



# Out-of-Hospital Intubation Classic Laryngoscopy or Video Laryngoscopy?

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## INTRODUCTION

Our ambulance service Croce Verde Lugano (CVL) is located in Switzerland, in the Canton of Ticino. Currently, the intervention territory covers an area of 320 km<sup>2</sup>, which includes 49 municipalities with a total of 150,000 inhabitants (approximately 40% of the total cantonal population). The CVL is a member of the "Federazione Cantonale Ticinese Servizi Autoambulanze" (FCTSA), a group that since 1977, represents all the ambulance services at cantonal level, including the REGA, and manages the health alarm and coordination centre "Ticino Soccorso 144". CVL carries out around 10,000 interventions per year, 400 of which are life-threatening (NACA 5, 6, 7) and may therefore require intubation. Oro-tracheal intubation is a specialised technical procedure that is usually performed in pre-hospital patients who are no longer able to protect their airways independently. As this is a highly specialised technique that occurs in a limited number of cases, it was decided to monitor the cases detail.

## METHODS

To document our work, we have created a computerised questionnaire that allows us to analyse IOT in depth. The document has been active since March 2019 with 272 intubations recorded by the end of 2021.

### Objectives of data collection

To monitor intubations, use of devices, problems that arise and the solutions adopted. The document is completed by the practitioner (doctors or nurse specialists) who performs the intubation (even if no intubation is performed). Completion of the document only takes a few minutes and can be quickly completed from any PC. The form has mandatory and optional fields.

The mandatory fields are:

- The name of the Practitioner who performs the intubation
- The event number.
- The date of the event.
- The attending specialists
- Type of patient (Trauma or Medicine).
- Pharmacological induction
- Material used for intubation of the patient
- If it was necessary to change operators.

Completion of the form is checked by the health management, which periodically cross-checks it with the medical records and, if necessary, reminds the operators to complete it. This means the completion rate is 100%.

## CONCLUSION

There were no documented cases of "failure to intubate" during the period analysed. In 11 cases (4%) a change of operator was necessary. In 17 cases (6%) it was necessary to change the laryngoscope. In 11 cases, the classic laryngoscope was replaced by the video laryngoscope to improve the laryngoscopy grade, of the remaining 6 the video laryngoscope was converted to the classic laryngoscope in 3 cases, and to the fastrack in another 3. This was due to airway contamination with blood. The video laryngoscope has increased in popularity and has proven to be an effective tool in emergency intubations- particularly to help improve the grade of laryngoscopy. It has limitations however in airways contaminated with either blood or vomit. In our service on average a doctor or nurse intubates about 4 times a year. In CVL, two training days a year are organised in manikin simulations to allow practice and help maintain competence.

