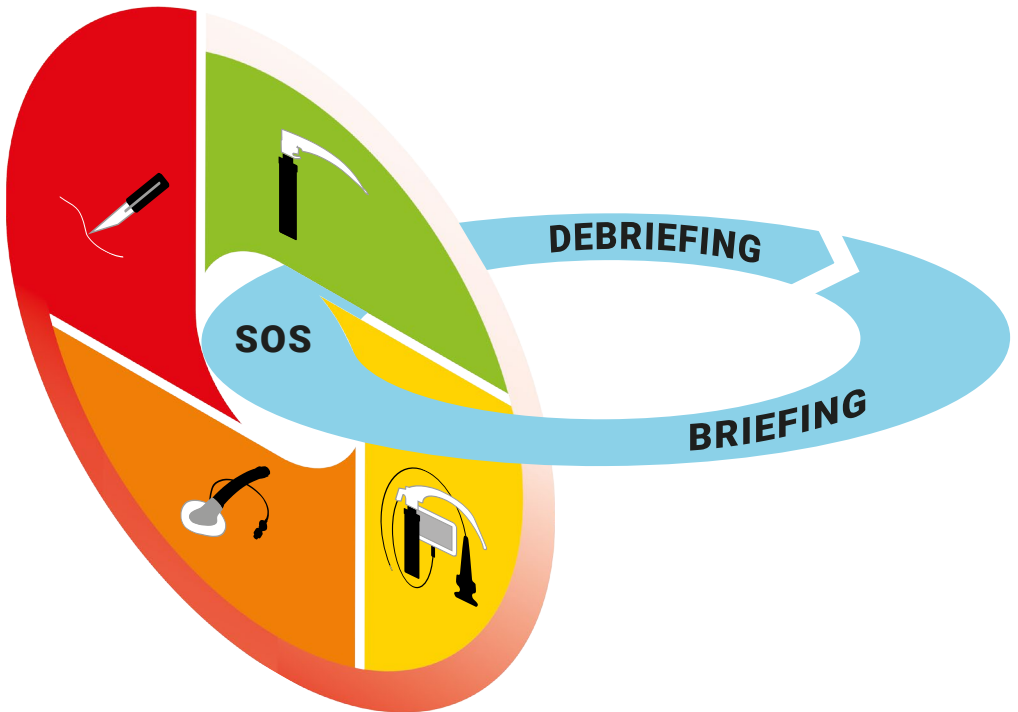


**TECHNICAL
SKILLS**

**NON-TECHNICAL
SKILLS**



INTRODUCTION



Airway management is complex and dynamic. It may also be unpredictable, stressful and challenging for the team while life-threatening for the patient.

The 2021 **FLAVA Airway Guidelines (FLAG)** are intended to guide and assist clinicians to develop strategies to manage airway situations. They can be used for daily routine management as well as for anticipated and unanticipated airway difficulties.

The FLAG encompasses a cognitive aid associated to a colour coded airway cart.

