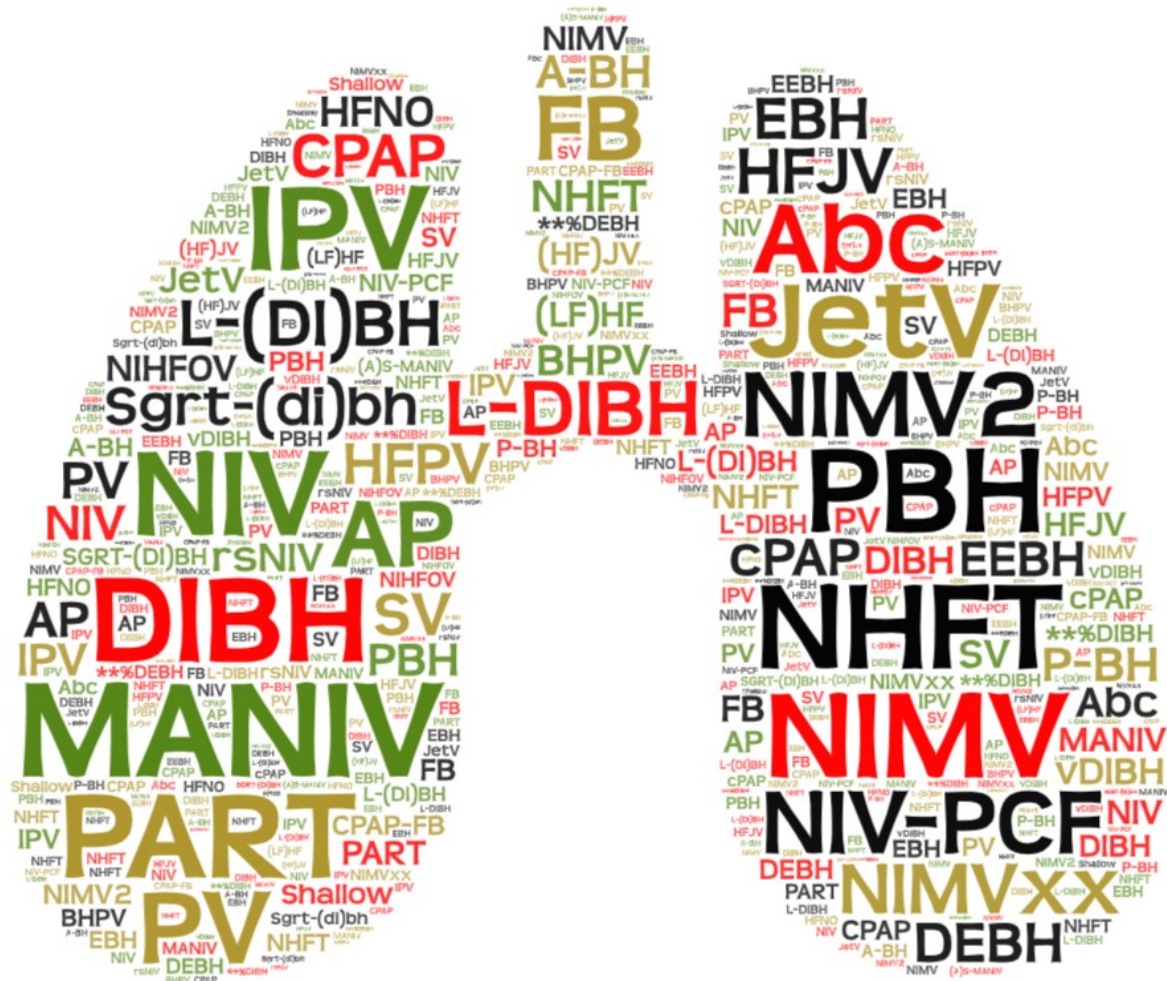


BRIC Delphi Consensus Project

Taxonomy and Terminology for Non-Invasive Breathing Techniques Used in Radiotherapy Preliminary Results



A BRIC Initiative

- Terminology often unfamiliar, inconsistently used, and difficult to share across teams
- Need for a common language aligned with ventilation concepts and adapted to radiotherapy
- Collective goal to improve communication, training, and clinical consistency

"What we realised is not that people are wrong but that we are not always using the same words to mean the same things."

Goal = To develop together a clear, harmonised, consensus-based taxonomy

October 2025

First Survey

Round 1
44 items

BRIC PANEL
Propositions

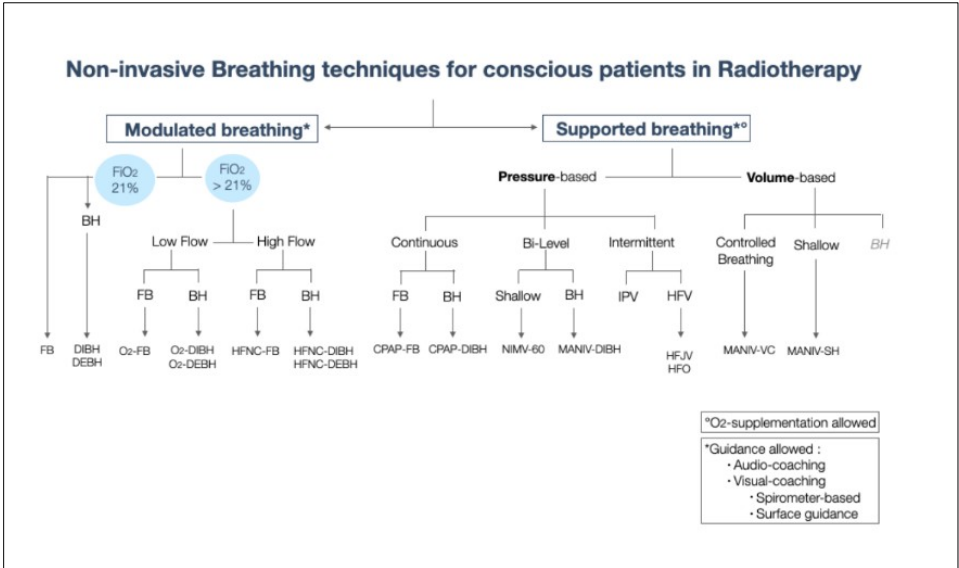
BRIC Experts
N =24

9
DIBH or DEBH (deep inspiration/expiration breath-hold) are modulated breathing techniques in which patients perform voluntary BH without additional O2 supply. *

Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree

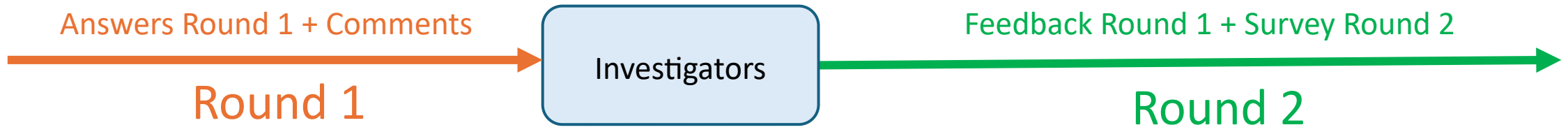
10
Do you have any comment?

