

# BioPorto HC Wainwright Conference

September 15, 2020





# Forward-Looking Statements

References herein to this presentation shall mean and include this document, any oral presentation accompanying this document provided by BioPorto A/S (the “Company”) and any further information that may be made available in connection with the subject matter contained herein. By viewing or receiving or reading this presentation or attending any meeting where this presentation is made, you agree to be bound by the limitations, qualifications and restrictions set out below:

This presentation contains forward-looking statements. Words such as “believe”, “expect”, “may”, “plan”, “strategy”, “estimate”, “target” and similar expressions identify such forward-looking statements. Statements other than historical facts included in this presentation concerning our plans, objectives, goals, future events and performance are forward-looking statements. They involve risks, uncertainties and other factors, which may cause actual results, performance and achievements to differ materially from the results discussed in the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date of this presentation.

This presentation is confidential, is intended for the recipient only and thus may not be forwarded, reproduced, redistributed or passed to any other person or published in whole or in part for any purpose. If this document has been received in error, it must be returned immediately to the Company. By receiving this presentation, you become bound by the above-referred confidentiality obligation. Failure to comply with such confidentiality obligation may result in civil, administrative or criminal liabilities.

This presentation contains inside information with regard to the Company and/or its securities. Recipients of this presentation should not deal or encourage any other person to deal in the securities of the Company until the transaction described in this Presentation is either announced or abandoned by the Company. Dealing in securities of the Company when in possession of inside information would result in liability for breach of insider dealing restrictions under applicable law, including United States and Danish law.

This presentation is not directed to, or intended for distribution to or use by, any person or entity that is a citizen or resident or located in any locality, state, country or other jurisdiction where such distribution, transmission, publication, availability or use would be contrary to law or regulation or which would require any registration or licensing within such jurisdiction. No communication or information relating to the transaction described herein may be distributed to the public in any jurisdiction in which registration or approval would be required prior to such distribution.

No securities of the Company have been or will be registered under the Securities Act of 1933, as amended (the “Securities Act”), or under any state securities laws, and the securities of the Company may not be offered or sold in the United States (or to, or for the account or benefit of U.S. Persons) except pursuant to an exemption from, or a transaction not subject to, the registration requirements of the Securities Act. The Company does not intend to register in the United States any portion of its securities or to conduct a public offering of any of its securities in the United States. Any offer or sale of the securities of the Company in the United States is limited to “accredited investors” as defined in Rule 501(a), both under the Securities Act. Any securities issued will be “restricted securities” as defined in Rule 144 of the Securities Act.



# Agenda

- 1 About BioPorto
- 2 Acute Kidney Injury
- 3 The NGAL Test™
- 4 Regulatory Studies
- 5 The Addressable Market
- 6 gRAD
- 7 Summary

# About BioPorto

---





# About BioPorto

---

*BioPorto is an in vitro diagnostics company that provides tests and antibodies to clinicians and researchers around the world. We use our antibody and assay expertise to transform novel research tools into clinically actionable biomarkers that can make a difference in patients' lives.*

*BioPorto is headquartered in Hellerup, Denmark, with US headquarters in Boston, and is listed on the Nasdaq Copenhagen stock exchange [CPH:BIOPOR]. The company has 25 employees and 2019 revenue of \$4M.*



## Actionable Biomarkers

- Novel markers that address unmet clinical needs
- Thought leader supported, IP protected
- Expertise & partnerships needed to drive awareness/education



## Assay Development

- Technical expertise: ELISA kits, automated assays & rapids
- Partnerships with key academic researchers & institutions
- Production/scale up partnerships



## Antibody Library

- 150+ Abs in significant disease states
- Steady source of revenue (275+ customers in 40+ countries)
- Insight into high value diagnostic targets

