CIS-002 Prospective Non-interventional Evaluation of Intubation and Intensive Care Use of the New aScope™ 4 Broncho and aView

NCT03294213

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1. INTRODUCTION

Flexible bronchoscopy is a valuable tool in the evaluation and management of the upper airway and bronchial tree in patients undergoing procedures in the operating room (OR) or in the critically ill patients in the intensive care unit (ICU).

The CE-marked aScope™ 4 Broncho is used for intubation procedures in non-difficult and difficult airways, percutaneous tracheotomy, placing double lumen tubes, bronchial blockers, in performing bronchoscopy procedures such as inspection of the bronchial tree, bronchial wash (BW), broncho alveolar lavage (BAL), secretion management, and the use of tools (e.g. a microbiology brush) in the ICU and the OR. [1,2,3]

This non-interventional evaluation will focus on the use of Ambu® aScope™ 4 Broncho System for the therapeutic use and clinical practice at the discretion of the treating physician, both in the OR and ICU.

Non-interventional Studies are currently not regulated for medical devices, however the principles laid out in the Council Directive 93/42 EEC of 14 June 1993 and amendment 2007/47/EC[4], ISO 14155[5], and the Helsinki Declaration[6] was followed.

2. AIM

The aim of this study is to obtain a broad user perspective of the aScope™ 4 Broncho, focusing on the device functionalities within regular clinical practice and therapeutic use of flexible bronchoscopes in the OR and ICU.

3. HYPOTHESIS

The hypothesis is that aScope™ 4 Broncho will be preferred compared to the standard methods (i.e. reusable or single-use bronchoscopes) available at the involved sites.

4. END POINT

All endpoints are qualitative assessments based on the actual use of aScope™ 4 Broncho during this study, or the investigators memory of use of their standard bronchoscopes.

Primary end-point:

- Preference, based on the investigators memory of their standard bronchoscope
    - The investigator will be asked: "In your memory, compare your daily bronchoscope and the aScope 4 Broncho just evaluated; Which bronchoscope would you **prefer** for this procedure?"

Secondary end-points:

- Ease of Navigation and Advancement within the bronchial tree with or without endoscopic tools (on a 5 grade scale: *Very Difficult, Difficult, Acceptable, Easy, Very Easy* and compared to memory *Much better, Slightly better, No difference, Slightly worse, Much worse*)

- Ease of Manoeuvrability within the upper airway (on a 5 grade scale: *Very Difficult, Difficult, Acceptable, Easy, Very Easy* and compared to memory *Much better, Slightly better, No difference, Slightly worse, Much worse*)
- Manoeuvrability with tools in the working channel (on a 5 grade scale: *Very Poor, Poor, Acceptable, Good, Very Good*)
- Perception of Image quality channel (on a 5 grade scale: *Very Poor, Poor, Acceptable, Good, Very Good* and compared to memory *Much better, Slightly better, No difference, Slightly worse, Much worse*)
- Perception of Ergonomics (on a 5 grade scale: *Very Poor, Poor, Acceptable, Good, Very Good* and compared to memory *Much better, Slightly better, No difference, Slightly worse, Much worse*)
- Perception of Suction capability (on a 5 grade scale: *Very Poor, Poor, Acceptable, Good, Very Good* and compared to memory *Much better, Slightly better, No difference, Slightly worse, Much worse*)
- Overall perception of functionality (on a 5 grade scale: *Very Poor, Poor, Acceptable, Good, Very Good*)
- Potential to replace exiting standard bronchoscope (*Yes, No*)
- Adverse events and device deficiencies

5. DESIGN OF INVESTIGATION

5.1 Design of investigation

This study is designed as a prospective observational, non-controlled, non-interventional study, with an investigation period lasting for one day (one bronchoscopy procedure).

The study will include a minimum of 100 (amended to 175) adult patients admitted to the OR or ICU undergoing at least one bronchoscopy procedure.

The involved sites will include patients during a three months' period, from September 2017 to January 2018. However, the study will not be initiated before the study protocol is duly approved, i.e. by local ethics committee if relevant. If the number of patients cannot be included in time, the sponsor will decide whether another study site should be added, or if the study should be closed.

Only patients who can be clinically evaluated as eligible for a bronchoscopy procedure i.e. complies with the listed inclusion and exclusion criteria may be included in the investigation.

