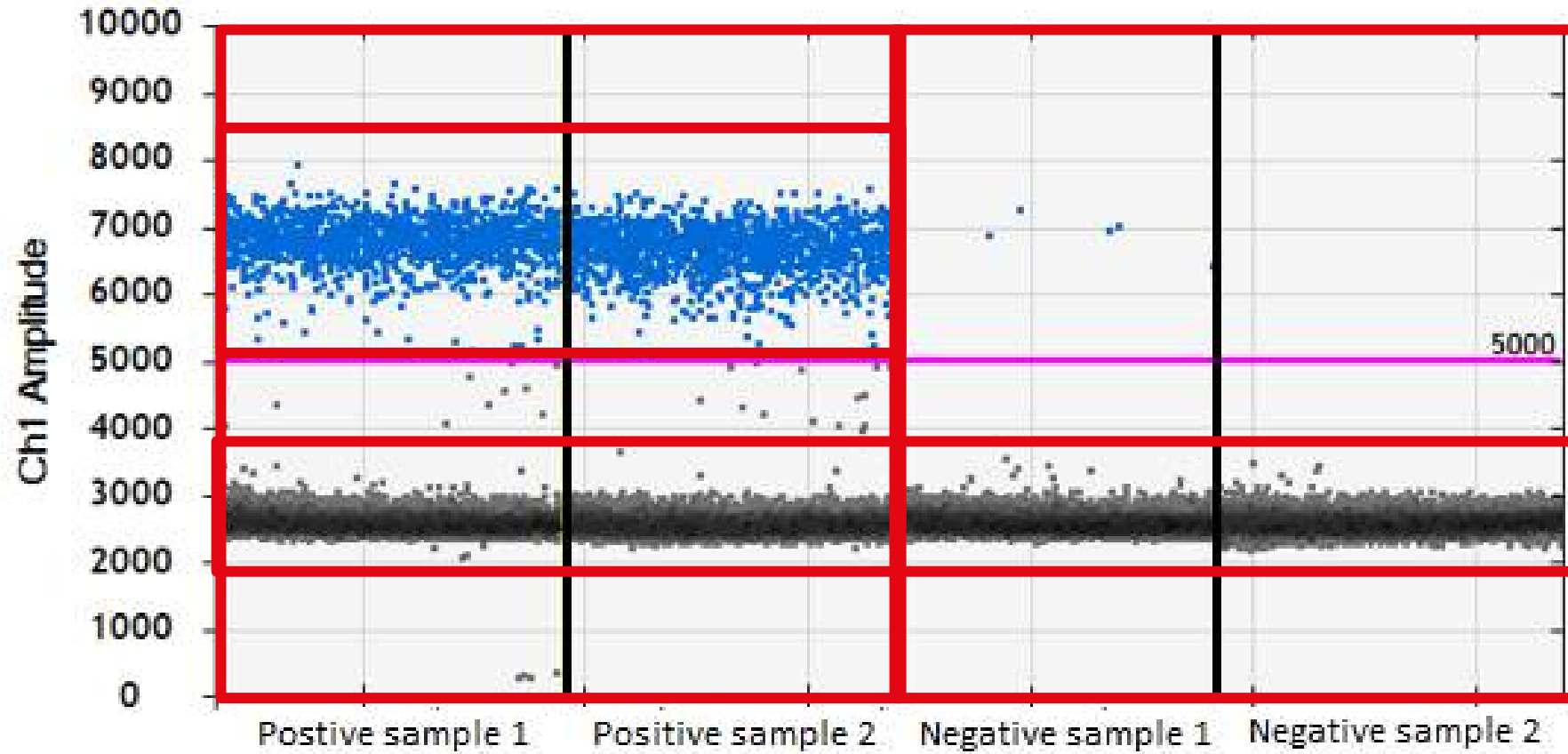


Set-up ddPCR



- Primers:
 - Bacteria → 16S rRNA
 - Fungi → 28S rRNA
- Probes: Detection and differentiation