# Acute Kidney Injury (AKI)

---

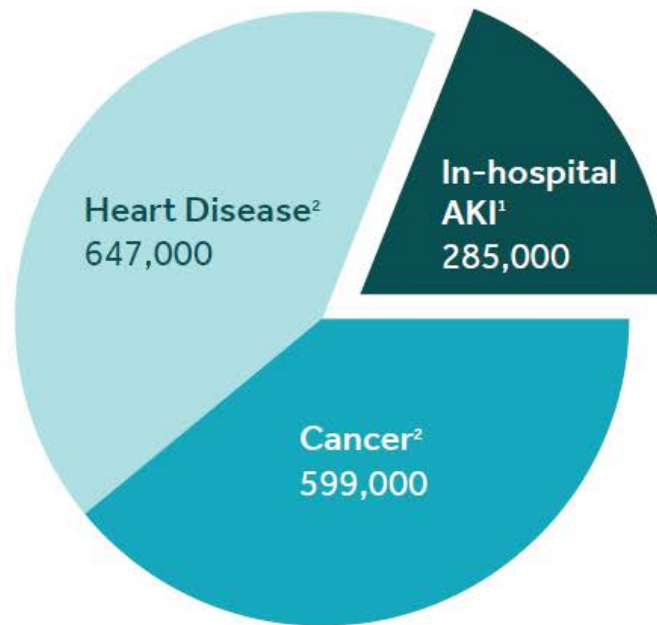




*The Unsolved Problem*

# AKI is a Major Public Health Concern

## 3<sup>rd</sup> Leading Cause of Death Annually



## In-Hospital AKI

**230%**

**INCREASE**  
in AKI hospitalizations  
in the US (2000-2014)<sup>3</sup>

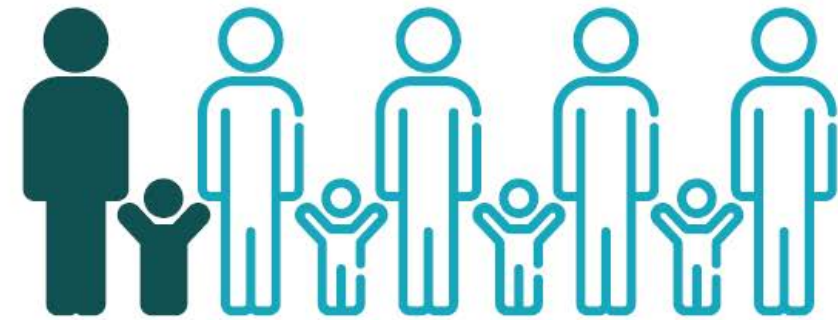
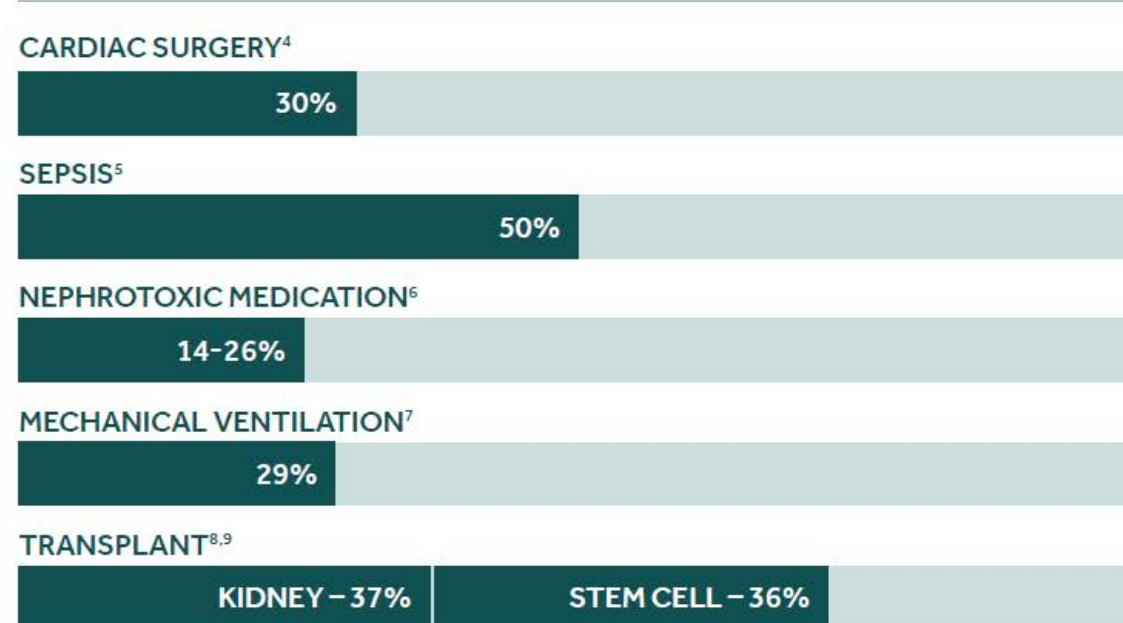
1) Brown JR, BioMed Research International. 2016;ID4278579. (2) CDC, FastStats: Deaths and Mortality. 2017. (3) Pavkov ME. MMWR Morb Mortal Wkly Rep. 2018;67.





# Many Patients at Risk

## Patients at Risk



**1 in 5 ADULTS<sup>10</sup>**  
**& 1 in 4 CHILDREN<sup>11</sup>**  
is affected with AKI during  
hospitalization

4) O'Neal JB, Crit Care. 2016;20(1). 5) Alobaidi R, Semin Nephrol. 2015;35(1). 6) Perazella MA, CJASN. 2018;13. 7) Lombardi R, CJASN. 2011;6(7). 8) Alkandari O, CJASN. 2018;13(11). 9) Hingorani SR, Kidney Int. 2005 Jan;67(1). 10) Susantitaphong P, CJASN. 2014;9(6). 11) Kaddourah A, N Engl J Med. 2017;376.





# Clinical Burden Inside & Outside the Hospital

## IN-HOSPITAL



**Increased  
Length of Stay<sup>12</sup>**  
**7-23 days**



**Increased need  
for Dialysis<sup>13</sup>**  
**12%**  
*of critically ill adults*



**Increased overall  
Mortality Rate<sup>13</sup>**  
**25%**

## 3 YEARS POST-DISCHARGE

- 30% readmission rate<sup>14</sup>
- 38% increase in a major cardiac event<sup>15</sup>
- 59% of AKI survivors have 1 or more kidney abnormalities: *microalbuminuria, hyperfiltration, decreased GFR, hypertension*<sup>16</sup>
- Up to 25% progress to CKD<sup>17</sup>

12) Sutherland SM, *CJASN*. 2013;8(10). 13) Hoste EA, *Intensive Care Med*. 2015;41(8). 14) Hessey E, *CJASN*. 2018;13(5). 15) Odotayo A, *JASN*. 2016;28. 16) Askenazi DJ, *Kidney Int*. 2006;69(1). 17) Horne KL, *BMJ Open*. 2017;7(3).