The intention of the investigation is to perform subjective quality assessments of the aScope™ 4 Broncho during bronchoscopy procedures. Patients will not be asked to consent to participate in this study, as no patient data are obtained and the CE-marked aScope™ 4 Broncho is used within its intended use. The only data to be obtained are evaluation forms directly related to the users' perception of the aScope™ 4 Broncho.

The Evaluation Forms must be completed for each patient after the clinical procedure is finalised.

No interventional actions are intended to the patient, other than those already prescribed by the investigator and covered by normal clinical procedure consent.

5.2 Sample size

The study will include a minimum of 100 (amended to 175) adult patients admitted to the OR or ICU undergoing at least one bronchoscopy procedure.

The inclusion will stop when 100 (amended to 175) fully evaluable patients or a maximum of 150 (amended to 200) patients have been enrolled.

The aim is for each site to enroll a minimum of 10 patients.

5.3 Expected time schedule

First patient in: As soon as reasonably possible after the Ethics Committee approval (if relevant), expected in September 2017

Last patient out: Three months after the first subject has been enrolled into the study, expected in January 2018

5.4 Randomisation

There is no concurrent control in the study and hence randomisation is not applicable.

6. TEST PARTICIPANTS

6.1 Inclusion criteria

- Patient's ≥18 years
- Clinical indication and eligible for an airway procedure involving a bronchoscopy procedure, as judged by the Investigator
- Patients being admitted in the OR or ICU at the investigational site

6.2 Exclusion criteria

- None

6.3 Recruitment

The patients included in this investigation will be under treatment in the OR or ICU department, and clinically judged by the Investigator to be eligible for a bronchoscopy procedure such as tracheal intubation, broncho-alveolar lavage or biopsy, etc. The decision on which available bronchoscope to prescribe during the clinical procedure fully lies with the investigator. If aScope™ 4 Broncho is chosen, the evaluation form should be completed after finalising the clinical procedure.

The investigator assures that the patient meets all inclusion criteria and none of the exclusion criteria, by checking the relevant boxes in the evaluation form.

The patient will not receive information about the study, as no patient data are obtained, and since the CE-marked aScope™ 4 Broncho is used within its intended use. The only data to be obtained are evaluation forms directly related to the users' perception of the aScope™ 4 Broncho.

6.4 Exclusion during the examination

No patients will be excluded during an examination as the patients are following normal clinical procedures as judged by their physician.

Due to the study being a qualitative assessment of the aScope™ 4 Broncho, the patients shall be excluded from data analysis if:

- The patient fail to comply with the inclusion and exclusion criteria

7. PROCEDURE

During normal clinical procedures within the OR or ICU where a bronchoscopy is requested, the investigator shall decide which bronchoscope (type/model) should be used for the patient/procedure as soon as possible. If the aScope™ 4 Broncho is chosen the provided evaluation form should be completed after finalising the clinical procedure. As the study follows everyday clinical procedures at the selected sites, the patients will adult patients admitted to the OR or ICU, undergoing at least one bronchoscopy procedure.

8. MATERIALS

8.1 Device description

8.1.1 General information and device description

Ambu® aScope™ 4 Broncho is produced by Ambu A/S, (Baltorpbakken 13, 2750 Ballerup Denmark), and is a sterile single use bronchoscope intended to be used with the Ambu® aView™ monitor, endotherapy accessories and other ancillary equipment for endoscopy within the airways and tracheobronchial tree.

Ambu® aScope™ 4 Broncho size Slim, Regular and Large, and the Ambu® aView™ monitor are all CE-marked, and thereby approved for sale in Europe.

All aScope™ materials that are in contact with the patient, have been tested for biocompatibility with reference to ISO 10993, current version.

During the study the participating sites will utilize the following single use Ambu® aScope™ 4 Broncho.

SPECIFICATIONS	aScope 4 Slim (3.8/1.2)	aScope 4 Regular (5.0/2.2)	aScope 4 Large (5.8/2.8)
Optical System			
Field of View	85°	85°	85°
Depth of Field	6-50 mm	6-50 mm	6-50 mm
Illumination method	LED	LED	LED
Insertion Portion			
Bending section	180° up, 180° down	180° up, 180° down	180° up, 160° down
Insertion cord diameter	3.8 mm	5.0 mm	5.8 mm

Distal end diameter	4.2 mm	5.4 mm	6.2 mm
Max. diameter of insertion portion	4.3 mm	5.5 mm	6.3 mm
Min. endotracheal tube size (ID)	5.0 mm	6.0 mm	7.0 mm
Min. double lumen tube size (ID)	37 Fr	41 Fr	NA
Working length	600 mm	600 mm	600 mm
Channel			
Min. instrument channel width	1.2 mm	2.0 mm	2.6 mm
Suction performance (water)	~0.1 l/min	~0.7 l/min	~1.2 l/min

Table 1: General characteristics and specifications for the aScope4 family.