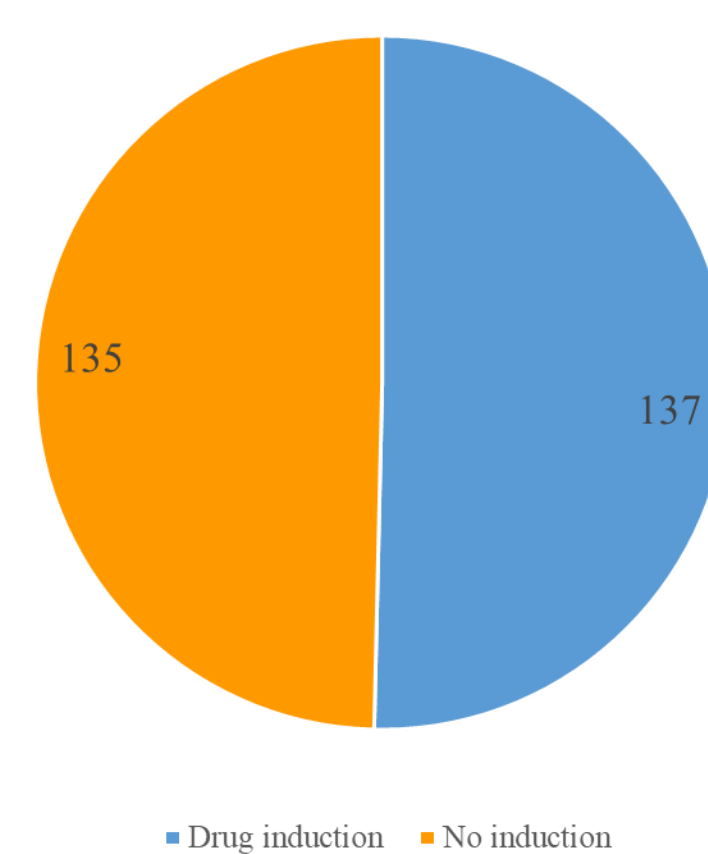


## RESULTS AND DISCUSSION

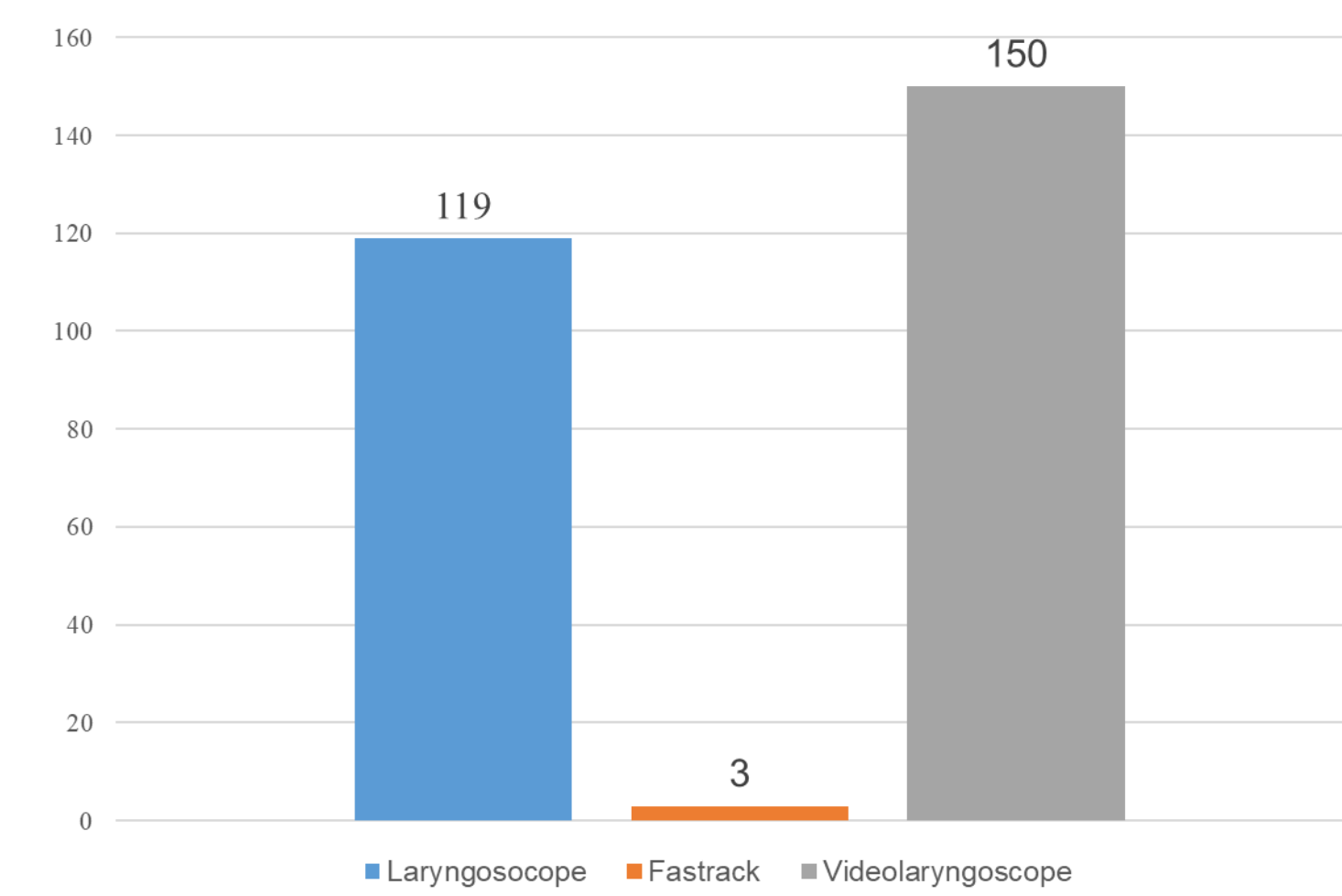
Of the 272 intubations carried out between March 2019 and December 2021, the classic laryngoscope was used in 119 cases, the Fastrack in 3 cases and the video laryngoscope in 150 cases. In 50% of cases it was not necessary to induce the patient pharmacologically because they were in cardiac arrest.