## Costs of AKI

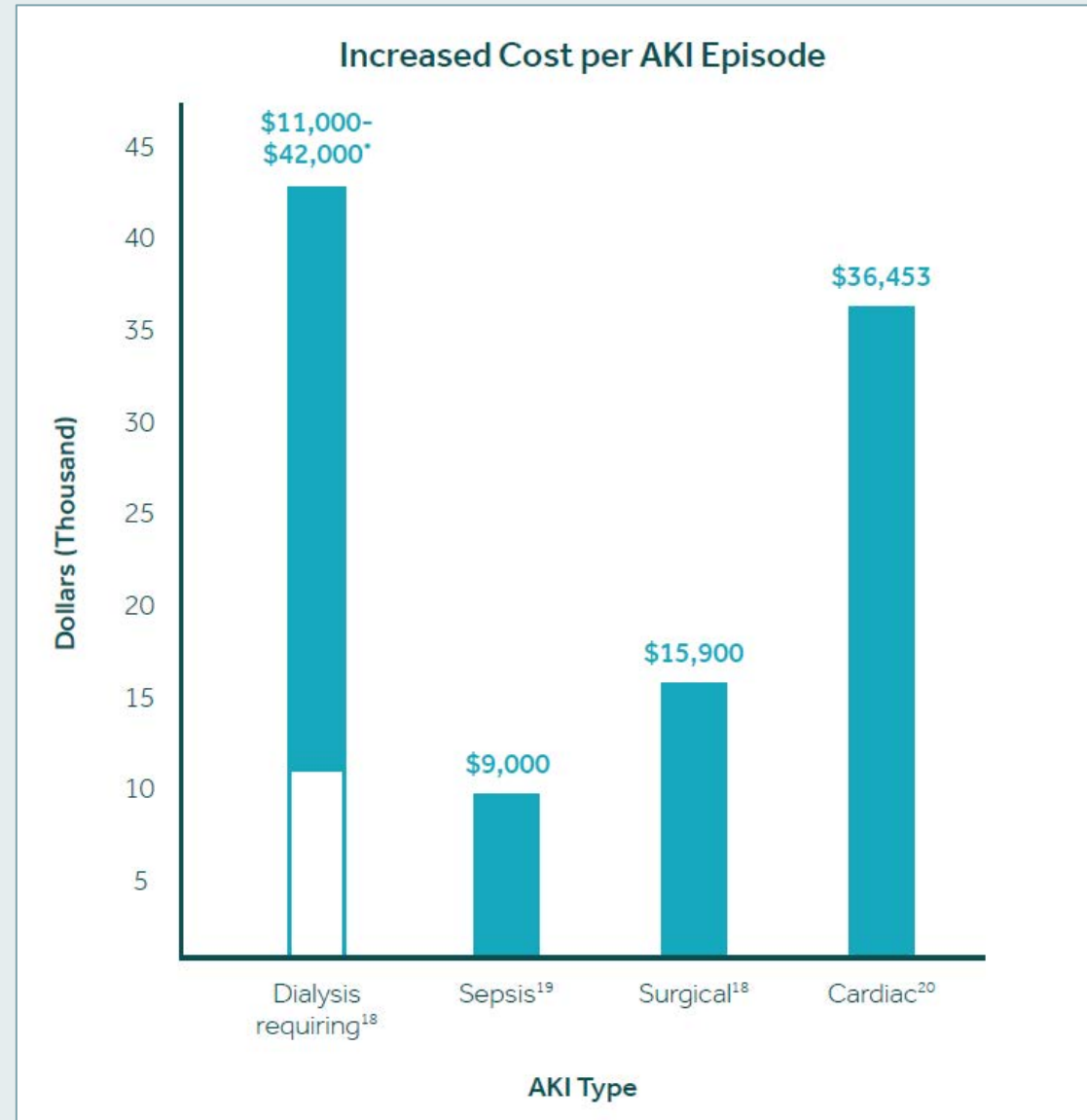
# Economic Burden

AKI is hard to identify, when recognized late, it requires more intensive and costly interventions.

- Using KDIGO criteria, AKI was associated with a **\$7,000 increase** in costs per episode.

AKI costs the US healthcare system **\$5.4 - \$24.0 billion\* annually**

*\* Range for adjusted vs. unadjusted costs.  
(Adjusted for demographic factors, hospital differences, comorbidities and procedures.)*