Enter your answer



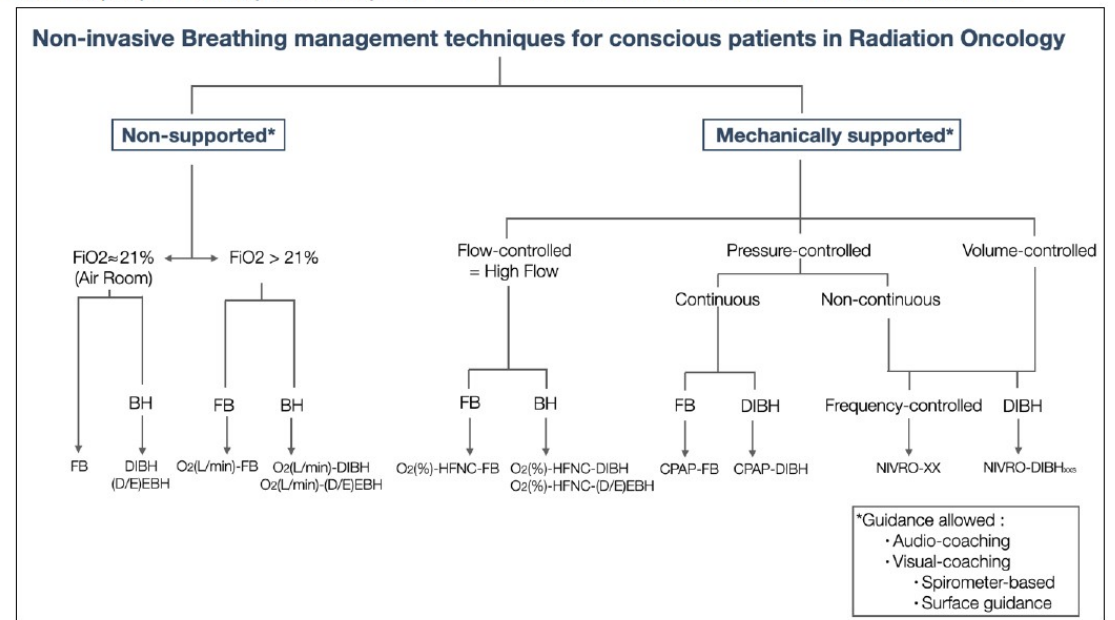
Items + Comments possibilities

Taxonomy Figure



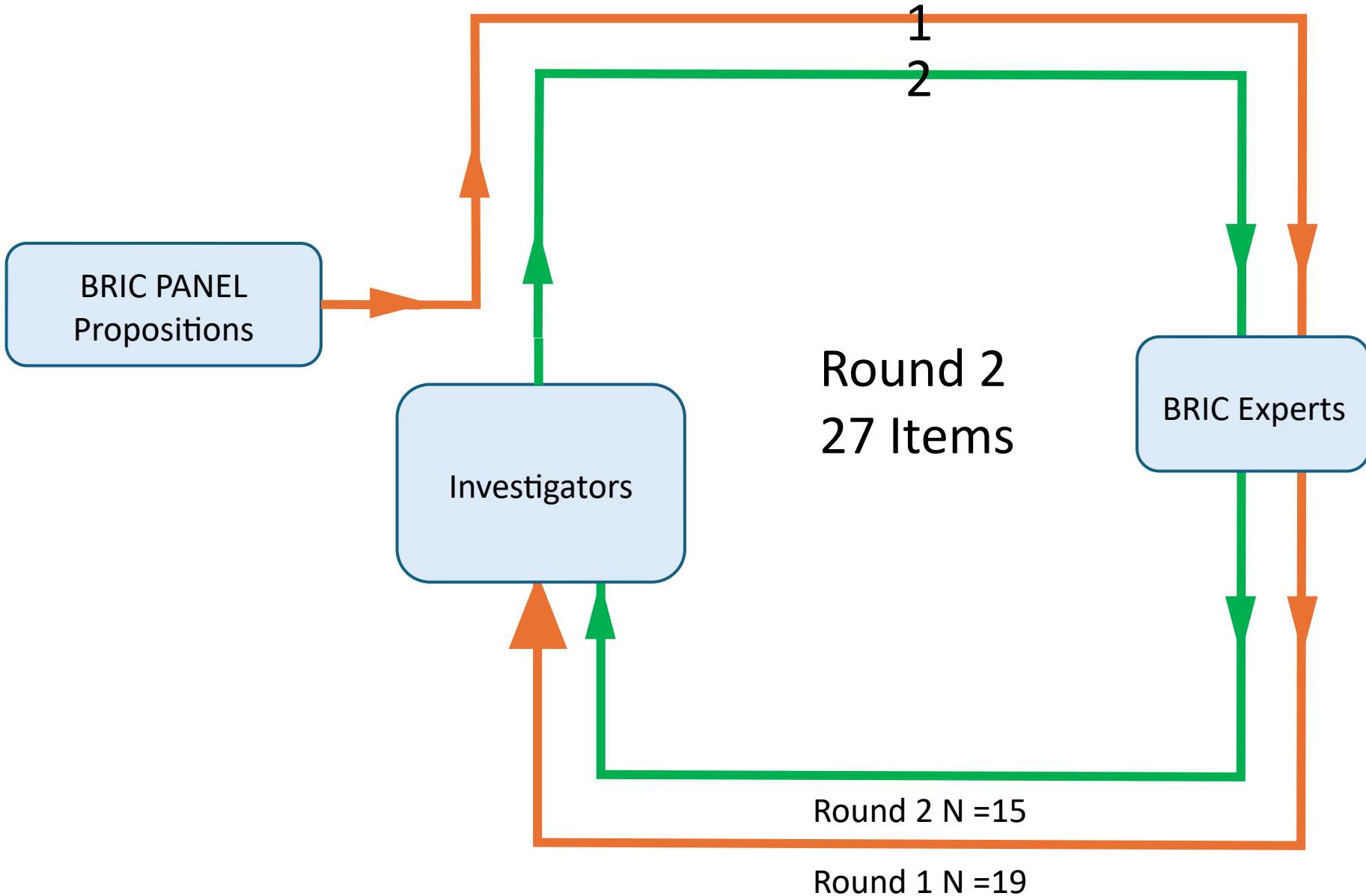
15/44 items
Consensus $\geq 75\%$

Items adapted following comments



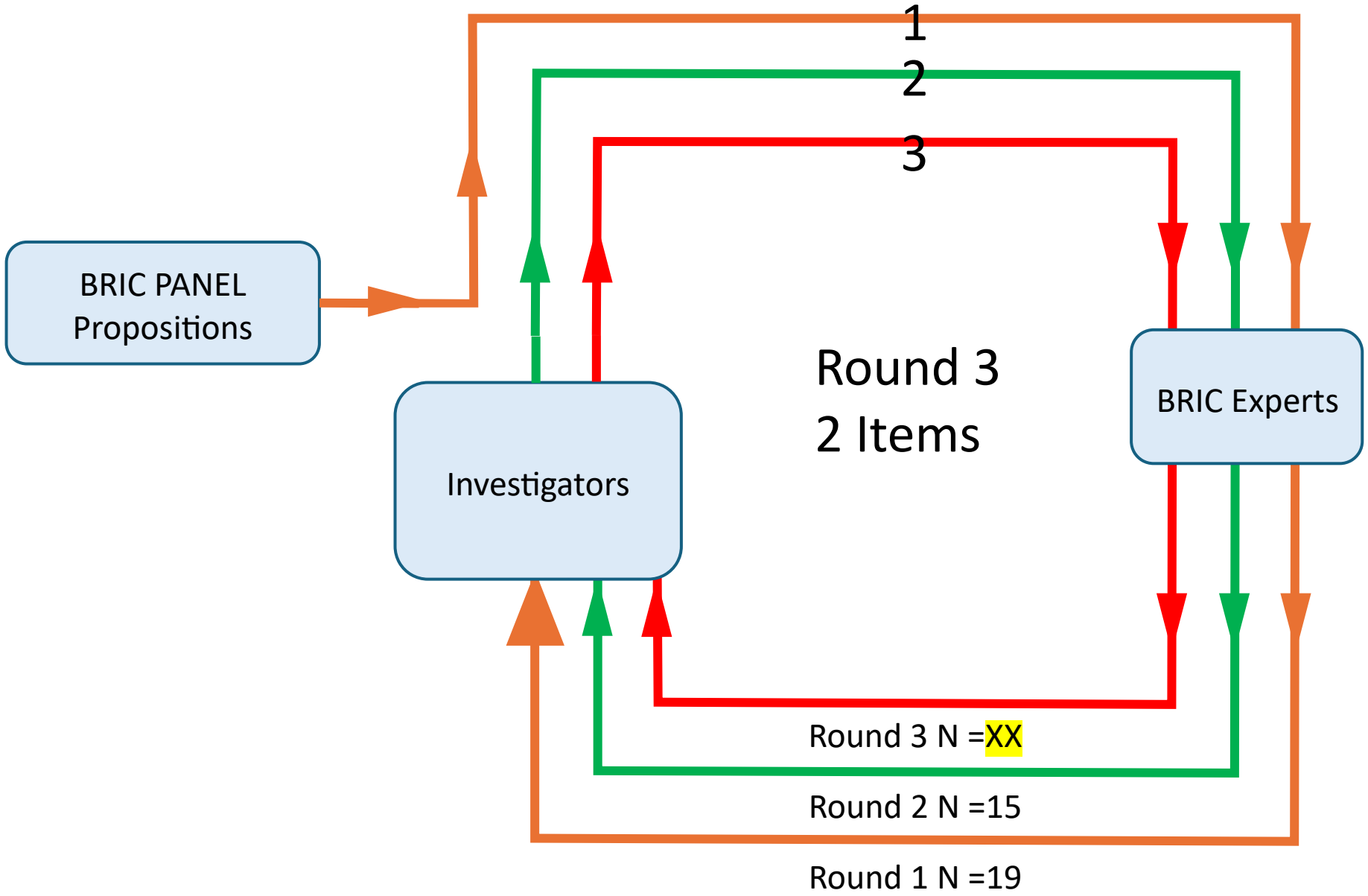
Taxonomy Figure and definitions adapted