Below is a set of graphs summarising the results of the questionnaire.

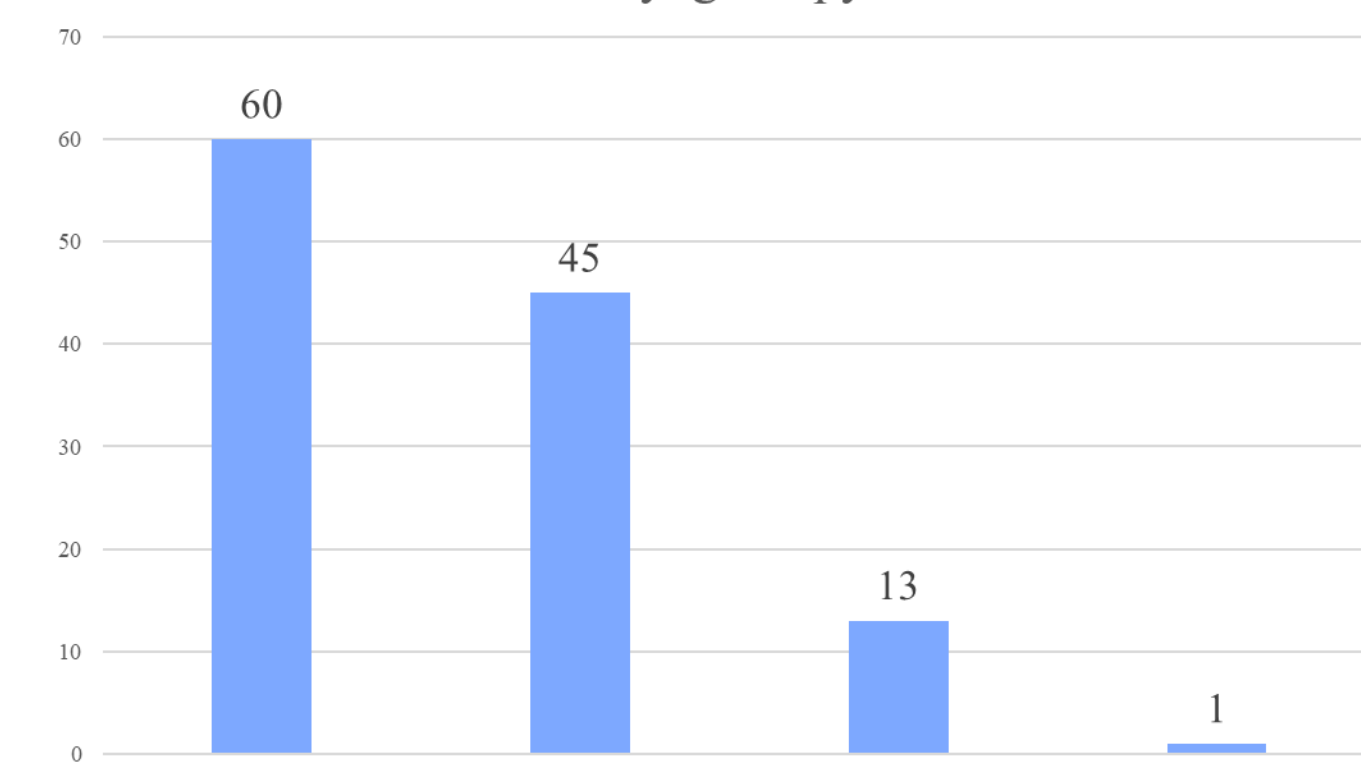
Intubation with induction versus intubation without induction