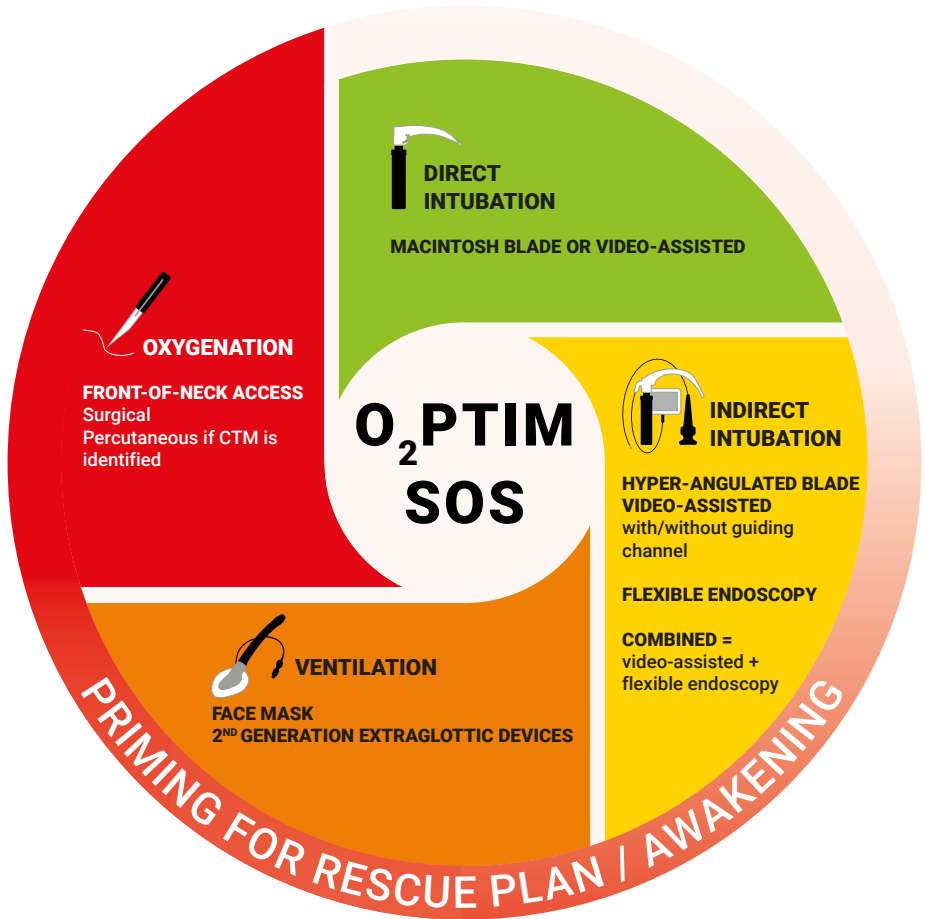
The ultimate goals are to improve patient safety and prevent adverse events, by promoting a constant readiness to face any kind of airway challenge, anytime, anywhere.

These tools aim to improve airway management by integrating both technical and non-technical skills. They are in line with the most up to-date knowledge in the field.

To have the greatest impact, the concept promoted by FLAVA must be customized to each institutional constraints and needs. It should be part of a comprehensive airway management policy, including:

- Promoting inter-professional communication to aim at a shared institutional mental model for airway management.
- Creating a dedicated curriculum to train both technical and non-technical skills.
- Demonstrating its impact as a proof of quality and excellence in airway management.
- Designating an institutional referent for airway management.

COGNITIVE AID TECHNICAL SKILLS



CIR N°

O₂xygenation | masks | cannulas | high-flow humidified | NIV

Position | handling | BURP | suction

Type and size (appropriate tools)

Introducers | stylets and guides

Muscle relaxants | cricothyroid **M**embrane identified

STOP

State the problem, describe the situation, and allocate time to reflect.

OPTIONS

Invite input, analyze, understand the causes, and decide on next steps accordingly.

SHARE

Communicate and allocate tasks.

COGNITIVE AID - ACRONYMS

O₂PTIM

This mnemonic is a reminder of the importance of OPTIMizing several basics and technical issues.

SOS

This mnemonic emphasizes key non-technical skills (teamwork, situation awareness, communication, decision-making and task management), the necessity of calling for help and the critical importance of elapsed time.

COGNITIVE AID NON-TECHNICAL SKILLS

NON-TECHNICAL SKILLS

PRE-ACTION

GOALS

- PREPARATION AND STRATEGY
- SHARED UNDERSTANDING

POST-ACTION

GOAL

- LEARNING



IN ACTION

GOALS


- ADAPTATION
- OPTIMIZE TEAM PERFORMANCE

PRIMING FOR RESCUE PLAN / AWAKENING

**O₂
P
T
I
M
S
O
S**




DIRECT INTUBATION
MACINTOSH BLADE
OR VIDEO-ASSISTED



INDIRECT INTUBATION
HYPER-ANGULATED BLADE - VIDEO-ASSISTED
with/without guiding channel
FLEXIBLE ENDOSCOPY
COMBINED = video-assisted + flexible endoscopy