February 2026

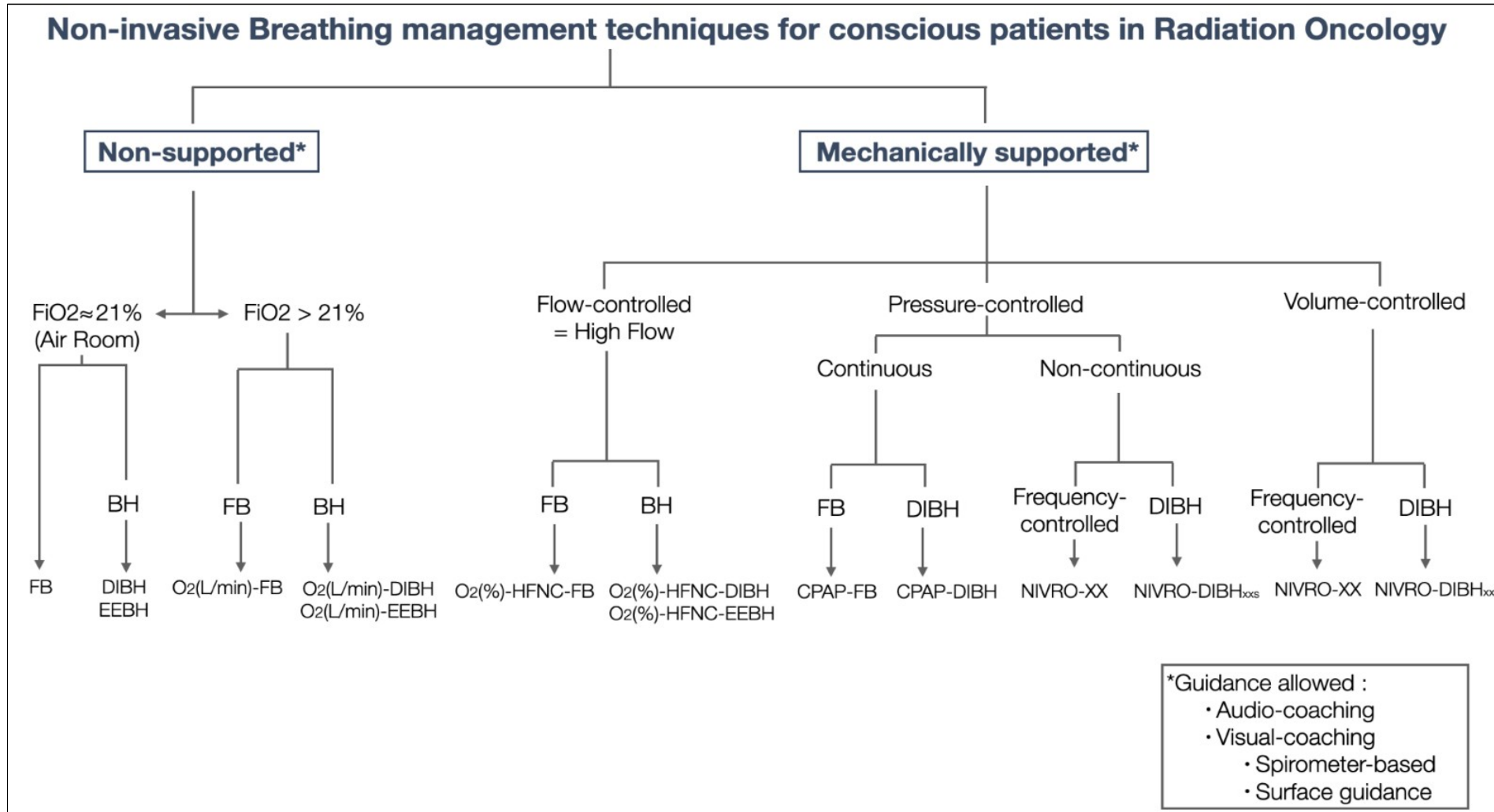


42/44 items
Consensus $\geq 75\%$

April 2026

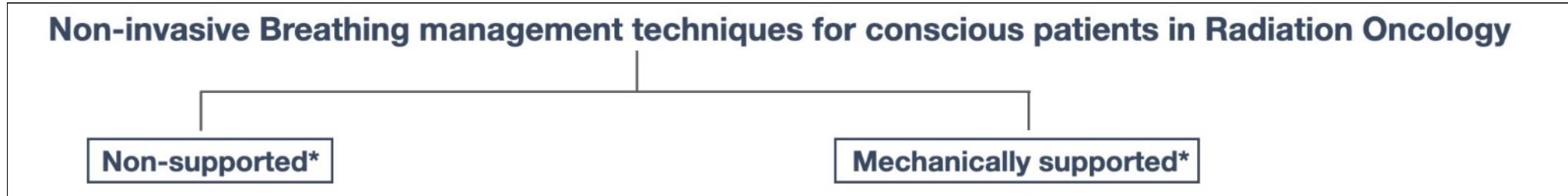


BRIC Consensus : Proposed Taxonomy Figure*



Terminology used here is descriptive and does not replace existing clinical ventilation terms