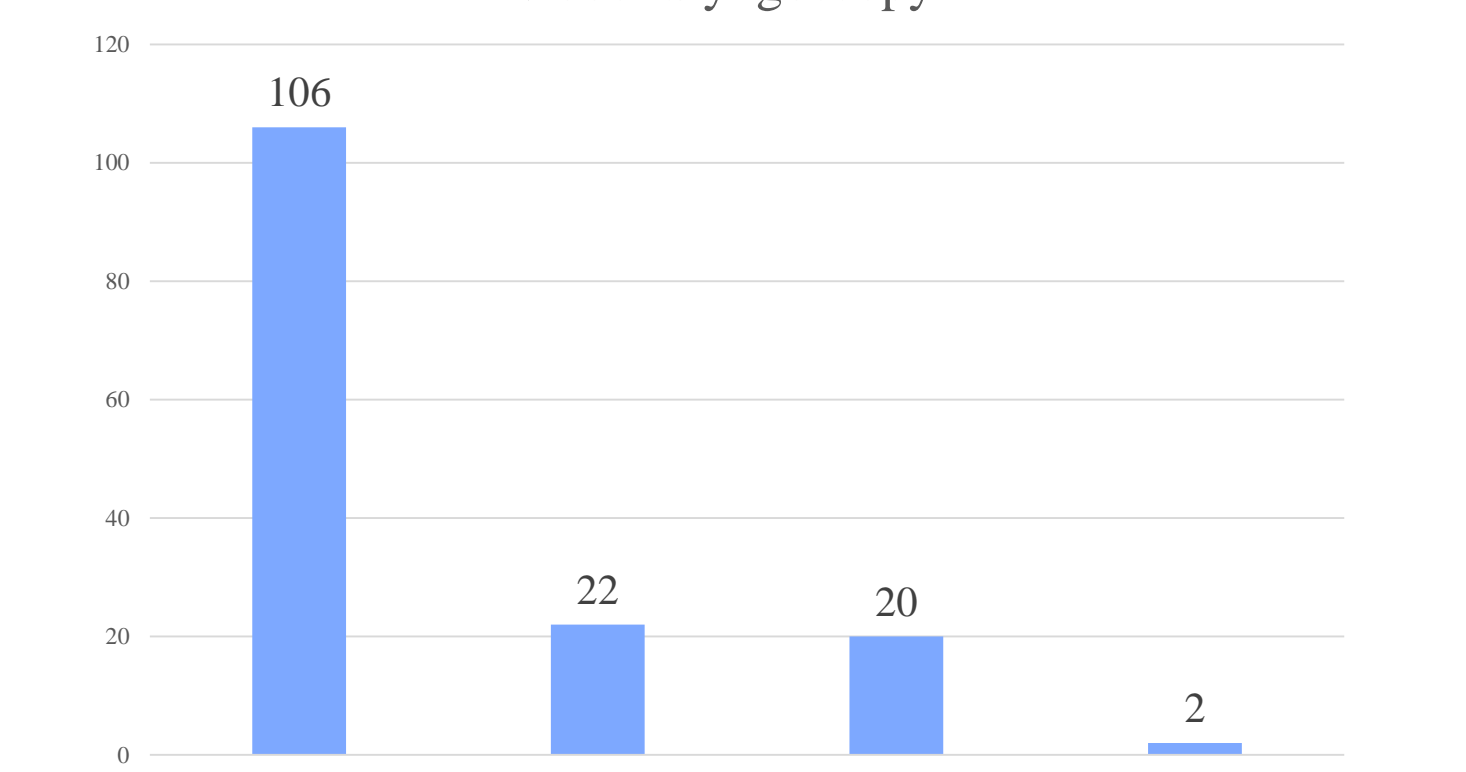
Device that allowed intubation.