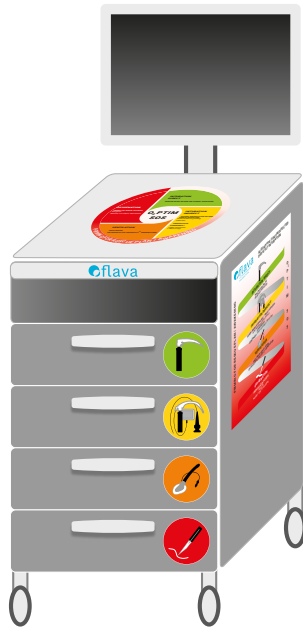
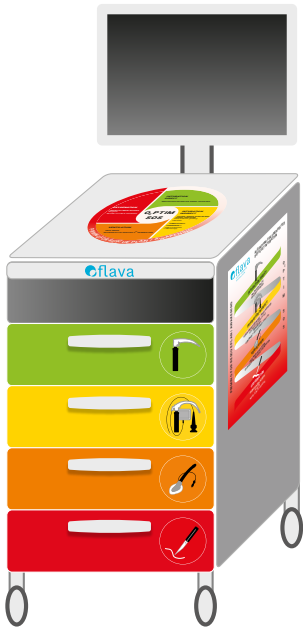
VENTILATION
FACE MASK VENTILATION
2ND GENERATION EXTRAGLOTTIC DEVICES



OXYGENATION
FRONT-OF-NECK ACCESS
Surgical
Percutaneous if CTM is identified

FLAVA AIRWAY CART AND AIRWAY TOOLS

- The organization of the FLAVA Airway Cart and its tools must reflect the algorithm using dedicated colored plans **GREEN, YELLOW, ORANGE, RED.**
- Each drawer :
 - > corresponds to a plan
 - > is color-coded according to each plan
 - > contains the tools to achieve the plan
- The principle of each tool is of essence, not the brand (left to institutional preference).
- The algorithm must be easily accessible and clearly visible.



EXPLANATORY DIAGRAMS

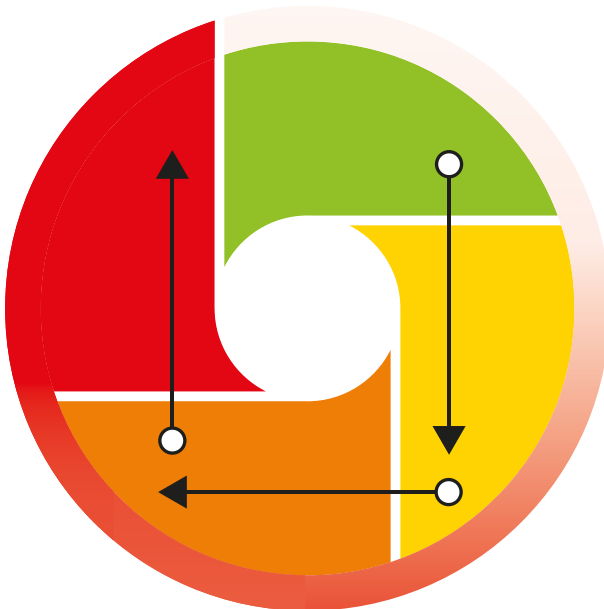
THE CIRCULAR COGNITIVE AID PLAN / STRATEGY / SUCCESS

The 2021 **FLAVA** Airway **G**uideline (FLAG) combines both technical and non-technical skills.

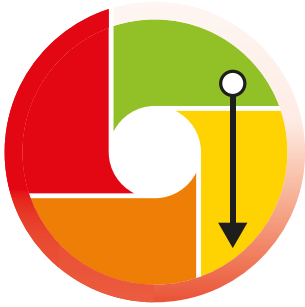
Its four **PLANS** represent the different possible steps to achieve the best airway strategy for success.

It is the right combination of the different steps (not always the “classic” sequence from **GREEN** to **RED**) that will lead to the best strategy. The circular shape of the algorithm is intended to reflect this philosophy (see examples below).

The clinical situation and the team expertise will dictate the best combination at that time to achieve success.



EXAMPLES OF DIFFERENT CLINICAL SITUATIONS

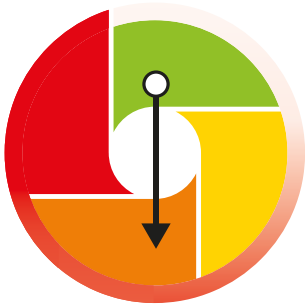


DIRECT LARYNGOSCOPIC INTUBATION

- Unexpectedly difficult direct laryngoscopy (Cormack-Lehane grade 4) → videolaryngoscopy.