SPECIFICATIONS	aView
Display	
Max. resolution	800*480
Orientation	Landscape
Display type	8.5’’, color TFT, LCD
Electrical power	
Power requirement	18V 1.674 DC input
Battery type	10.8V 4300mAh
Dimensions	
Width	241mm (9.49”)
Height	175mm (6.89”)
Thickness	33,5mm (1,32”)
Weight	1500g (331lbs)

Table 2: General characteristics and specifications for the aView (aScope4 family).

8.1.2 Precaution and handling

The system must not be used if, in the opinion of a qualified physician, such an application would endanger the patient or if the system as such or the method is contraindicated. Such cases will not be considered as part of the study.

The Ambu® aScope™ 4 Broncho system must be handled according to the Instructions for use (IFU).

8.2 Investigator’s Brochure

As the devices are approved for sale (CE-marked), an Investigator’s Brochure is not required. The IFU will be available in the packaging of the devices.

8.3 Device Accountability and Traceability

The sites included in the study will free of charge receive a number of the Ambu® aScope™ 4 Broncho devices based on their expectation of number of clinical procedures to be performed within the study period. For the purpose of the study 1-2 Ambu® aView™ monitors per site will be provided as well. Any devices remaining after the end of the study will be accounted for and shall be returned to Ambu®.

There are no requirements regarding device accountability for CE marked devices. However, for logistical reasons the Sponsor will account for all devices delivered to and returned from the Investigators in a Device Accountability Form kept at Sponsor's address.

9. MONITORING

During the period of the study, a representative of the Sponsor will act as monitor/s of the study. The Investigator may contact Sponsor representatives, as listed on page **Error! Bookmark not defined.**, at any time.

9.1 Monitoring Visits

- Initiation Visit: This meeting will be held before the study is initiated, and the aim of the meeting is to ensure that the investigators are well informed about the study procedures, perform a page-by-page revision of the protocol and ensure that investigators are trained in completing the evaluation form. Moreover, approvals from Ethics Committee will be verified, if relevant, and monitoring arrangements will be discussed. It is required that the Principal Investigator are present in this meeting.

- Routine monitoring visit: The aim of these monitoring visits is to corroborate the study progress. The evaluation form will be monitored for completeness of the data. It is required that at least one Investigator is available during monitoring visits.

- Close-out visit: The aim of this meeting is to close financial aspects, check that all essential documents are complete, device accountability, collection of the original evaluation forms, and notification of the corresponding Ethics Committee, if relevant. This meeting will be conducted after the last device have been used or no later than three months after initiation of the study.

The monitor is responsible for planning the monitoring visits.

9.2 Source Data Verification

Not applicable for this study, as no patient data are collected.

10. AUDIT

Not applicable for this study, refer instead to section **Error! Reference source not found.**.

11. EVALUATION FORM

The evaluation form is in English and should be filled in English when possible. Missing data not recorded on the day of the procedure should be filled in no later than one week after the procedure, accompanied by date and signature. Data that are evaluated as incorrect by Investigator should be crossed over with ink allowing the "old data" to be seen ~~(example)~~. The Investigator shall then write the new and correct data and then sign and date.

11.1 Patient Registration List

Not applicable for this study, as no patient data are collected.

12.

12.1 Patient Information

Not applicable for this study, as no patient data are collected.

12.2 Informed Consent

Not applicable for this study, as no patient data are collected.

13. DATA MANAGEMENT AND STATISTICAL ANALYSIS

13.1 Sample size

No sample size calculations have been performed for this study as the data obtained only will form basis for increased knowledge of the investigators perception and increase user awareness of their available bronchoscopes.

The study will include a minimum of 100 (amended to 175) randomly selected adult patients admitted to the OR or ICU undergoing at least one bronchoscopy procedure.