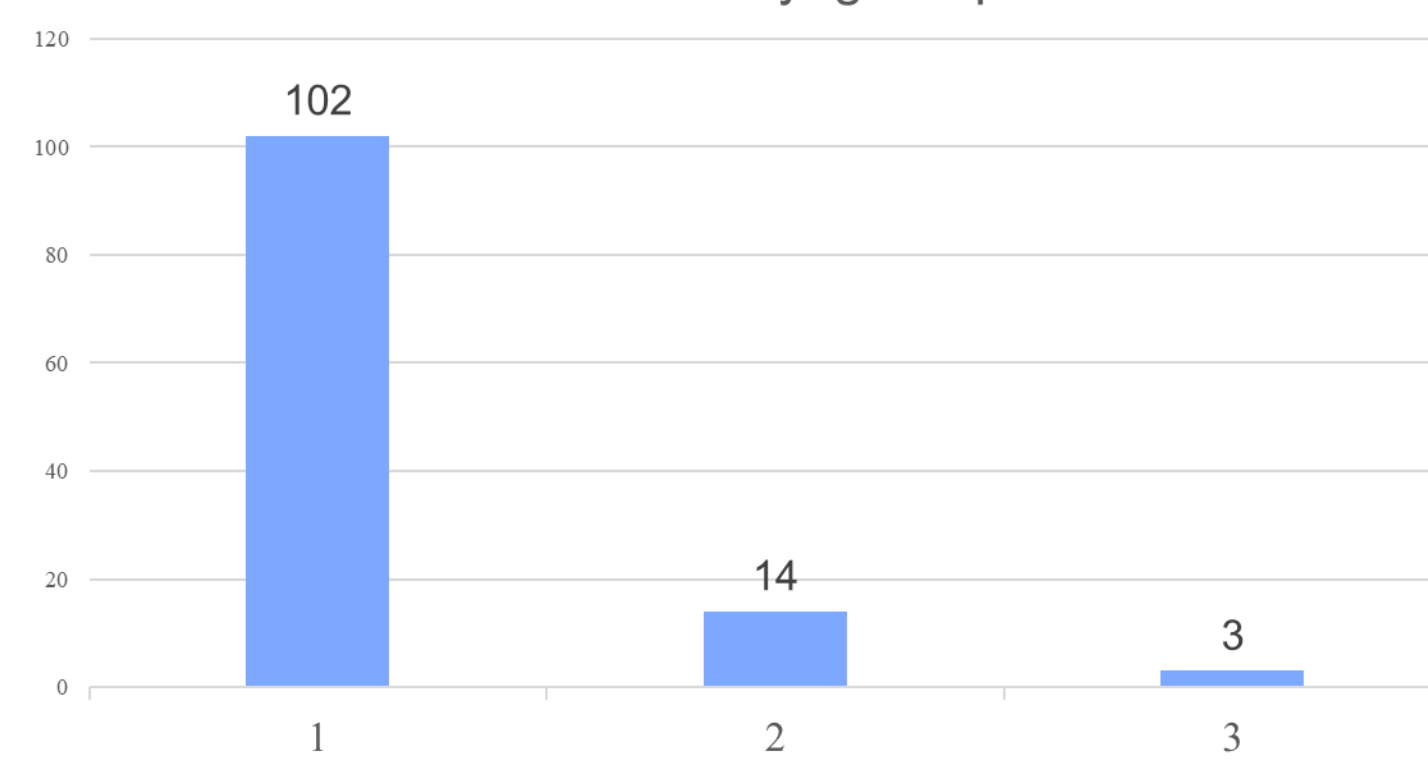
Cormack and Lehane grade with direct laryngoscopy