BRIC Consensus : Proposed Taxonomy Figure*



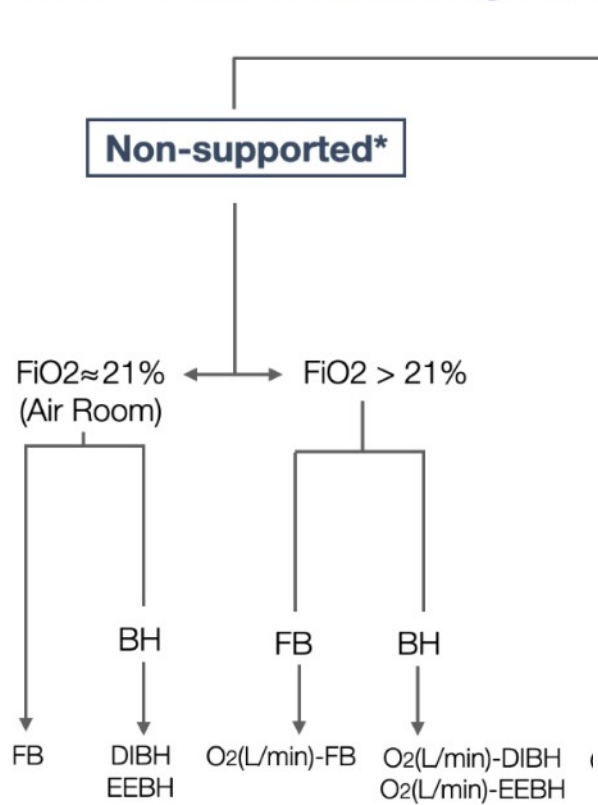
“Supported” refers to the use of a **mechanical device** allowing regulation of at least one breathing parameter:

- **Flow** → high-flow devices
- **Pressure** → CPAP, percussive or jet devices, ventilators
- **Volume** → ventilators