# The NGAL Test

---

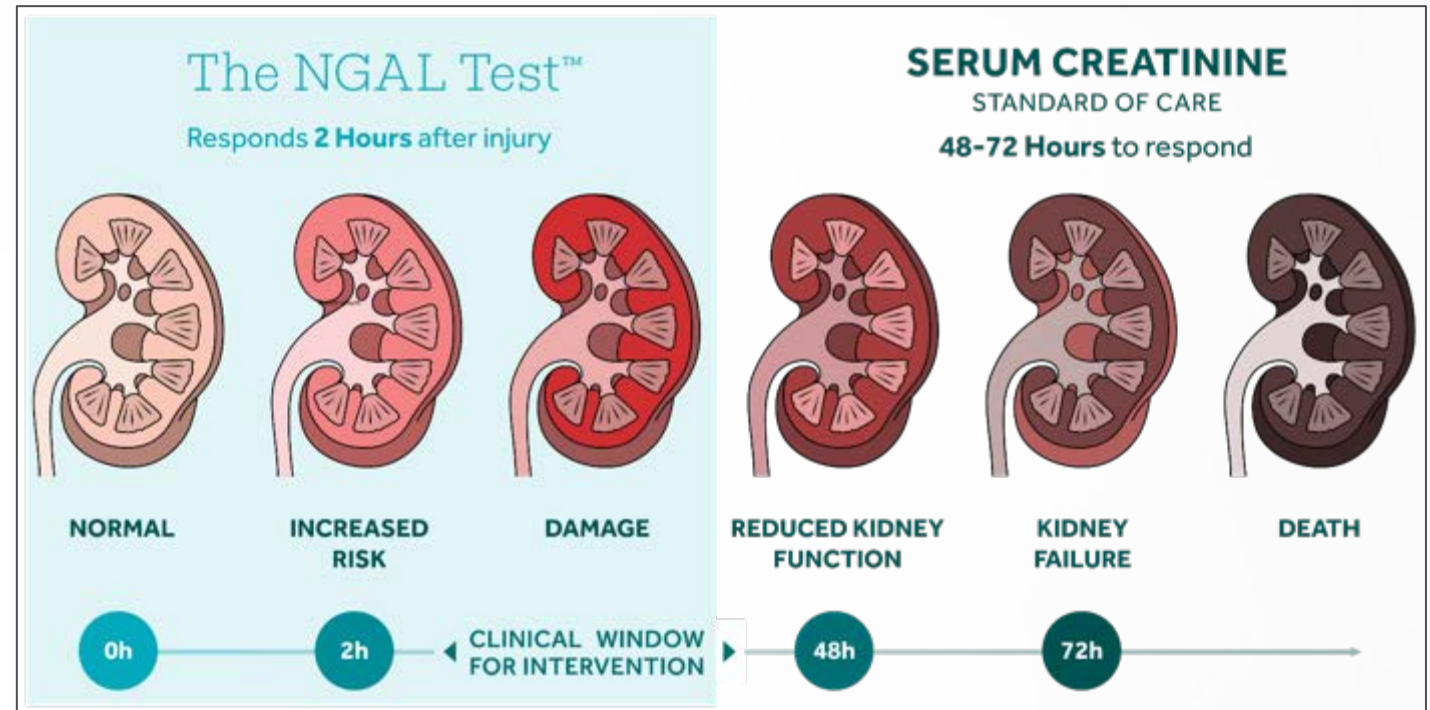




# Standard of Care is Slow and Non-Specific

The NGAL Test is a tool to aid in the risk assessment of AKI.

As a marker that responds within 2 hours of kidney injury, NGAL can provide a faster assessment of AKI risk - two to three days faster than serum creatinine - and is specific to kidney injury.



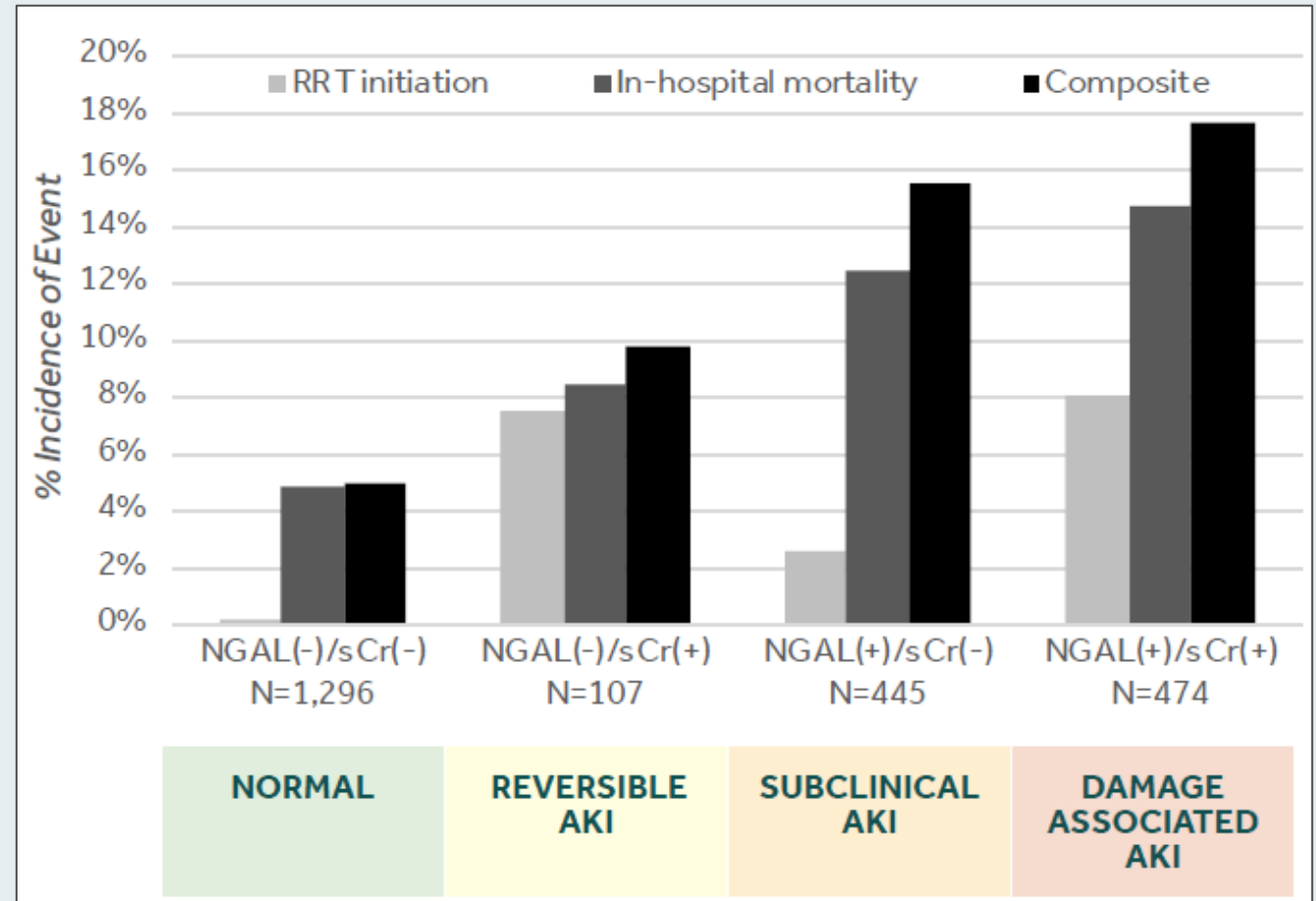
The NGAL Test is CE marked and available for IVD use in the European Union, Canada, Korea and Israel. For research use only in all other territories.



## NGAL+ Identifies Poorer Outcomes

This 2011 multicenter pooled analysis of prospective studies evaluated data from 2,322 critically ill patients from 10 prospective observational studies of NGAL showed:

***“In the absence of diagnostic increases in serum creatinine, NGAL detects patients with likely subclinical AKI who have an increased risk of adverse outcomes.”***



Adapted from Haase M et al. The outcome of neutrophil gelatinase-associated lipocalin-positive subclinical acute kidney injury: a multicenter pooled analysis of prospective studies. *J Am Coll Cardiol.* 2011;57(17):1752–1761.