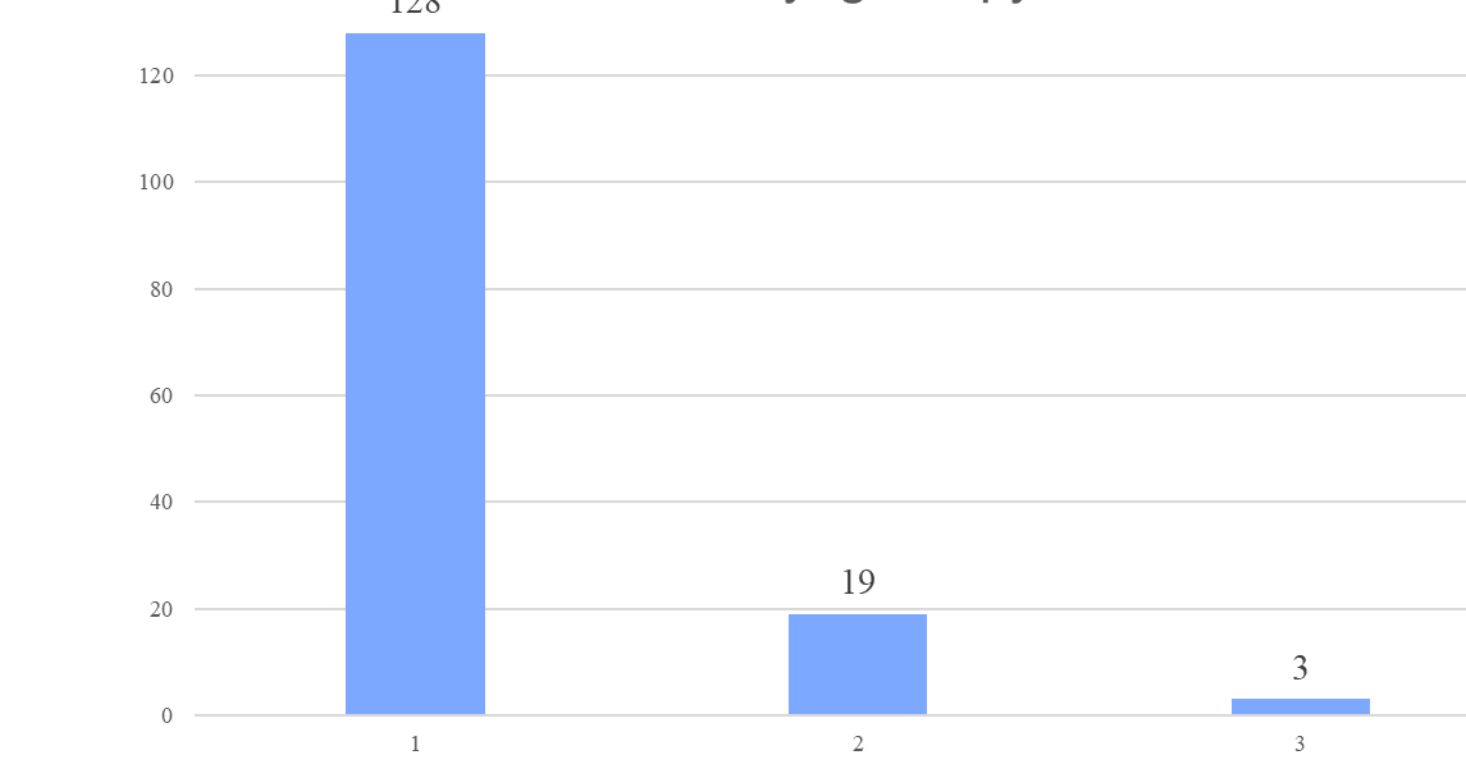
Cormack and Lehane grade with video laryngoscopy



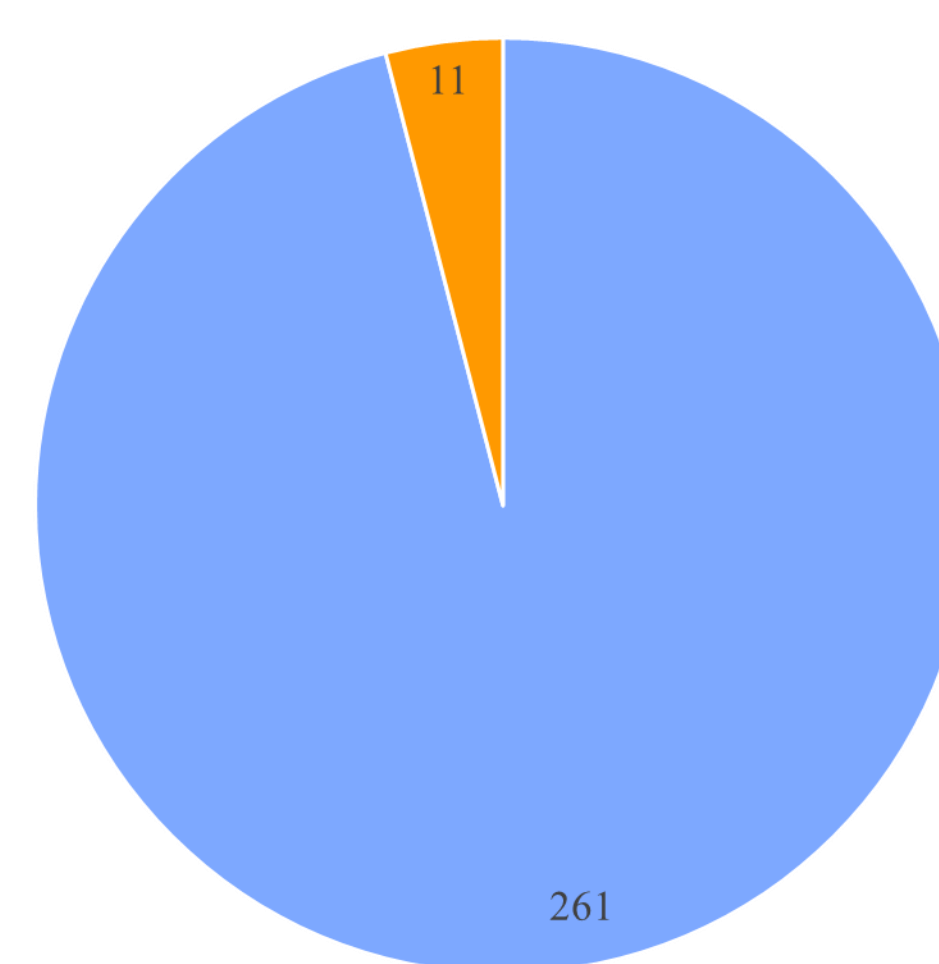
Number of laryngoscopies performed with traditional laryngoscopy



