

# Extracorporeal Blood Purification With the oXiris Filter for Patients With Sepsis and Hyperinflammatory Conditions: The Asia-Pacific oXiris Expert Meeting 2024 Consensus Statements

Ling Zhang, MD, PhD<sup>1\*</sup>; Nattachai Srisawat, MD, PhD<sup>2\*</sup>; on behalf of the Asia-Pacific oXiris Expert Group<sup>†</sup>

<sup>1</sup>Division of Nephrology, West China Hospital of Sichuan University, Chengdu, China

<sup>2</sup>Excellence Center for Critical Care Nephrology, King Chulalongkorn Memorial Hospital, and Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

## INTRODUCTION

- Sepsis and other hyperinflammatory conditions represent a major challenge in critical care, often leading to multi-organ failure and high mortality.
- CRRT is a cornerstone of support for these patients, particularly those with concurrent AKI.
- The oXiris filter is a multi-modal device for extracorporeal blood purification, uniquely combining:
  - » Endotoxin adsorption
  - » Cytokine adsorption
  - » Standard hemofiltration/dialysis
- This approach aims to reduce circulating inflammatory mediators, helping to restore immune balance in critically ill patients.

## OBJECTIVE

To formulate expert consensus statements based on the latest clinical evidence to guide the practical use of the oXiris filter in patients with sepsis and hyperinflammatory states requiring CRRT.

## METHODS

A structured, multi-step consensus process was employed:

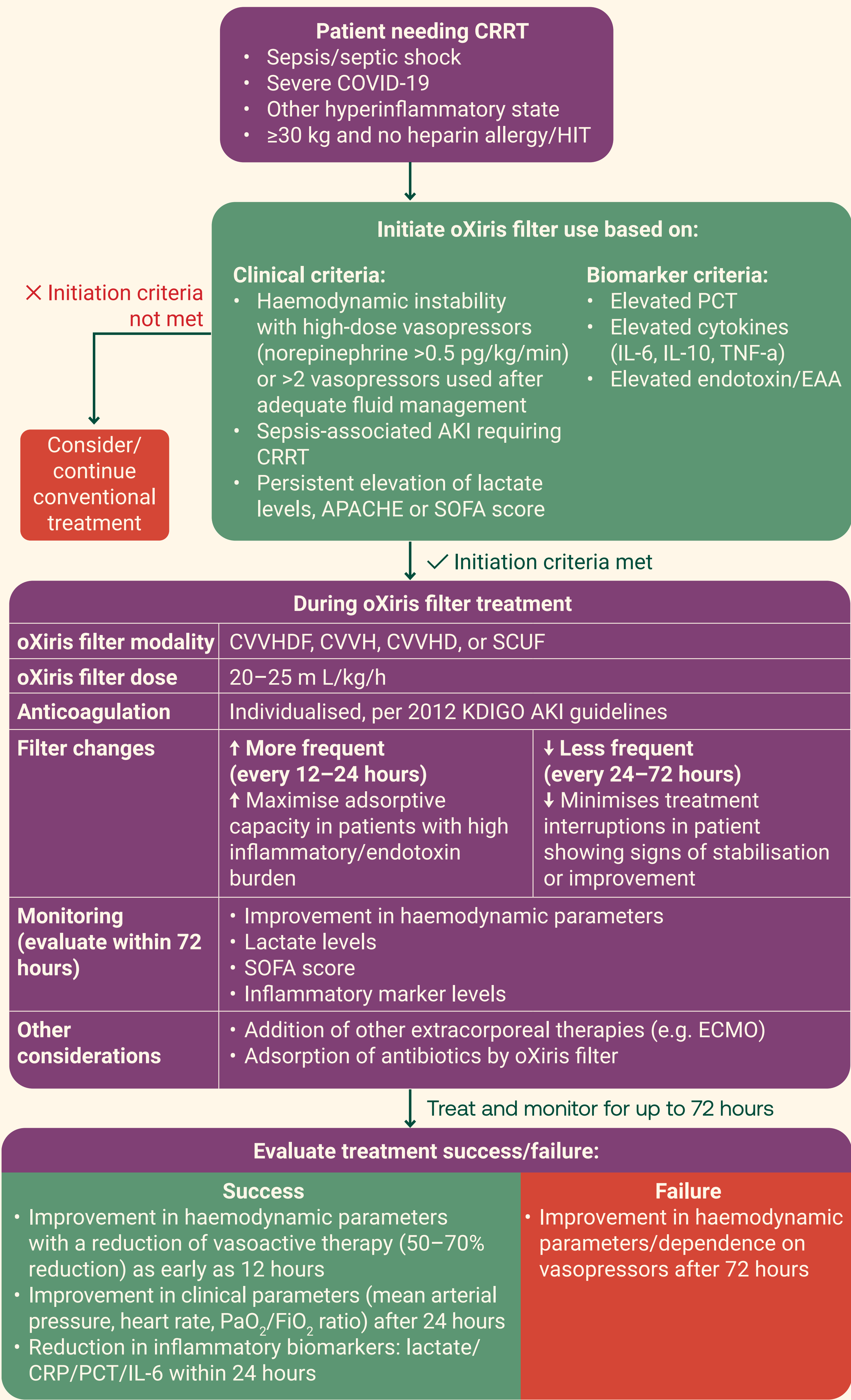
- Expert Panel:** The Asia-Pacific oXiris Expert Group was formed, comprising senior intensivists and critical care nephrologists from 9 territories with extensive experience using the oXiris filter.
- Evidence Review:**
  - » Key clinical questions were developed using the Population, Intervention, Comparator, Outcome (PICO) framework.
  - » Systematic literature searches were conducted to identify all eligible studies involving the oXiris filter.
  - » Data from eligible studies were extracted and organised into evidence summary tables.
- Consensus Development:**
  - » Draft statements were formulated based on the synthesised evidence.
  - » A formal consensus meeting was held in September 2024, where statements were discussed, refined, and voted on using a modified Delphi method until consensus was achieved.