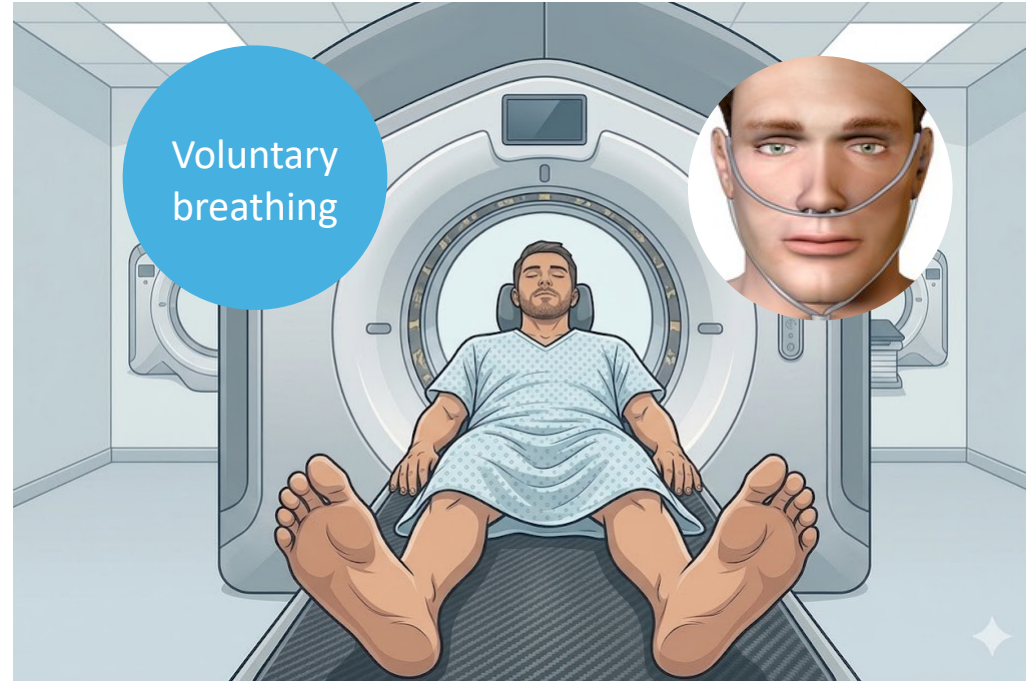
“Mechanically” clarifies that support is provided by a device, not by oxygen supplementation alone or audio/visual coaching.

Non-supported techniques = exclusively on patient-driven breathing

Non-invasive Breathing management techniques for conscious patients in Radiation Oncology



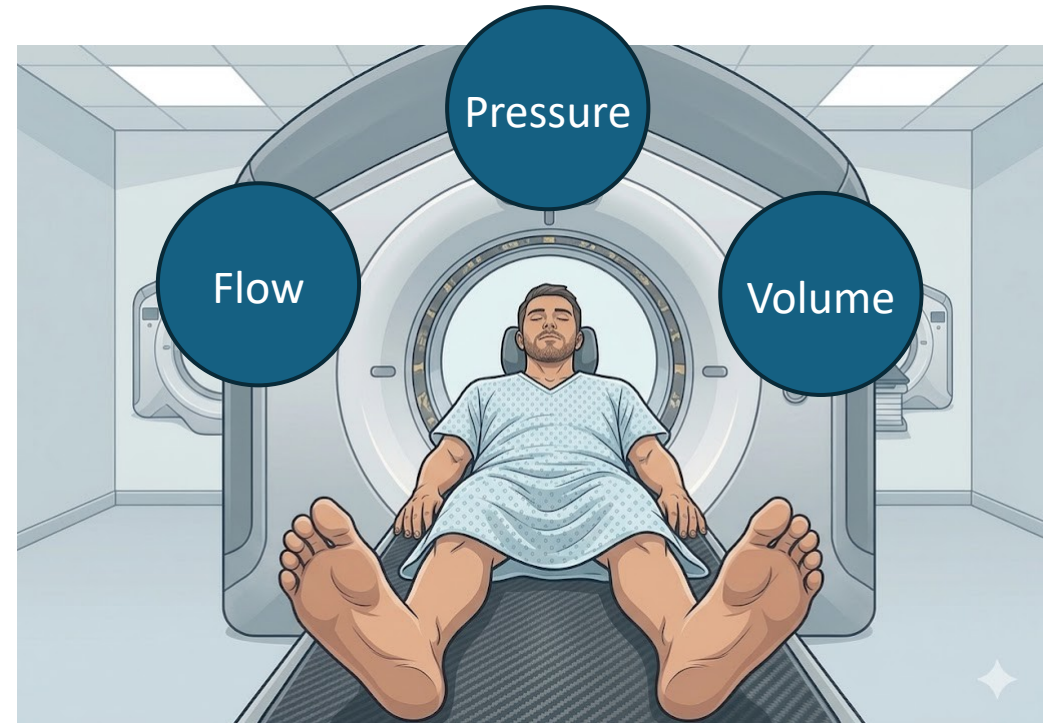
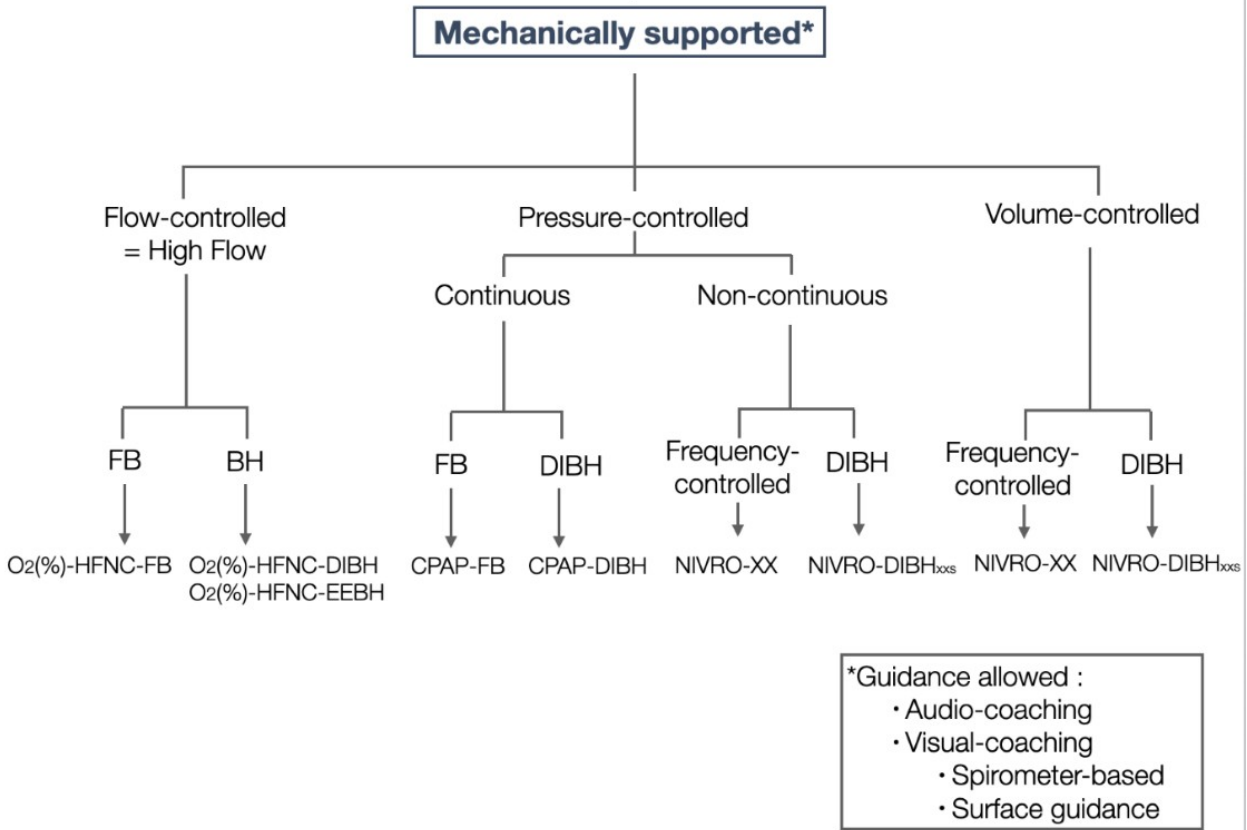
- *Guidance allowed :
- Audio-coaching
 - Visual-coaching
 - Spirometer-based
 - Surface guidance