ddPCR



Aims

Primary aim

- To compare the sensitivity and specificity of ddPCR with blood cultures

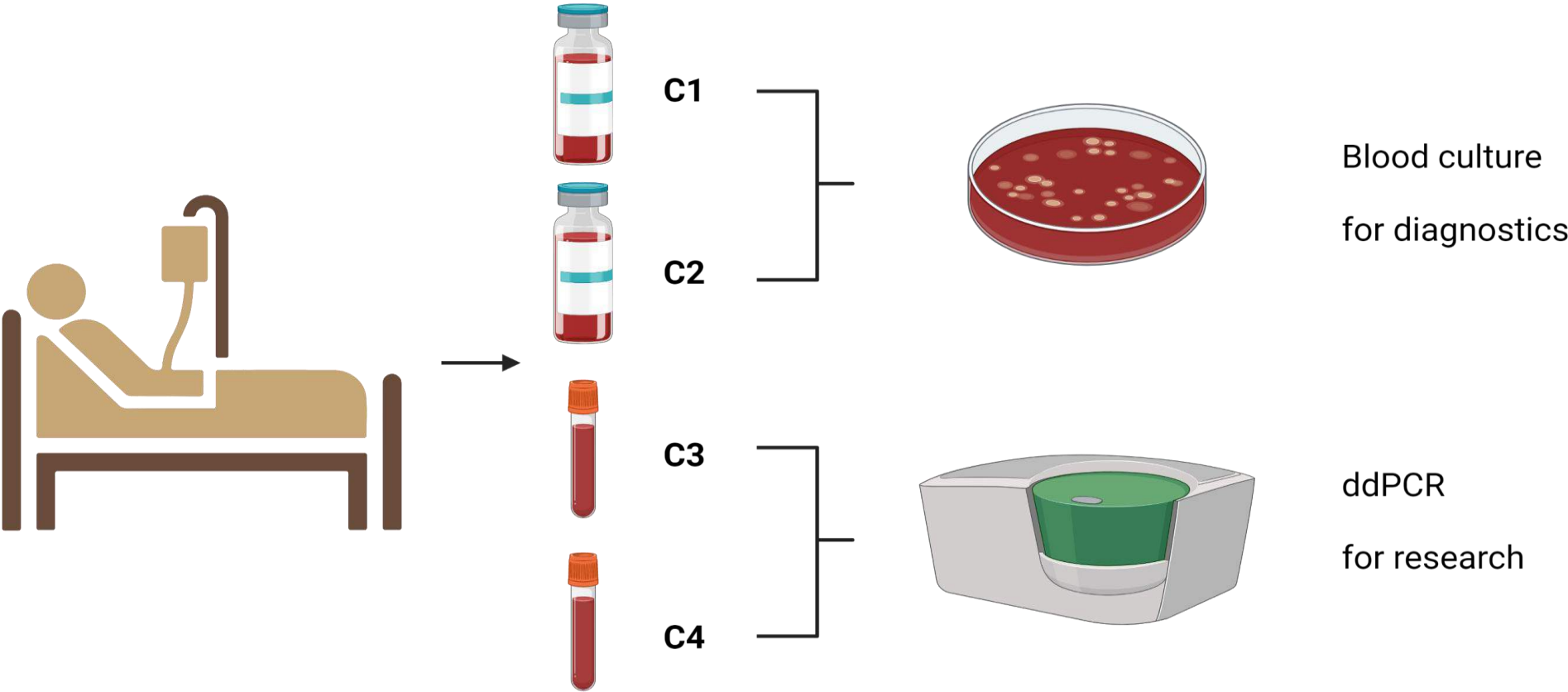
Secondary aim

- To compare the sensitivity and specificity of ddPCR with blood cultures for the groups
 - Central samples
 - Peripheral samples

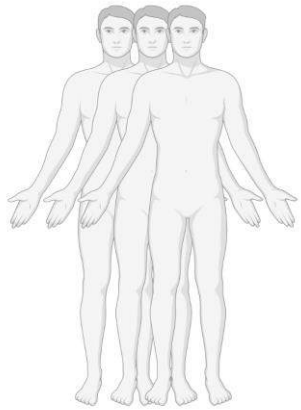
Method

- Prospective single-blind study
- May 2019 and February 2022
- Inclusion criteria
 - Patients with chronic intestinal failure
 - Age >18 years
 - Clinical suspicion on a CLABSI