*The NGAL Test\**

# Potential Benefits Across the Healthcare Ecosystem



## Patients

- Faster identification of AKI risk
- Earlier interventions to limit kidney damage
- Fewer missed cases of AKI



## Providers

- Better triage decisions
- Avoid unnecessary tests/therapies
- Faster feedback on interventions
- Avoid false negative diagnoses



## Core Lab

- Runs on automated analyzers
- Fast processing time, simple set up
- Matrix flexibility (blood or urine)
- Low cost per test (\$20)



## Hospitals

- Reduce morbidity and mortality
- Fewer patients needing RRT
- Shorter lengths of stay
- Reduced cost per patient

\*The NGAL Test is CE marked and available for IVD use in the European Union, Canada, Korea and Israel. For research use only in all other territories.



# Regulatory Strategy

---





# Regulatory Strategy for NGAL

## Pediatrics



1 in 4 affected with AKI<sup>2</sup>  
during hospitalization

Predict AKI Risk in  
Intensive Care Setting

- Urine samples
- Predict Stage 2/3 AKI

De novo application being  
developed, expected  
submission 2020

## Adults



1 in 5 adults affected with AKI  
during a hospital episode of  
care<sup>1</sup>

Predict AKI Risk in  
Intensive Care Setting

- Plasma sample
- Predict Stage 2/3 AKI

Study planning underway,  
expected submission to follow  
pediatric clearance

## Additional Indications

- Nephrotoxicity
  - Oncology
  - Cardiology
  - Diabetes
  - Transplant
  - Autoimmune
- Therapeutic monitoring
- Diagnosis of AKI
- Point-of-care applications

Initiate following potential  
FDA clearance of initial AKI risk  
assessment indications

