NHS
Business Services Authority

Clinical review

Open suction catheters and suction tubing

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NHS Clinical Evaluation Team
by the NHS, for the NHS

Contents

Guidance for use

This clinical evaluation report is aimed primarily at the NHS and all those working to support patient care. If you would like to talk through how this report can be used in your setting, please contact the team by emailing: clinical.evaluation@nhs.net

Please note that the product assessment results should only be read and used in conjunction with the full text of this clinical review.

Introduction

The NHS Clinical Evaluation Team was established in May 2016. The remit of the Clinical Evaluation Team is to add independent clinical review to 'Everyday healthcare products' used by the NHS.

Every day healthcare consumables are products that are found in the majority of wards, clinics, health centres, treatment rooms and district nurses bags across the NHS. The purpose of this report is two-fold; firstly to provide a clinical assessment of the usability and requirements from the NHS for the Open Suction Catheters and Suction Tubing that are available to the NHS from the national procurement provider. Secondly, to provide a clinical statement of desired functions and properties that the NHS requires of Open Suction Catheters and Suction Tubing for use in future procurement activities.

It is clear from the evidence that Open Suction Catheters and Suction Tubing, featured in this report, are everyday healthcare consumables that are found in most clinics or ward settings and would certainly be items included in any stock list to set up a new clinical service. On that basis, the project was approved by the Clinical Reference Board in June 2016, culminating in the production of this report for their approval in November 2016.

Based on 2015 data supplied by NHS Supply Chain, in the NHS, we are circa 18million open suction catheters and suction tubing annually with a total spending circa £6 million. There is 23 different brands of suction catheter supplied via 9 different suppliers. This report covers the range of products available as at August 2016.

Intelligence about Open Suction Catheters and Suction Tubing was gathered from a variety of sources to provide background information on the current evidence available to support the way in which the devices are designed and clinically evaluated.

Following this, clinical engagement sessions were held with the aim of identifying important clinical criteria for Open Suction Catheters and Suction Tubing from front line NHS clinicians. This information was used to develop clinical criteria for, Open Suction Catheters and Suction Tubing against which all brands available from the national procurement provider were reviewed.

Findings from these clinical reviews are collated into a product assessment matrix to allow users to identify products and see how they rated against the agreed clinical criteria.

A more detailed description of the team and our path way approach can be found in the NHS CET Operating manual which can be found on our web pages www.nhsbsa.nhs.uk/cet.

Clinical review

Clinical definition and scope

This report is concerned with sterile open suction catheters and the tubing, which connects the receptacle and the sterile suction catheter, when used for endobronchial suctioning.

Where suction tubing is used for suctioning other parts of the human body, it is considered to be outside the scope of this project.

Intended clinical use

Open Suction catheters are used in healthcare in order to remove secretions from the endobronchial tract.

The catheters are part of a vacuum suction system, consisting of a vacuum pump, with tubing to a receptacle to receive the secretions and tubing from the receptacle to the suction catheter.

The tubing from the receptacle jar to the vacuum pump is non-sterile.

Most receptacles consist of an outer rigid jar which is lined with a non-sterile flexible liner for single patient use, which is then disposed of in accordance with local waste management requirements.

The tubing from the receptacle to the suction catheter can be sterile or non-sterile, pre-cut or cut to length at point of use, depending on the clinical circumstances. Theatre environments will require sterile pre-cut tubing whereas wards and clinics may prefer to use ’bubble’ tubing cut to length

Product technical design

Open Suction catheters are available in a variety of lengths and gauges ranging from 35cm to 60cm in length and in gauge from 5ch to 22ch. Ch is the gauge which indicates the size of the catheter lumen both external and internal. The measuring system was invented by French man Charrière in the 1800’s and is abbreviated to Ch.

Suction catheters are available as single items or in cartons containing up to 500 items.

They are available with and without an integrated fingertip vacuum controller; this is used to control the flow and degree of suction through the system as the catheter enters the airways.

Open suction catheters can be marked with graduations indicating the depth to which the catheter can or has been inserted in to the airways.

All open suction catheters are sterile and individually packed. They all have what is described as an ‘atraumatic tip’, which reduces the chance of mucosal ingress if the terminal eye or a side eye becomes blocked.