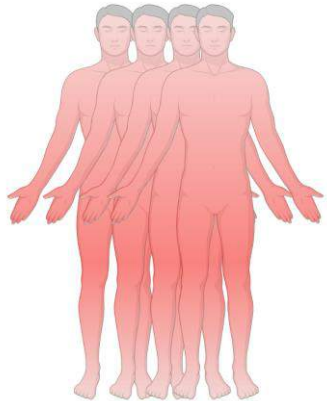
Method



Results



72 patients



117 suspected CLABSI episodes



78 central blood samples



99 peripheral blood samples

Results

	Overall	Peripheral samples	Central samples
Sensitivity	71%	61%	81%
Specificity	89%	89%	90%

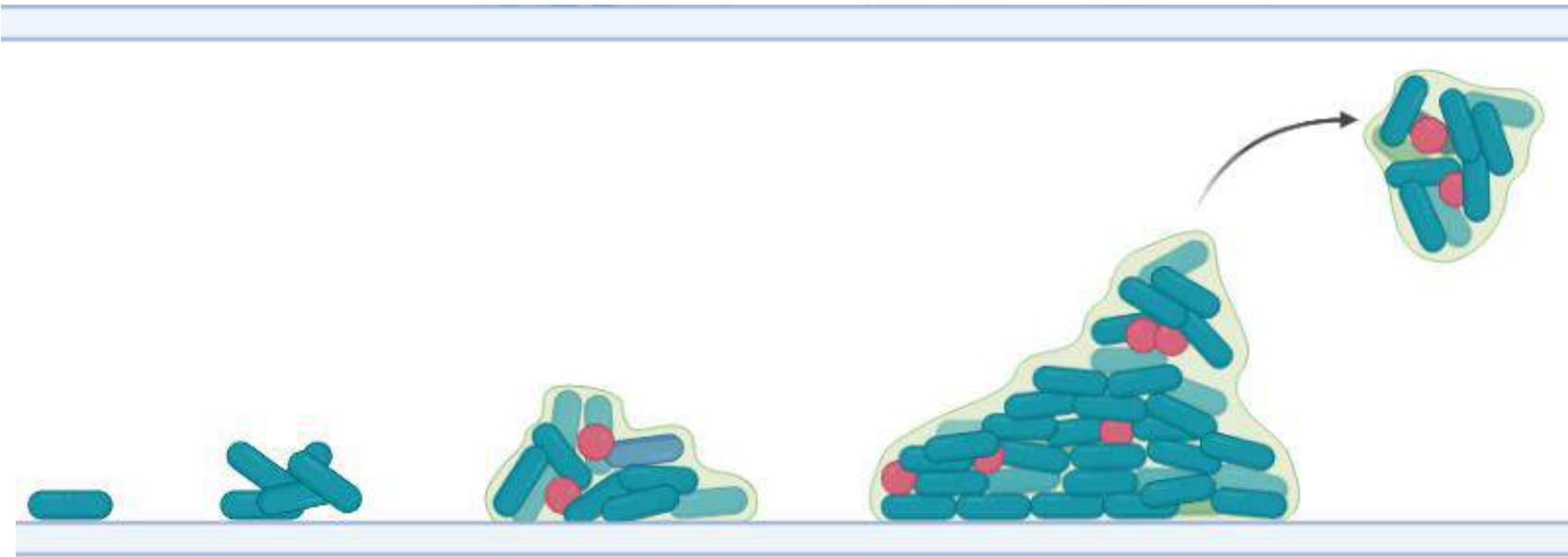
Discussion

	Overall	Peripheral samples	Central samples
Sensitivity	71%	61%	81%
Specificity	89%	89%	90%

Discussion

Hypothesis:

- Biofilm formation
- More pathogens inside the catheter



Conclusion

- Promising for rapid detection of pathogens
 - Especially of central samples
- Expansion of our cohort
- Future perspectives
 - Rapid diagnostic
 - Improved patient outcomes

Questions?