# The Addressable Market

---





# Addressing a Significant Unmet Need

*Initial Focus*  
Global Opportunity: ~100 M tests; \$2 Bn

*Long Term*  
Global Oppt'y: ~150M tests; \$3Bn

**Research Use Only**  
(Currently ~30 AMCs)

**Pediatric Risk Assessment (ICU)**  
*Breakthrough Designation; submit 2020)*

**Adult Risk Assessment (ICU)**  
*(Submit following pediatric clearance)*

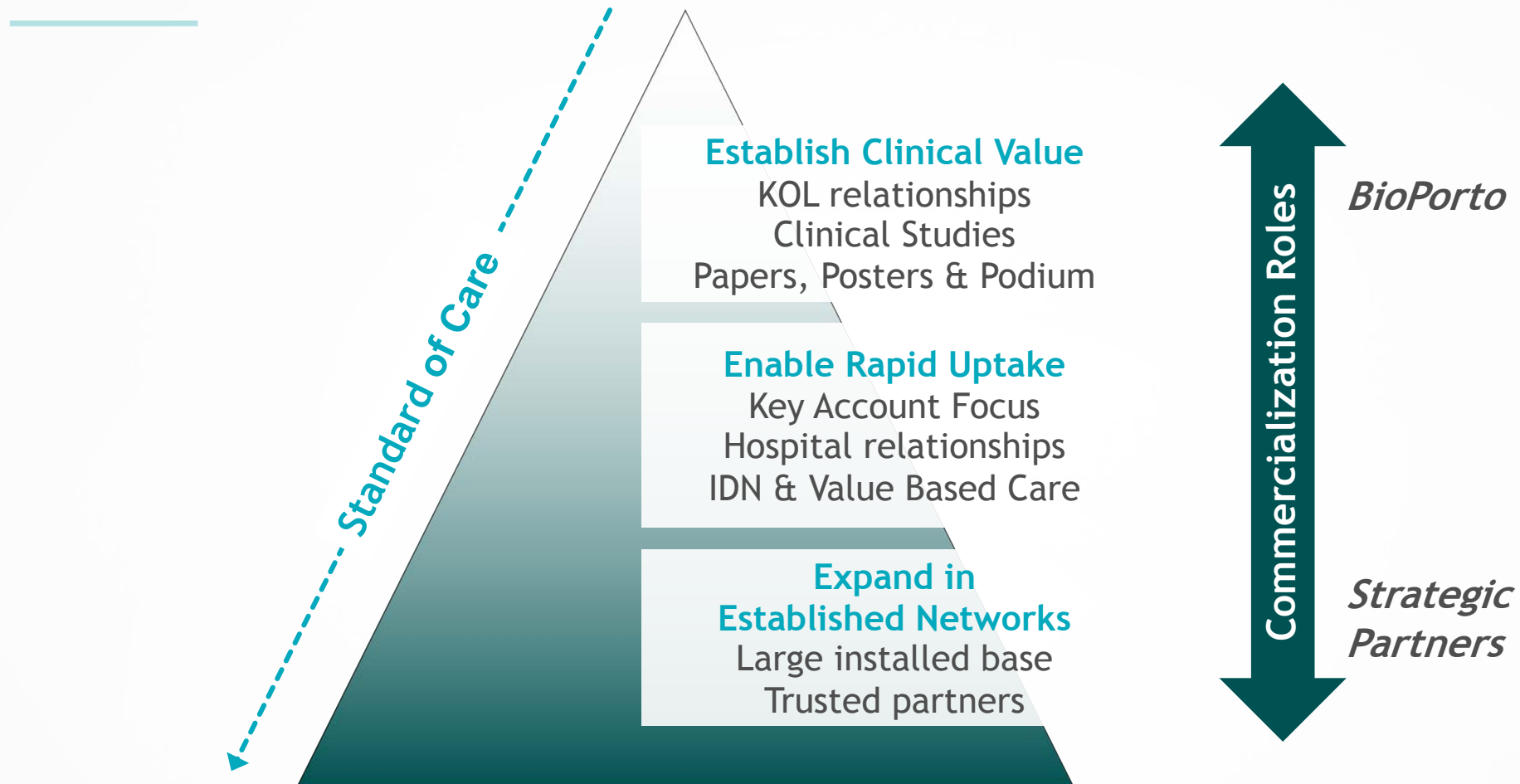
**New indications**

- *Exclusion in the ED*
- *Monitoring*
- *Toxicity*
- *Trauma*



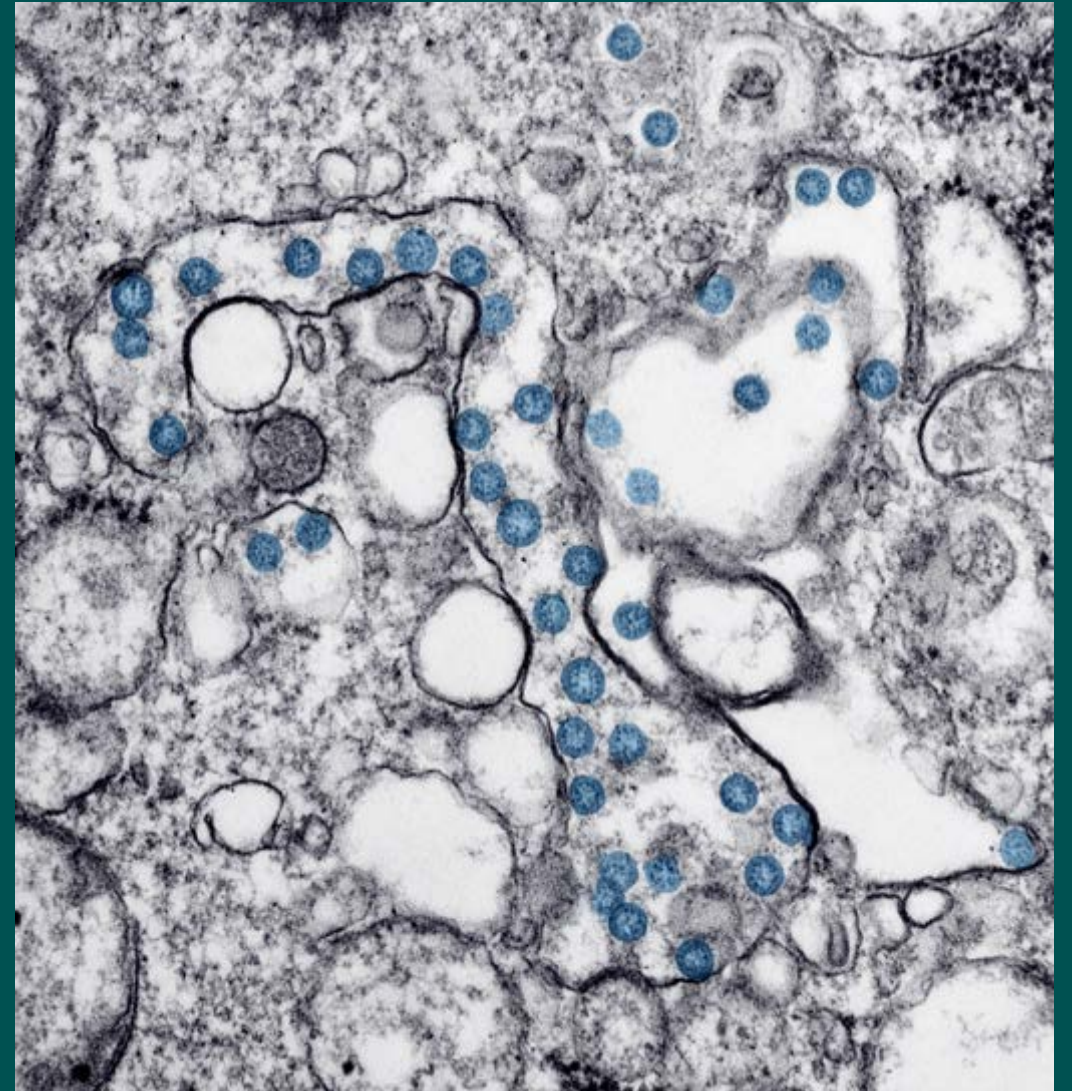
Planned evolution of commercial activities