## RESULTS

- The literature search identified **100 eligible studies** for review, covering patient populations with sepsis/septic shock, severe COVID-19, ARDS, and other hyperinflammatory states.
- A total of **17 statements achieved consensus**:
  - » **3 Recommendations**
  - » **14 Practice Points**
- These statements provide guidance on the initiation, monitoring, and evaluation of oXiris filter treatment. Selected statements and practice points have been summarised as an algorithm (**Figure 1**).

- A key recommendation was also made for using the oXiris filter in patients undergoing cardiopulmonary bypass for cardiac surgery who are at high risk for developing AKI.

**Figure 1. Treatment algorithm for oXiris filter use in patients needing CRRT with sepsis/septic shock, severe COVID-19, or other hyperinflammatory states.**



## CONCLUSIONS

- These consensus statements provide a practical, evidence-based framework to assist clinicians in the use of the oXiris filter for critically ill patients with sepsis and hyperinflammatory states requiring CRRT.
- The provided algorithm offers a clear, actionable pathway for patient selection, treatment monitoring, and evaluation of success.
- These statements are intended as a guide and must be personalized based on the treating team’s clinical judgment and individual patient characteristics.
- Well-designed randomized clinical trials are needed to further establish the impact of oXiris filter treatment on clinical outcomes and solidify its role in critical care.

\*These authors contributed equally to this work and should be considered co-first authors.

<sup>†</sup>The Asia-Pacific oXiris Expert Group: L. Zhang, N. Srisawat, C-C. Lee, D.H. Lee, K. Lee, Z. Liu, F.S. Mohamad Nor, R. Mustafar, S. Peerapornratana, M.H. Pham, D.W. Sewa, G.K.Y. Tang, Y-C. Yeh, M. Zhu, Q. Yao, M. Wang, R. Bellomo.

**Abbreviations:** AKI, acute kidney injury; APACHE, Acute Physiology and Chronic Health Evaluation; ARDS, acute respiratory distress syndromes; CRP, C-reactive protein; CRRT, continuous renal replacement therapy; CVVH, continuous venovenous haemofiltration; CVVHD, continuous venovenous haemodialysis; CVVHDF, continuous venovenous haemodiafiltration; EAA, endotoxin activity assay; ECMO, extracorporeal membrane oxygenation; HIT, heparin-induced thrombocytopenia; IL, interleukin; KDIGO, Kidney Disease Improving Global Outcomes; PaO<sub>2</sub>/FiO<sub>2</sub>, partial pressure of oxygen to fraction of inspired oxygen ratio; PCT, procalcitonin; SCUF, slow continuous ultrafiltration; SOFA, Sequential Organ Failure Assessment; TNF, tumor necrosis factor.

**Disclosures:** Development of the consensus meeting and publication was supported by an educational grant from Baxter International Inc., the authorized distributor of the oXiris filter at the time of the meeting (now Vantive Health LLC).