The inclusion will stop when a maximum of 150 (amended to 200) patients have enrolled.

13.2 Data management

A database will be set up, and two individuals at Ambu A/S will perform double data entry, or alternatively remote data capture through SmartTrial will be used. Any unclear data points will be highlighted in a data clarification form that will be sent to the responsible Investigator for clarification. An error list will be generated, and errors corrected by Ambu A/S staff. Thereafter, data transfer from the Sponsor site to the statistician, StatCons (C/O Mikael Åström, Högerudsgatan 8B, SE-216 18 Malmö, Sweden); will be done according to the regulation of the Danish law for treatment of personal information.

13.3 Statistical analyses

13.3.1 General aspects

Descriptive statistics, i.e. number of procedures, mean, median, standard deviation, minimum and maximum values for continuous data and frequencies and percentages for categorical data will be presented for primary and secondary endpoints as applicable. All endpoints are qualitative assessments based on the actual use of aScope™ 4 Broncho during this study or the investigators memory of use of their standard bronchoscopes.

13.3.2 Handling of dropouts and missing data

Patients not completing the clinical procedure as intended by the investigator are considered as drop-outs as the evaluation form will lack information of the device. Drop-outs are not compensated in the sample size estimation, as the number of drop-outs of intended clinical procedures are expected to be limited. In case of higher drop-out than accounted for (5%), it is recognized that recruitment may be extended to involve at least the minimum number of evaluable evaluation forms. Missing data will not be imputed.

13.3.3 Centre analyses

This investigation is a multi-centre investigation. However, there is no a priori reason to suspect that there will be any qualitative differences between the study sites regarding any of the outcome variables in the study. Therefore, primary statistical analysis will not include centre in the model but analyses may be stratified by centre as applicable.

13.3.4 Analysis sets

All treated patients will be included in the Safety Analysis Set (SAS).

All correctly, included patients will be included in the Intention-To-Treat (ITT) analysis set.

Patients who have been treated according to the protocol without any major deviations will be included in the Per Protocol (PP) analysis set.

The primary efficacy analysis set will be PP. However, it is expected the SAS, ITT and PP analysis sets will be identical in this study.

The primary efficacy objective of the investigation will be analysed using data from patients in the PP analysis set as well as using data from patients in the ITT analysis set. The conclusion will be based on data from the primary efficacy analysis set and the analysis based on data from the other efficacy analysis set will be considered as a sensitivity analysis.

The secondary efficacy objectives will be analysed using data from the primary efficacy analysis set only.

The analyses of the safety objectives will be based on data from the SAS.

13.3.5 Statistical analyses during the course of the study

No analyses will be conducted during the course of the study.

13.4 Pass/fail criteria

The hypothesis is that aScope™ 4 Broncho will be preferred compared to the standard reusable or single-use bronchoscopes available at the involved sites.

This study is considered passed if a minimum of 60% of the device evaluations show that aScope™ 4 Broncho is preferred for the clinical procedure or at least on par based on the investigators memory of their use of standard bronchoscopes.

For the secondary end-points, at least 80% of the evaluations must be at the level of acceptable, good/very good or easy/very easy or slightly better/much better/no difference.

13.5 Data file

The Sponsor will file the original evaluation forms for rest of the products' lifetime + 5 years. Moreover, study related documents, e.g. protocol, statistical analysis, report will also be filed.

14. LIST OF REFERENCES

1. Hagberg CA. *Benumof and Hagberg's Airway Management: Third Edition*.; 2012. doi:10.1016/B978-1-4377-2764-7.00057-9.
2. Collins SR, Blank RS. Fiberoptic Intubation: An Overview and Update. *Respir Care*.

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3. Ernst A. *Introduction to Bronchoscopy*. Cambridge University Press; 2009.
4. COUNCIL DIRECTIVE 93_42_EEC of 14 June 1993 concerning medical devices amendment 2007/47/EC.
5. ISO 14155:2011(en), Clinical investigation of medical devices for human subjects — Good clinical practice.
6. WMA Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects.
7. European Commision. MEDDEV 2.12/1 rev.8 - Guidance document - Market surveillance - Guidelines on a Medical Devices Vigilance System. http://ec.europa.eu/DocsRoom/documents/15506/attachments/1/translations. Accessed March 8, 2017.
8. Medical devices - Application of risk management to medical devices (ISO 14971:2007. 2012.