The suction tubing comes in a variety of gauges in order to accommodate the clinical indication for use. For example, in the operating theatre, suction is used as part of a variety of operations and not just to remove secretions form the airways.

Clinical practice

In clinical practice the sterile single use catheter is used as part of a procedure to remove secretions from the patient’s endobronchial tract to provide relief and keep the airways open.

It is important to maintain sterility of the catheter prior to insertion. Use of a contaminated catheter will increase the risk of pneumonia.

The catheter should not occlude the endotracheal tube or tracheostomy tube as that may lead to hypoxia and respiratory arrest.

The clinician must not apply suction on entry into the patient’s airways; this could be another cause of hypoxia and could cause damage to the mucosal lining of the airways.

As the catheter is withdrawn from the bronchial tree it is important that the design allows the clinician to maintain control of the catheter in order to prevent unnecessary aerosolling of potentially infected aspirate.

The clinician needs to be able to safely remove the catheter from the suction tubing to reduce the risk of contaminating the environment and infecting themselves.

Pathway methods

Intelligence gathering

In writing this report, account has been taken of academic and related clinical evidence and known guidance and nationally recognised publications

All suppliers listed within the national frameworks have also been invited to submit clinically relevant evidence of their own. The majority of suppliers provided some level of information from product brochure through to technical datasheets and compliance with standards.

Account has also been taken of appropriate International and other standards as they pertain to the devices (e.g. ISO, EN and/or BSI). A review of MHRA alerts has also been performed.

Finally the specification used by the national provider (NHS Supply Chain) has been reviewed to understand what has been asked of suppliers of these devices.

This evidence has then been used as a basis to help form initial ideas around suitable clinically based statements of what clinical staff requires of an insert Open Suction Catheters and Suction Tubing and how it should best perform in order to satisfy those clinical requirements.

Literature search

A search of Athens and Google Scholar was undertaken using the following terms: Suction catheters, suction catheter tips, endotracheal suctioning techniques, vacuum suction catheters, non-conductive suction tubing.

Further intelligence was obtained from the Royal Marsden Manual of Nursing Procedures, NICE technology reports, ISO standards, MHRA incident reports.

Table 1 is a summary of relevant Clinical Evidence which addresses catheter design and efficiency

Study	Detail	Outcomes
Link et al 1976 The influence of suction catheter tip design on Tracheobronchial Trauma and Fluid aspiration efficiency.	5 tip designs were studied. Study population were healthy mongrel dogs. The dogs were anaesthetised, suction of the bronchial tract carried out. The tract was then examined using bronchoscopy. The dogs were then humanly euthanised and the bronchial tract examined at post mortem to confirm the findings seen on bronchoscopy. Fluid aspiration efficiency was assessed in the dogs and via a tray in the laboratory.	All suction catheter designs have the potential to cause damage to the mucosal lining of the bronchial tract. However, this damage is reduced if a catheter of the design of includes a proximal opening and side eyes. Whistle tip catheters have the potential to cause the most damage. Catheters passed without vacuum caused significant less mucosal damage than those with vacuum applied on insertion. In the laboratory simulation whistle tip catheters were more efficient at fluid removal than catheters with multiple side eyes. But taking in to account the potential mucosal damage the study supports the design of the catheters with side eyes.
Jung et al 1976 Comparison of Tracheobronchial Suction Catheters in humans: Visualisation by Fibreoptic Bronchoscopy	The study population was 20 patients undergoing diagnostic or therapeutic bronchoscopy examination. Tracheobronchial suctioning was performed and the effect of a single suctioning procedure on the airway mucosa was observed and recorded by still and cine photography through a fibreoptic bronchoscope. Three designs of catheter were used in the study: side eye, beaded tip and angled tip with side eyes (coude).	All catheter designs produced a negligible amount of trauma, and none was superior in efficiently evacuating mucus from the airways. It was noted that the catheter with the 2 side eyes seemed to evacuate mucus better and that the angled catheter and the beaded tip catheter. The angled tip offered no advantage over the straight designs with side eyes.
Rosen et al 1965 The effects negative pressure during tracheal suctioning	This article examines the effects of negative pressure during suctioning on the physiology of the lungs. The article examines the size of the catheter in relation to the size of the Endotracheal Tube (ET) or tracheostomy tube, the impact of preoxygenation to the procedure and the design of the catheters proximal end with a vacuum control valve.	The study concludes that suction should be performed quickly and that negative pressure should be applied for as short a time as possible by using a catheter with an opening at the proximal end to allow for controlled application of vacuum. The smallest sized catheter should be used so as to not reduce oxygenation via the ET tube or tracheostomy tube. The optimal catheter design is that of one with an opening at the proximal end which allows for the control of the vacuum rather than clamping the catheter prior to insertion.