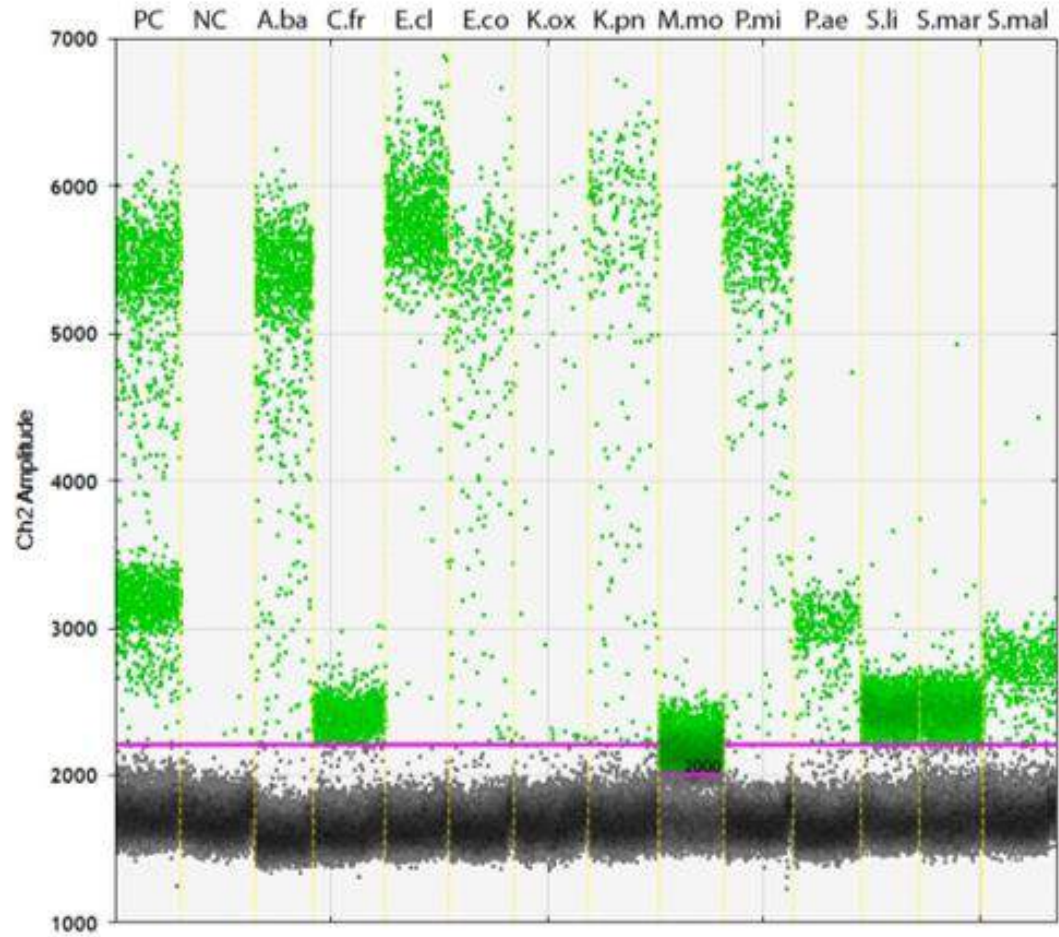
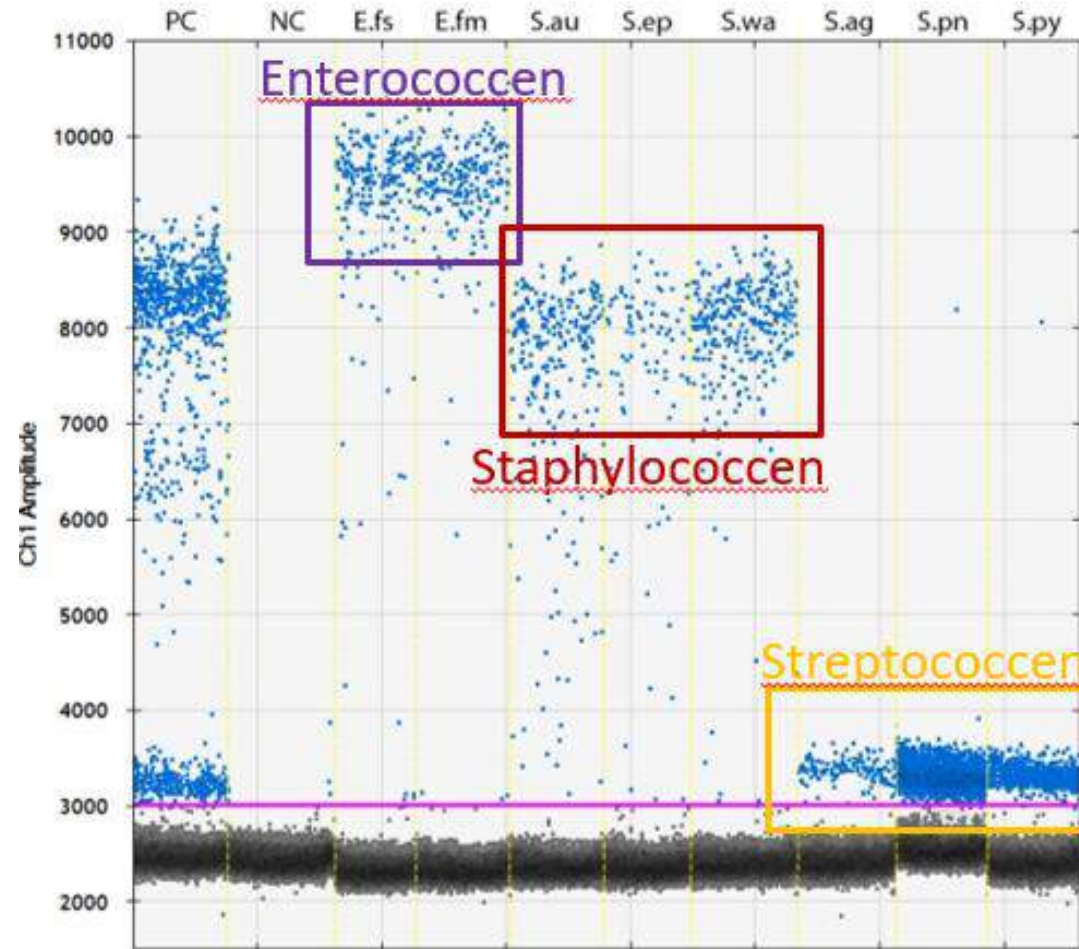
Back-up slides