Wall-supplied low-flow oxygen delivery is not considered mechanical support, as FiO₂ cannot be precisely controlled.

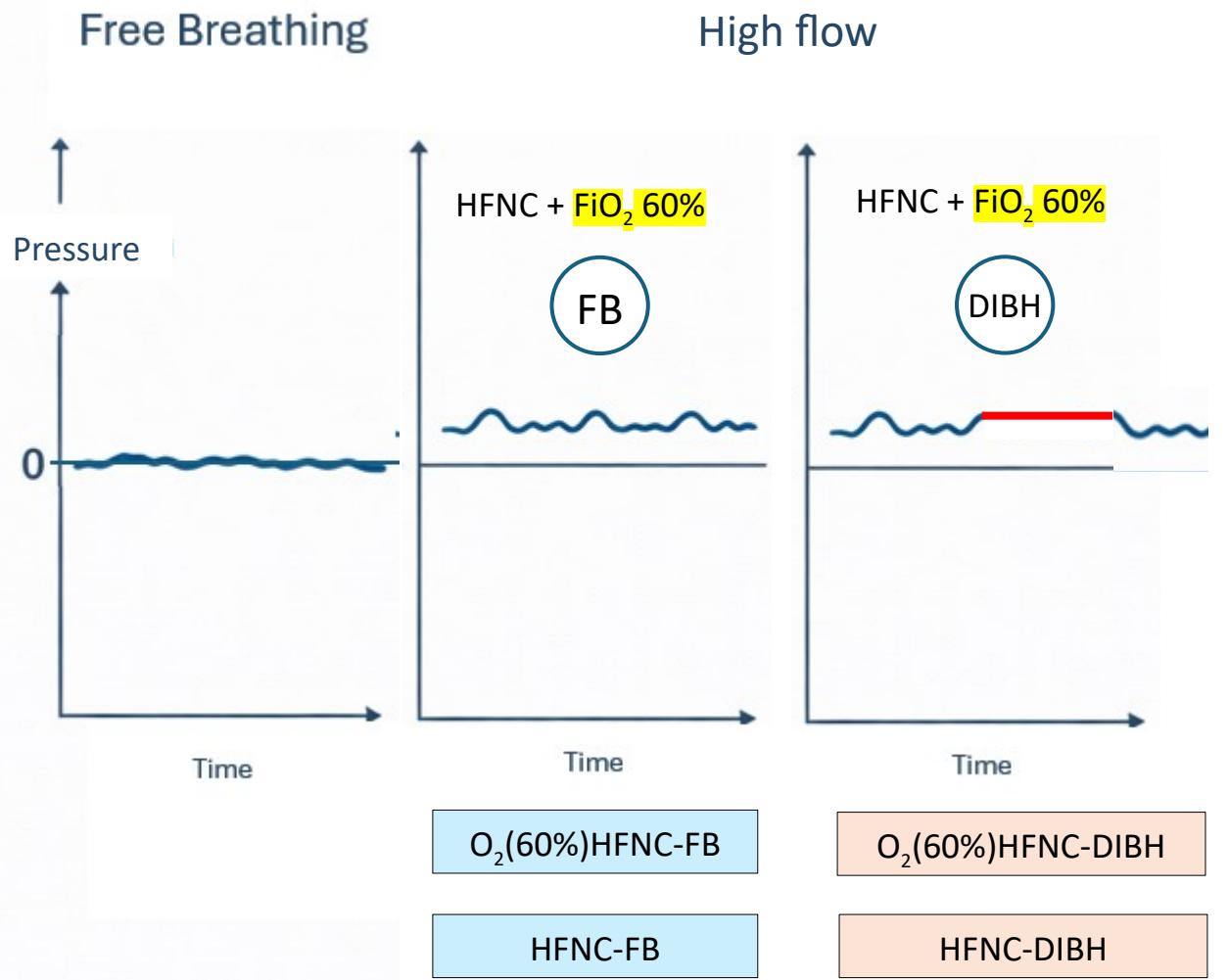
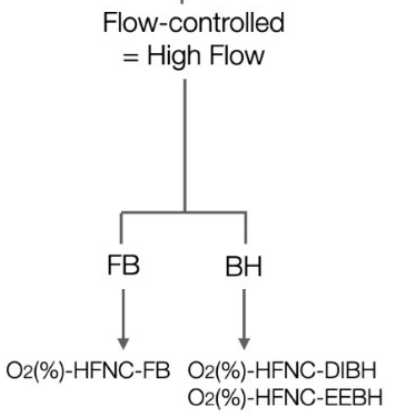
DIBH + 4 L/min O₂