# Driving Commercialization Through Partnerships



# NGAL & COVID-19

---





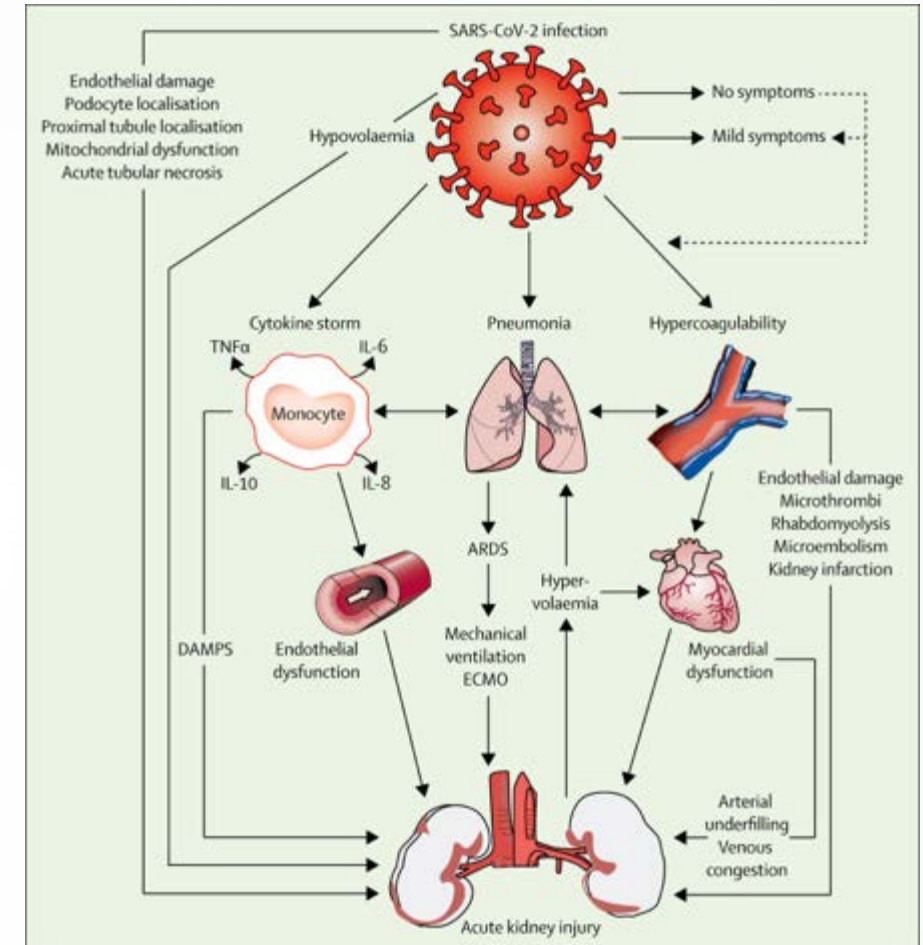


# Multifactorial Causes of Kidney Dysfunction

- Kidney involvement in hospitalized patients is frequent, ranging from mild dysfunction to progressive acute kidney injury (AKI)
- Multiple dependent pathways in the setting of COVID-19 increase the risk of acute kidney injury
- Systemic inflammation precedes cytokine storms where NGAL production is also observed and could potentially be used to triage care
- At right: the possible hemodynamic, proinflammatory and proapoptotic consequences of lung inflammation, cytokine release syndrome, and hypercoagulability on renal function, and potential organ support options
- NGAL may also indicate broader distress caused by inflammation:

“The parallel is that serum/urine NGAL is reflective of IL-6 expression and IL-6 is a mediator of significant early inflammation.”

-Dr. Raj Basu, Children's Hospital of Atlanta



Ronco, C. Management of acute kidney injury in patients with COVID-19; May 14, 2020; DOI:[https://doi.org/10.1016/S2213-2600\(20\)30229-0](https://doi.org/10.1016/S2213-2600(20)30229-0)

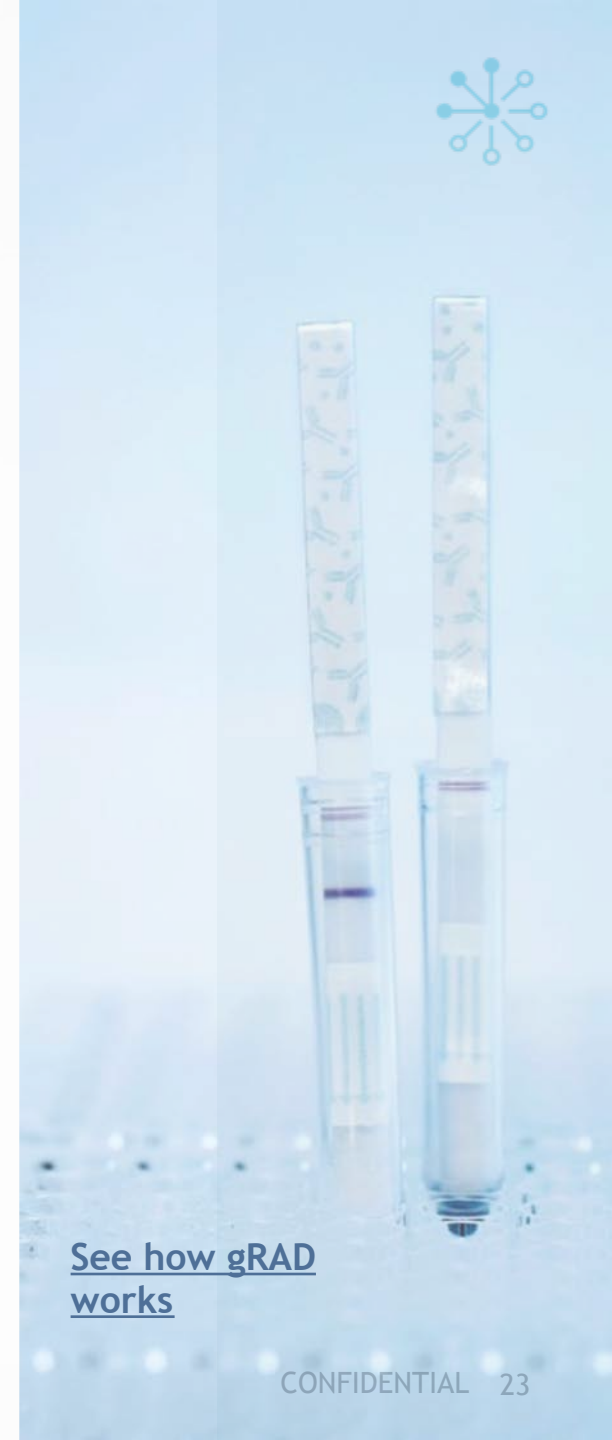
# Generic Rapid Assay Device (gRAD)

---



# Proprietary Platform: gRAD

- BioPorto's patented Generic Rapid Assay Device (gRAD) was developed in 2016 to enable rapid development of lateral flow devices
- gRAD has been used in the development of 3 novel lateral flow tests, including NGALds, Horse NGALds, and SHINEds
- Features of gRAD include:
  - Optimized with two printed lines: a **test line** for biotinylated antibody (or biotinylated protein), and a **control line** designed to capture any mouse, rabbit or goat antibody
  - Biological recognition between the specific capture antibody, the antigen in the sample and the detection antibody occurs in solution - no specific antibodies are immobilized on the strip
  - Assay incubation time is short, typically 10-15 minutes
- Cost effective, flexible design