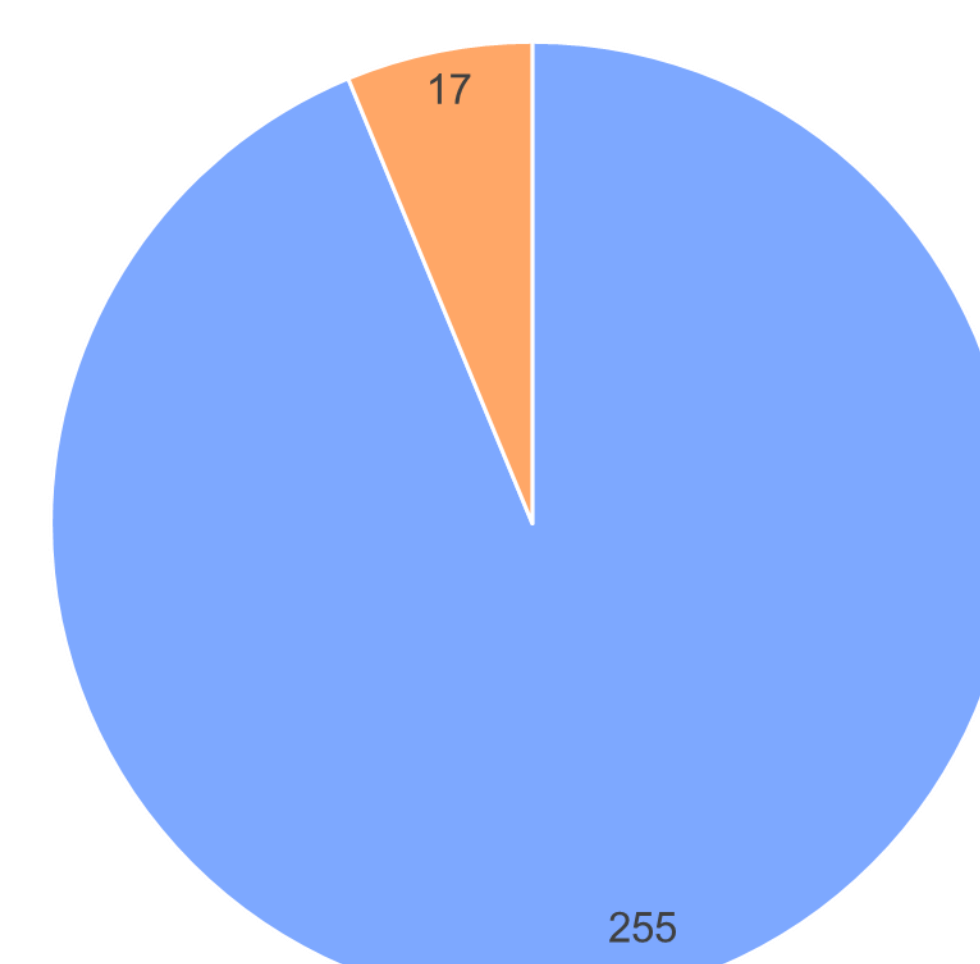
Number of laryngoscopies performed with video laryngoscopy