O₂(4L/min)-DIBH



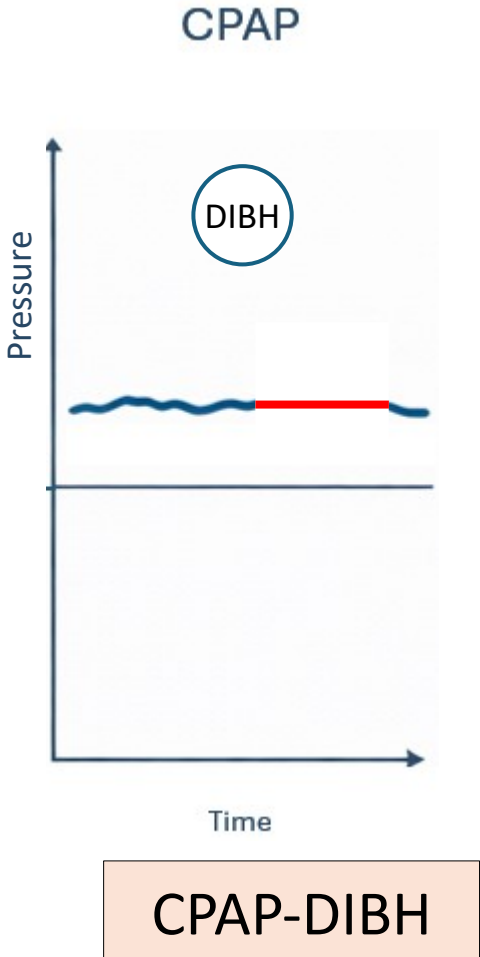
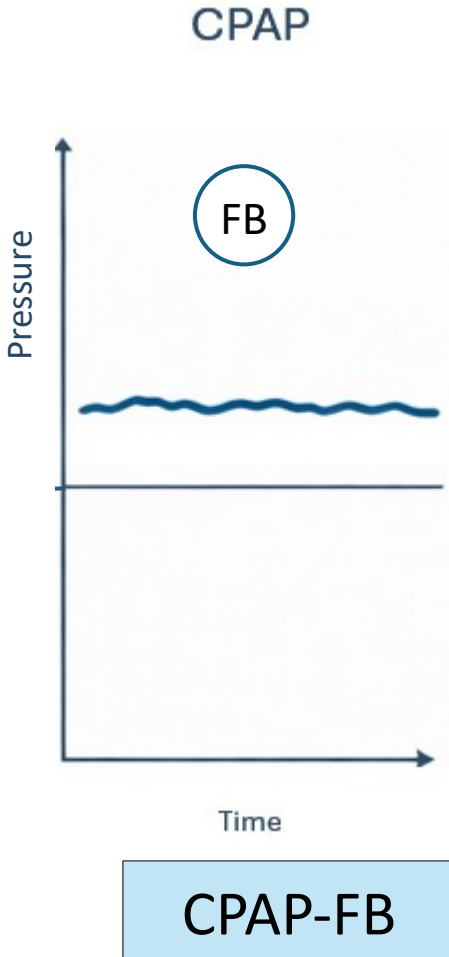
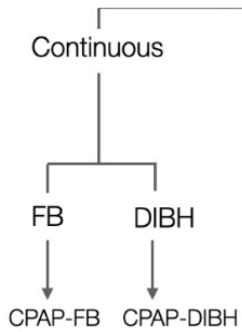
Flow