Table 1

National procurement provider specification

As the National procurement provider, NHS Supply Chain manages a framework of suppliers who are then listed in the national catalogue. The framework covers a wider selection of products than just open suction catheters and non-conductive suction tubing. For the purposes of this report only those suppliers supplying open suction and non-conductive suction tubing have been included.

The framework is a procurement exercise and includes no technical or clinical evaluation of the products. The specification consists of the following:

- Suction catheters Must be made from clear or opaque medical grade PVC
- Must be colour coded in line with **BS EN ISO 8836:2014**.
- Must include a tubing connector allowing for easy and secure connection of patient tubing.
- Can be provided as either graduated or non-graduated versions.
- Must have a side eye or side eyes to avoid mucosal damage.
- Must have a distal catheter tip for atraumatic placement.

National and international safety and quality standards

Suppliers are required to comply with BS EN ISO 8836:2014 .

Product suppliers and manufacturers

All suppliers of open suction catheters and non-conductive suction tubing on the current NHS Supply Chain framework were invited to submit clinical data in support of their products.

Information received mainly consisted of advertising literature. Only 3 companies supplied data which related to the design of their catheter and the perceived advantages of that design. One supplier provided testing data that they had commissioned from Surgical materials Testing Laboratory relating to the consistency of the internal lumen to demonstrate compliance with BS EN SO 8836: 2009, BSi, (2009),

The majority of the information supplied by the suppliers contributed little additional intelligence to that gathered from the literature search.

Best practice guidelines

The term ‘Open suction guidelines’ was entered into google and returned guidelines from the USA and the UK.

Table 3 lists a selection of UK guidelines listed which are currently in date and approved via the organisations guidelines approval processes

Guideline title	Guideline author	Web link
Care of a patient with a tracheostomy tube – Suction	NHS Glasgow and Clyde	http://www.nhsggc.org.uk/about-us/professional-support-sites/shock-team/guidelines-for-care-of-patients-with-a-tracheostomy-tube/care-of-the-patient-with-a-tracheostomy-tube/suction/
Adult, Paediatric and Neonatal Airway Suction Policy (All Routes and Methods)	St Georges Healthcare NHS Trust	https://www.stgeorges.nhs.uk/wp-content/uploads/2013/11/Clin_4_07Suction.pdf
Adult Nasal and Oropharyngeal suctioning	Nottingham University Hospitals	Via Google Chrome search term – open suction guidelines
Suction	Great Ormond Street Hospital	http://www.gosh.nhs.uk/health-professionals/clinical-guidelines/suction

Table 3

NHS clinical engagement

In order to develop a shared vision of what Open Suction Catheters and Suction Tubing should offer several methods of engagement were used.

There are several stages to the clinical engagement process starting with a mapping exercise to determine who should be involved. For our purposes in this stage of the report we focussed on clinical staff that are either a) recognised as subject experts, or b) recognised regular users of the devices in their clinical practice.

These are some of the approaches we have used:

- regional and national face-to-face events with NHS clinical colleagues
- focussed visits to NHS clinicians
- regional and national face to face events with NHS Supply Chain
- website subscription
- attendance at specialist network events
- attendance at NHSBSA events
- Web based surveys and e-engagement tools (e.g. email, WebEx, portal based surveys)

To build a broad caucus of attendees at our events communications were distributed inviting Trusts to nominate clinical colleagues to attend a series of regional group events; these were hosted by NHS organisations around England to enable the widest possible access. This enabled any pre-existing regional variance to be set aside.

Details of the information gathered were recorded in booklet form from the open events, transcribed and then used together with the evidence gathered at the previous project stage to inform a list of clinical criteria against which the product has been tested.

Table 4 details examples of the evidence gathering criteria questions posed for Open Suction Catheters and Suction Tubing, NHS clinical colleagues were asked to score the importance of each criteria, with 0 as having no important and 10 as having critical importance.