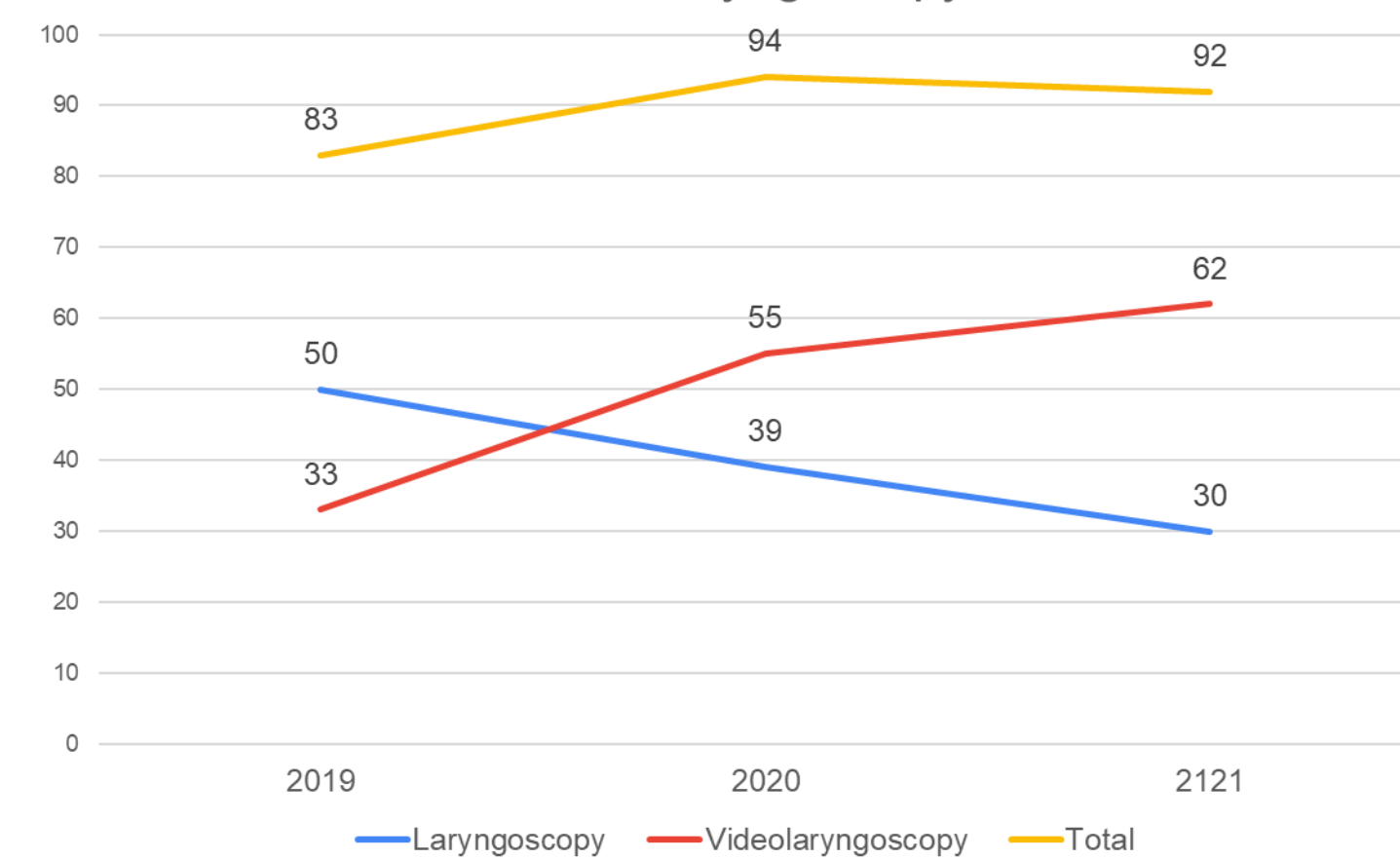
Change operator



Change of strategy



Laryngoscopy & Video laryngoscopy



Nurse & Doctor use of devices