Flow-controlled

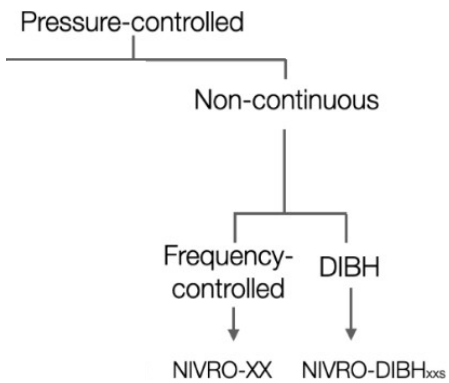


Pressure

Pressure-controlled
Continuous

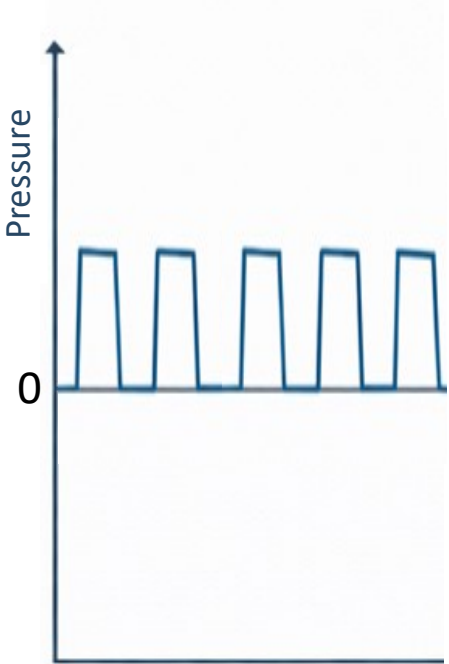


Pressure



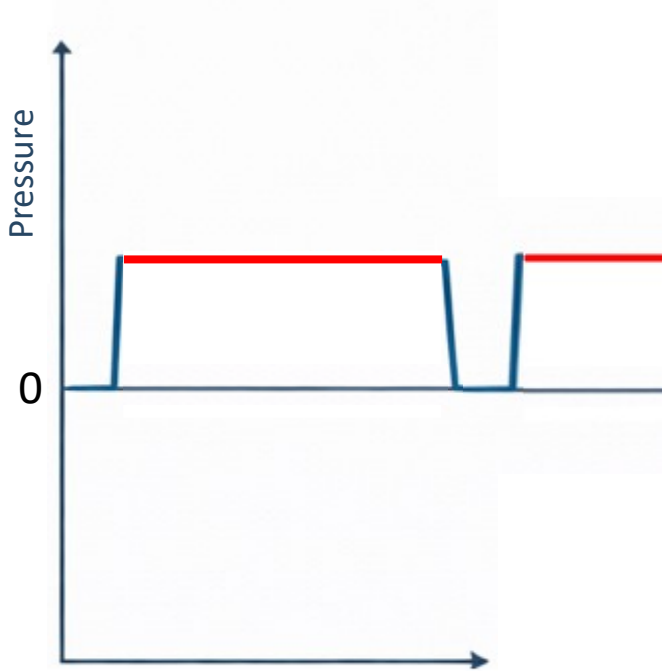
Pressure-controlled

Frequency controlled



NIVRO-XX

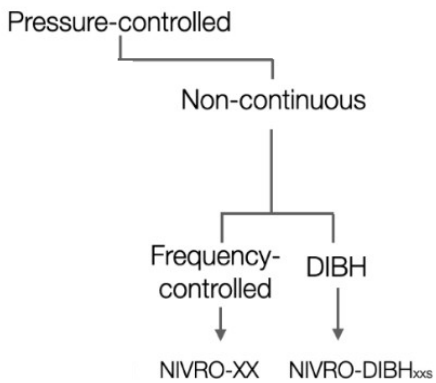
DIBH



NIVRO-DIBH_{xx}

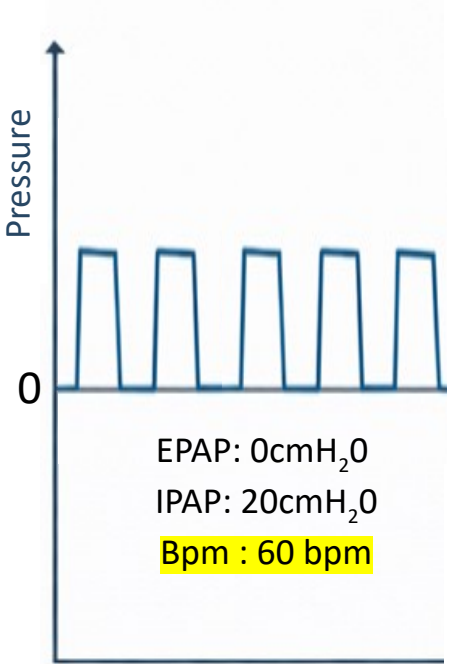
Non-Invasive Ventilation in Radiation Oncology

Pressure



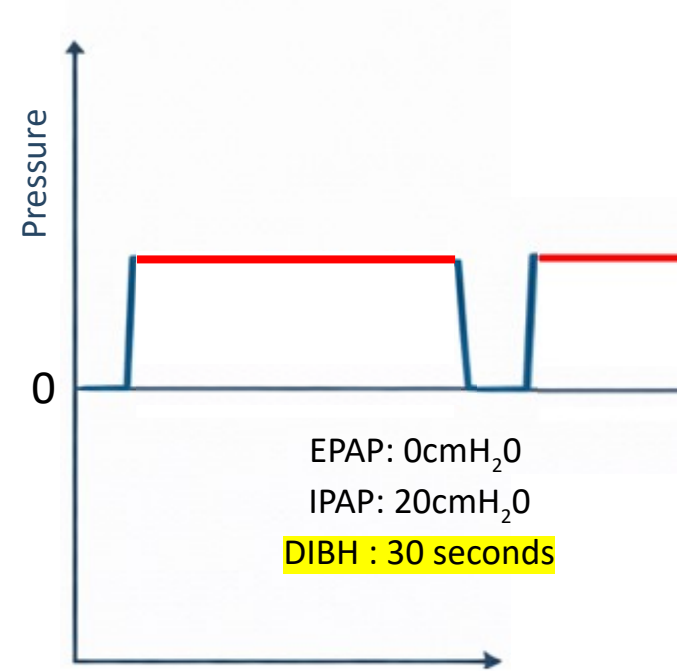
Pressure-controlled

Frequency controlled



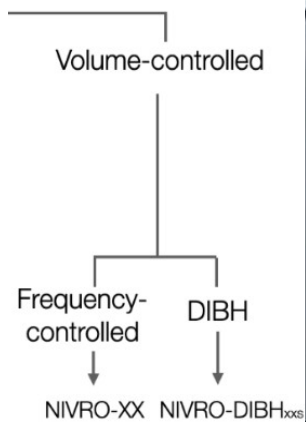
NIVRO-60

DIBH



NIVRO-DIBH₃₀

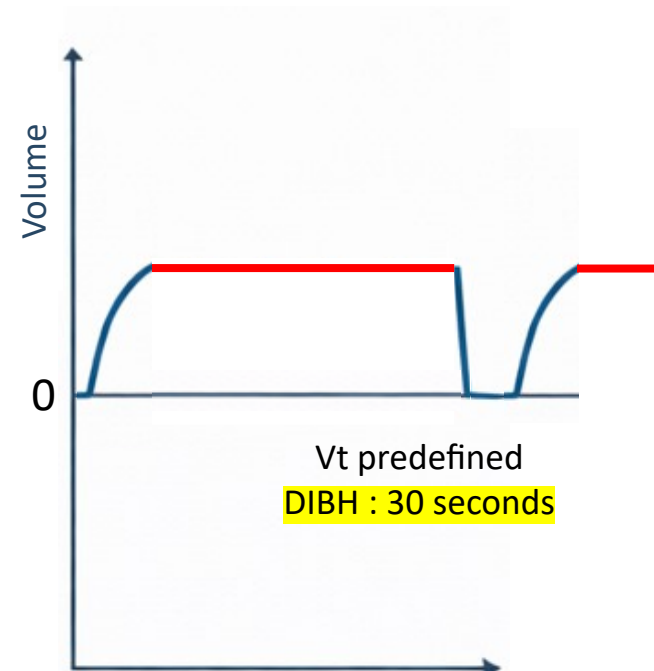
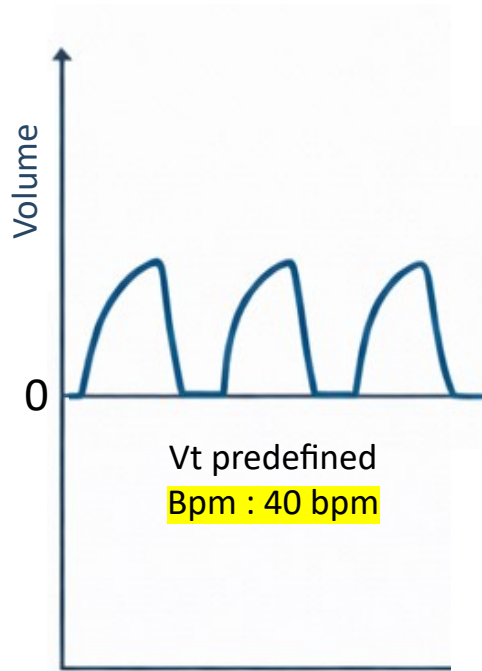
Pressure



Volume-controlled

Frequency controlled

DIBH




NIVRO-40

NIVRO-DIBH₃₀

A wireframe representation of a human figure, primarily showing the head, neck, and upper torso, rendered in a light blue color against a dark blue background. The figure is composed of interconnected points and lines, giving it a skeletal or digital appearance.

Thank you for your attention!

Shared language
enables
shared progress

A wireframe representation of a human figure, primarily showing the head, neck, and upper torso, rendered in a light blue color against a dark blue background. The figure is composed of interconnected points and lines, giving it a skeletal or digital appearance.

International Symposium Birmingham 2026

Breathing Control for Motion Management
in Radiotherapy and Imaging

nicolas.audag@saintluc.uclouvain.be