# Benefits of BioPorto's gRAD Solution

---

## Fast



Short  
incubation time  
<15 minutes

## Versatile



Flexible design  
allows different  
sample types

## Easy



No instruments,  
fewer than 5 steps,  
room temp stable

## Low Cost



Simple format  
with few  
components

## Scalable



Design allows  
rapid iteration  
(days not  
weeks) and  
scale up

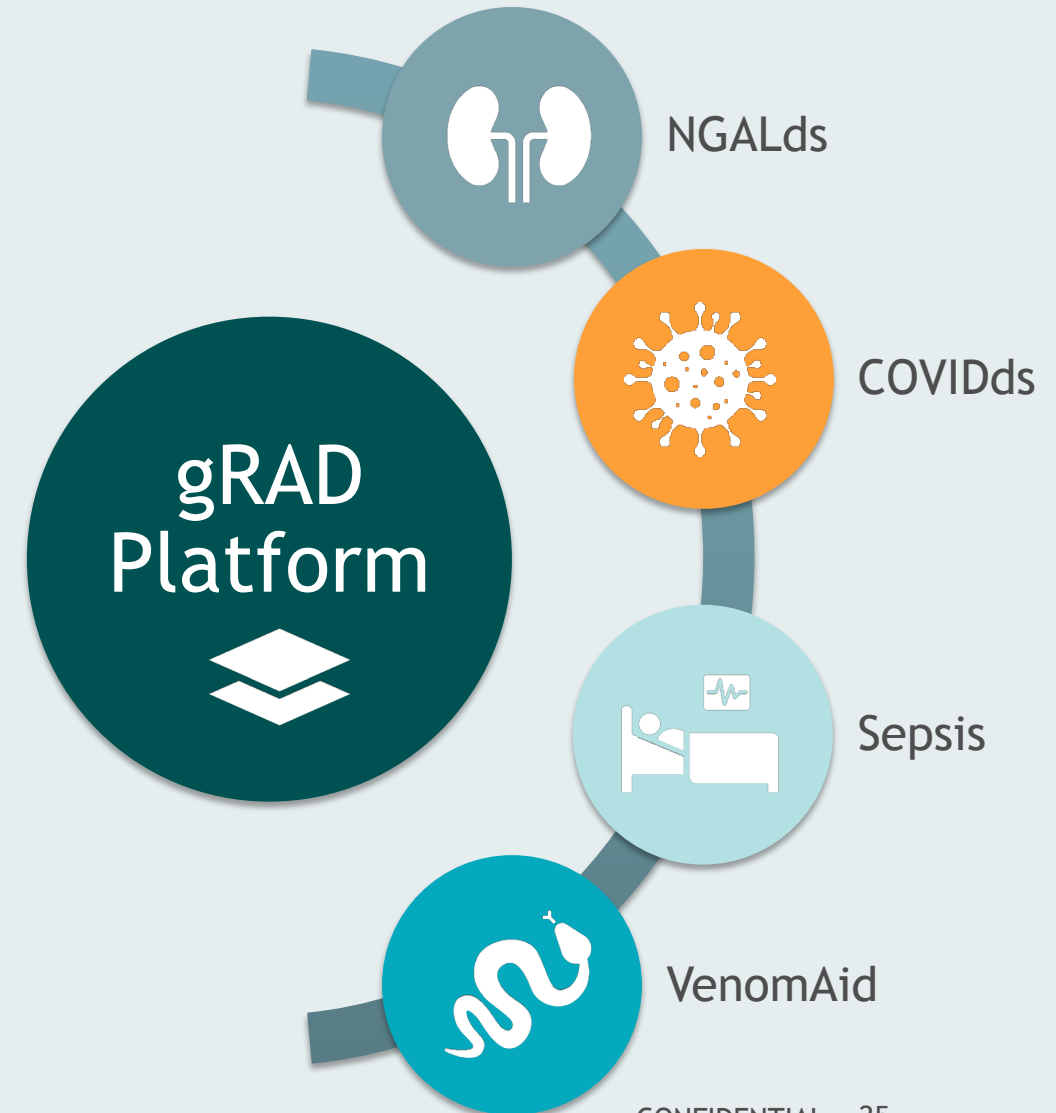


*gRAD*

# Platform for Product Development & Growth

Leveraging the gRAD platform, BioPorto is developing tests for NGAL as well as three emerging applications:

1. **NGALds:** for outpatient assessment of kidney injury
2. **Two COVID-19 assays:** a viral diagnostic test and a serology-based test for immunity assessment
3. **Sepsis:** a blood test using antibodies to thrombomodulin, a marker of endothelial injury, for the early identification of septic shock
4. **Stratification of snakebites:** Rapid tests to allow for earlier intervention, with the possibility to treat using specific, rather than broad-spectrum, antivenoms



# 2020 Milestones

---







*Clinical, regulatory and commercial*

# Targeted 2020 Milestones

---



- Finalize collection of data for the FDA application of The NGAL Test for pediatrics and submit application in the second half of 2020
- Collect supplementary data to support submission of an application for The NGAL Test in adults
- Co-development of COVID-19 tests for early and rapid detection of SARS-CoV-2 with SDU
- Review new opportunities for NGAL and BioPorto's antibody library
- Grow total revenue by 10%
- Financial projections: Revenue of DKK 30m and an EBIT loss of DKK 73m



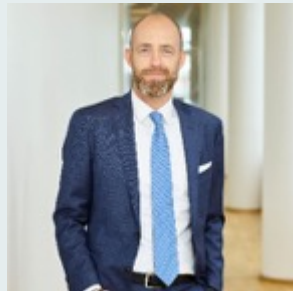
*BioPorto's leadership*

# Experienced International Management Team

---



**Peter Mørch Eriksen**  
CEO



**Ole Larsen**  
CFO



**Jan Kuhlmann**  
COO



**Amy Winslow**  
President,  
BioPorto Diagnostics Inc.



**Christopher Bird**  
CMO, BioPorto Inc.

# Thank you !