Criteria / Questions
Open Suction Catheters & Suction Tubing Indication for use: Endotracheal suctioning
Any specific packaging requirements for this product?
Any specific issues with how we open and prepare this product for clinical use?
Some suppliers label catheters as being specifically for neonatal use. How important is for a catheter to be labelled for neonatal use?
How important is it to have a variety of lengths when delivering care?
How important is it to have a range of gauge when delivering care?
What further product quality criteria need to be added? How important are they?
What would make a “perfect” product if you could design your own based on your clinical experience and knowledge?
What features would it have? What would it do? What would it not do?
Any specific disposal criteria for this product?

Table 4

Clinical criteria

The data received from all the NHS clinical engagement events, alongside the data collected from individual experts, was assimilated into a series of clinical criteria. A clinical criterion is defined as a principle or standard by which products may be evaluated. It is an objective statement which describes to the clinician's requirements for the product.

The synthesised criteria were then validated by clinical engagement workshop attendees and clinical experts as likely to produce useful outcomes.

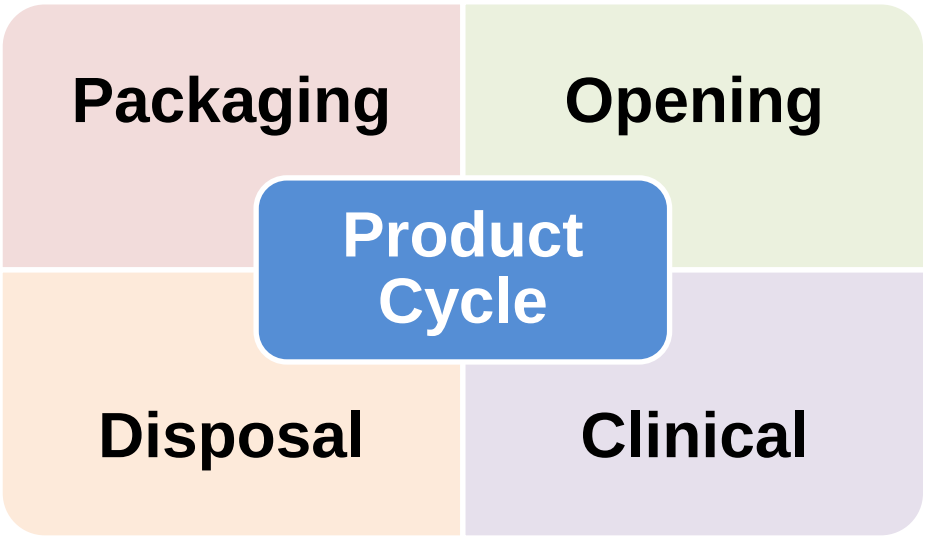
CLINICAL CRITERIA
Packaging
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.
Opening
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.
The open suction catheter can be prepared for clinical use without compromising sterility.
Clinical Use
Certain clinical indications require the catheter to have graduations
The catheter should include an integrated fingertip vacuum controller.
The catheter should be easy to attach to the required tubing.
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.
Disposal
The catheter should be easy to remove from the tubing without contaminating the staff &/or environment

Table 5

Product evaluation

Evaluation methodologies are defined for each and every clinical criterion (table 5). They reflect a simulated clinical environment.

All products were supplied in a 'Ward Ready' unit of issue as would be found by clinical staff on accessing a store area in their clinical environment. The tests were formulated to move through the key aspects of product use using the NHS CET product cycle



The evaluation product was ordered and picked from NHS distribution centres so we were reviewing LOT numbers in use across the NHS. Product evaluated has been stored post evaluation for a period of three months after publication of this review.

Practicing NHS clinical staff was invited to review NHS Supply Chain product in accordance with the developed criteria. It was not possible to "blind" the evaluations; however the product to be evaluated was independently picked and prepared for evaluation by colleagues who were not otherwise involved in the process.

The evaluations for Open Suction Catheters and Suction Tubing were carried out in a Sim Suite in a Teaching Hospital.

Each clinical evaluator entered data independently and without inter-rater comparison into their own workbook these were then collated, reviewed and summarised by the clinical specialist lead for the project.

The defined criteria either prompted a yes/no answer or a subjective score was given from 0 -3 as follows:-

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

Figure 2 – NHS CET Scoring Methods

These numerical scores across all evaluators were totalled and a mean value determined. This mean value has then been converted into a star rating against the individual compliance against the criteria (see reports below).