Confidence intervals

	Overall	Peripheral samples	Central samples
Sensitivity	71% (95%CI 59-82)	61% (95%CI 42-77)	81% (95%CI 65-92)
Specificity	89% (95%CI 82-95)	89% (95%CI 79-95)	90% (95%CI 76-97)

16S ddPCR



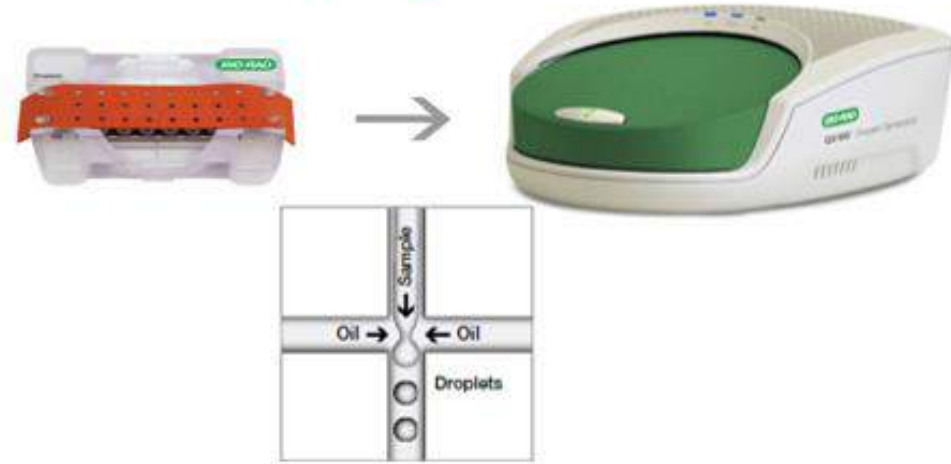
Workflow ddPCR

PCR mix

- ddPCR Supermix
- Sample
- Primers/Probes



Droplet generation



- EvaGreen

- Probes:

FAM en HEX/VIC