Sequence of plans :

GREEN → **YELLOW** → **SUCCESS**



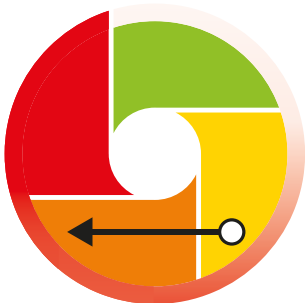
DIRECT LARYNGOSCOPIC INTUBATION

- Unexpectedly difficult direct laryngoscopy (Cormack-Lehane grade 4) with severe oxygen desaturation → oxygenation by face mask or laryngeal mask.*

Sequence of plans :

GREEN → **ORANGE** → **SUCCESS**

* (2nd generation laryngeal mask)



INDIRECT INTUBATION BECAUSE OF ANTICIPATED INTUBATION DIFFICULTIES

- Videolaryngoscopy with hyper-angulated blade as first choice, impossibility of intubation, desaturation → oxygenation by face mask or laryngeal mask.*

Sequence of plans :

YELLOW → **ORANGE** → **SUCCESS**

* (2nd generation laryngeal mask)



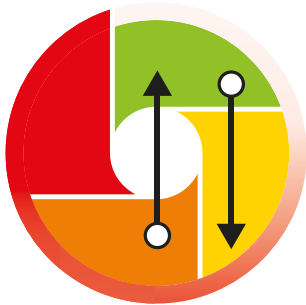
INDIRECT INTUBATION BECAUSE OF ANTICIPATED INTUBATION DIFFICULTIES

- Videolaryngoscopy with hyper-angulated blade as first choice, impossible to visualize vocal cords because of the continuous presence of blood/secretions in large quantities.

Sequence of plans :

YELLOW → **GREEN** * → **SUCCESS**

* (direct laryngoscopy with large-bore aspiration allowing the visualization of the vocal cords)

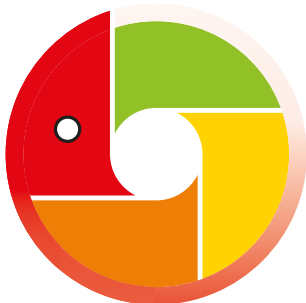


INITIAL EXTRAGLOTTIC DEVICE

- General anaesthesia with laryngeal mask as first line, failure of laryngeal mask due to leaks → attempt at intubation by direct laryngoscopy, Cormack-Lehane 4 → Intubation by videolaryngoscopy hyper-angulated blade.

Sequence of plans :

ORANGE → **GREEN** → **YELLOW** → **SUCCESS**



INITIAL FRONT-OF-NECK ACCESS

- Severe angioedema making access through the mouth or nose impossible → emergency cricothyroidotomy under local anaesthesia.

Sequence of plans :

RED → **SUCCESS**

IMPORTANT COMMENTS

The 2021 **FLAVA Airway Guidelines** (FLAG) and cognitive aids are intended to guide and assist clinicians **to develop strategies to manage airway situations**. They can be used for daily routine management as well as for anticipated and unanticipated airway difficulties.

The **clinical and paraclinical** (ultrasound, radiological, nasofibrosopic) **assessment** are essential for **understanding difficulties and their origins/mechanisms**.

In the event of **anticipated difficulties, an individualised strategy, based on the FLAG, should be developed**. It should take into account, among other things, the difficulties expected in terms of intubation, ventilation (need to maintain spontaneous breathing) and oxygenation.

In each plan every effort should be undertaken **to make the first attempt the best one**. Further attempts may increase the risk of airway injury and deteriorate the situation.

During preparation and planning we recommend **routine clinical/echographic identification of the cricothyroid membrane (CTM)**.

Periprocedural oxygenation to prolong apneic time is a priority. Various techniques can be considered such as low flow nasal cannula, High Flow Nasal Oxygen, NIV.

Consider **awakening the patient** as a possible option throughout the management.

Individual and team key Non-Technical Skills (NTS) are paramount for optimal airway management. This concept is embodied by the **SOS** acronym.

The development of a strategy for **safe extubation** must be considered routinely. Identification of risk factors related to patient airway / comorbidities and surgical procedures mandate specific management and a dedicated action plan (e.g. ENT examination, extubation catheter).

Equipment and organization of the difficult intubation trolley must reflect the algorithm, which must be readily available and clearly visible.

It must be accompanied by **a global institutional airway management strategy** including: training in technical and non-technical skills, quality control, institutional referent.