The mean values convert to a start rating in accordance with the following table:

Point scored	Star value
0 to 0.99	0 star
1 to 1.24	1 star
1.25 to 1.74	1.5 stars
1.75 to 2.24	2 stars
2.25 to 2.74	2.5 stars
2.75 to 3	3 stars

Figure 3 – conversion of mean scores to star rating

All supplemental products used in the evaluation are in use in the NHS and available through the national catalogue (e.g. Clinical Waste containers, gloves, suction liners)

Evaluators were encouraged to also make comments where they felt necessary to provide rational for their scoring and answers.

The results obtained have been validated by CET moderation committee for consistency of scoring and interpretation. These results are presented in the product assessment results matrices.

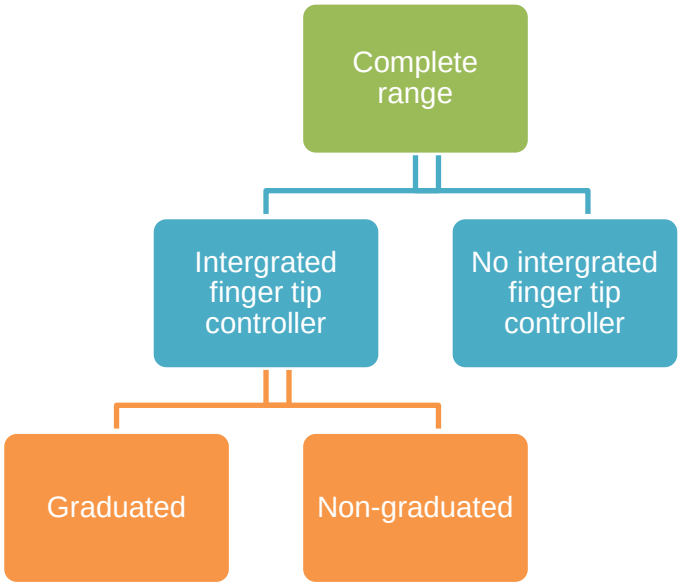
Product assessment results

The below product assessment results pages show the tested clinical criteria listed horizontally down the left hand side of the page with the tested device found vertically across the top of the matrix. The accompanying photographs were taken during evaluation. This is a photograph of the sample product provided for evaluation. Lot numbers were recorded and samples have been retained in storage following the completion of evaluation.

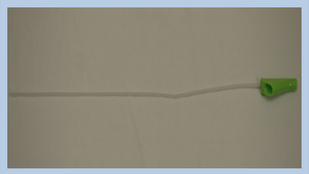
The products represented are the range of suppliers and brands available through the NHS national procurement provider's framework as of August 2016.

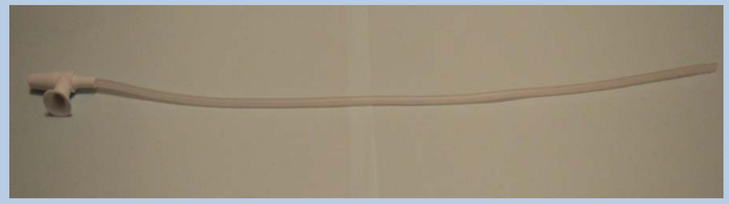
Results can be seen within the product matrix each clinical product has been given a star rating and the evaluator's collated comments are included in the matrix.

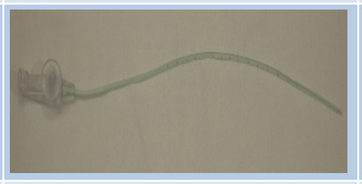
The product assessment results have been divided into 3 sub-categories of suction catheter, as illustrated by the hierarchy below:



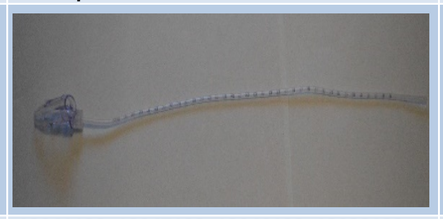
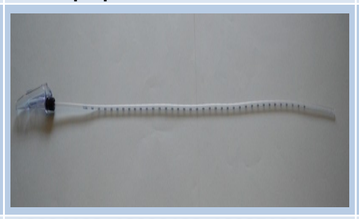
Supplier		Proact Medical	Covidien	Covidien
Brand		Pro-breathe	Argyle: Gentle-flo	Aero-flo
OPEN SUCTION CATHETER NO GRADUATIONS, INTEGRATED FINGERTIP VACUUM CONTROLLER				
Manufacturer's ref ITALIC = SAMPLES RECEIVED		*PB-372018,* PB-372006, PB-372008, PB-372010, PB-372012, PB-372014, PB-372016,	*2161,* *2181,* *2101,* *2141,* *2121,* *2061,* *2081*	*8888250118 8888250092 8888250126* 8888250142 8888250134
NPC Codes ITALIC = NPC CODES EVALUATED		*SQ1268,* FSQ1262, FSQ1263, FSQ1264, FSQ1265, FSQ1266, FSQ1267,	*FSQ708, FSQ710, FSQ701, FSR935, FSQ704, FSQ698, FSQ699*	*FSQ606, FSQ601, FSQ296,* FSQ246, FSQ245
NHSSC BAND 1 UNIT OF ISSUE		BOX OF 100	EACH	EACH
CLINICAL CRITERIA	**Evaluation Criteria**	**final score**	**final score**	**final score**
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	✓	NA	N/A
	Is the External diameter clearly visible?	✓		
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗		
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓		
	Is the size identified with a corresponding colour?	✗		
	Is the information in English?	✓		
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✓	✓	✓
	Is the External diameter clearly visible?	✓	✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗	✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓	✓	✓
	Is the size identified with a corresponding colour?	✓	✓	✓
	Are the identifying marks in the first 1/8 of the catheter packaging?	✗	✗	✗
	Is the information in English?	✓	✓	✓
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other	✓	✓	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✓	✓	✓
	Can the packaging be opened from the bottom using a gloved hand?	✓	✓	✓
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓	✓	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✗	✗	✗
The catheter should include an integrated fingertip vacuum controller.	Is there an integrated fingertip controller?	✓	✓	✓
The catheter should be easy to attach to pre-cut suction tubing		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to attach to bubble tubing		★★☆ (2)	★★☆ (2)	★★☆ (2)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	★★☆ (2)
Evaluators comments	Packaging - box		No box	No box
	Packaging - catheter	Product name at the bottom of the external wrapper and in multiple languages. Can be opened from the bottom		All the information was at the bottom end of the catheter packaging, information was in multiple languages
	Catheter colour coded	✓	✓	✓

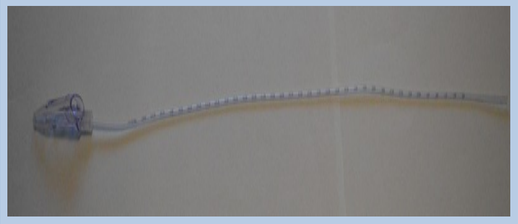
Supplier		Covidien (uk)	Sentra Medical	Pennine
Brand		Argyle: touch-trol	Suction catheter with fingertip control	Prestrol
OPEN SUCTION CATHETER NO GRADUATIONS, INTEGRATED FINGERTIP VACUUM CONTROLLER				
Manufacturer's ref ITALIC = SAMPLES RECEIVED		*1180851121 1180851063 1180851105 11880851147 1180851089* 1180851162	*2007/10FG* 2007/8FG, 2007/14FG, 2007/5FG, 2007/24FG, 2007/6FG, 2007/16FG, 2007/22FG, 2007/12FG, 2007/20FG	*0SC-1508/48 OSC-1512/48 OSC1514/60 OSC-1514/48 OSC-1512/60 OSC1510/60 OSC1510/48* OSC-1516/60 OSC-1506/48
NPC Codes ITALIC = NPC CODES EVALUATED		*FSQ303, FSQ298, FSQ302, FSQ304, FSQ299, FSQ305*	*FSQ1859*, FSQ1858, FSQ1861, FSQ1856, FSQ1866, FSQ1857, FSQ1862, FSQ1863, FSQ1865, FSQ1860, FSQ1864	*FSQ995, FSQ424, FSY220, FSQ003, FSY219, FSY218, FSQ000,* FSY282, FSQ1190
NHSSC BAND 1 UNIT OF ISSUE		Each	BOX OF 100	EACH, FSY282 BOX OF 100, FSQ1190, BOX OF 400 FSQ995
CLINICAL CRITERIA	**Evaluation Criteria**	**final score**	**final score**	**final score**
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	**N/A**	✓	✓
	Is the External diameter clearly visible?		✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?		✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?		✓	✓
	Is the size identified with a corresponding colour?		✓	✓
	Is the information in English?		✓	✓
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✓	✓	✓
	Is the External diameter clearly visible?	✓	✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗	✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓	✓	✓
	Is the size identified with a corresponding colour?	✓	✓	✓
	Are the identifying marks in the first 1/8 of the catheter packaging?	✗	✗	✓
	Is the information in English?	✓	✓	✓
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other	✓	✓	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✓	✓	✓
	Can the packaging be opened from the bottom using a gloved hand?	✓	✗	✓
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓	✓	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✗	✗	✗
The catheter should include an integrated fingertip vacuum controller.	Is there an integrated finger tip controller?	✓	✓	✓
The catheter should be easy to attach to pre-cut suction tubing		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to attach to bubble tubing		★★☆ (2)	★★☆ (2)	★★☆ (2)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★★☆ (2)	★☆☆ (1)	★★☆ (2)
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	★★☆ (2)
Evaluators comments	Packaging - box	**No box**	**Information was clear and the box was colour coded to indicate the size of the catheter inside. The information was only on 1 side of the box and the expiry date was hard to find**	**Text on box was not easy to read. Size was identified by colour on external box**
	Packaging - catheter	**All the information was at the bottom end of the catheter packaging, information was in multiple languages**	**Information was small to read and the expiry date hard to visualise**	**Text on packaging small and hard to read. Difficult to identify Lot no, expiry date and size**
	Catheter colour coded	✓	✓	✓

Supplier		**GBUK**
Brand		**Suction catheter VKK (Bikacilar)**
OPEN SUCTION CATHETER NO GRADUATIONS, INTEGRATED FINGERTIP VACUUM CONTROLLER		
Manufacturer's ref ITALIC = SAMPLES RECEIVED		***19112111,* 19108111, 19110111, 19106111,19116111, 19114111, 19118111,19112111**
NPC Codes ITALIC = NPC CODES EVALUATED		***FSQ1167,* FSQ1165, FSQ1166, FSQ1164, FSQ1169, FSQ1168, FSQ1170**
NHSSC BAND 1 UNIT OF ISSUE		**BOX OF 100**
CLINICAL CRITERIA	**Evaluation Criteria**	**final score**
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	✓
	Is the External diameter clearly visible?	✓
	Is the size of Endotracheal/Tracheostomy tube to which it Is compatible clearly visible?	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓
	Is the size identified with a corresponding colour?	✗
	Is the information in English?	✓
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✓
	Is the External diameter clearly visible?	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓
	Is the size identified with a corresponding colour?	✗
	Are the identifying marks in the first 1/8 of the catheter packaging?	✗
	Is the information in English?	✓
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✗
	Can the packaging be opened from the bottom using a gloved hand?	✗
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✗
The catheter should include an integrated fingertip vacuum controller.	Is there an integrated finger tip controller?	✓
The catheter should be easy to attach to pre-cut suction tubing		★★☆ (2)
The catheter should be easy to attach to bubble tubing		★★☆ (2)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★★☆ (2)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★★☆ (2)
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★★☆ (2)
Evaluators comments	Packaging - box	Information only on one side
	Packaging - catheter	Catheters came out of the box crumpled. Not easy to open and maintain sterility due to catheters being crumpled. Difficult to open as tabs small.
	Catheter colour coded	✓

Supplier		Vygon	GBUK	GBUK
Brand		Vygon 2 lateral eyes x-ray opaque PVC	Caretip	Tendertip
OPEN SUCTION CATHETER - GRADUATED, INTEGRATED FINGERTIP VACUUM CONTROLLER				
Manufacturer's ref ITALIC = SAMPLES RECEIVED		*535.05, 535.06, 535.07, 535.08*	*CT.02.12.060, CT02.10.048,* CT02.07.048, CT02.06.048, CT02.05.048, CT02.08.035, CT02.05.035, CT02.06.035, CT.02.07.035, CT02.10.035, CT02.10.060, CT02.14.048, CT02.14.060, CT02.12.048	*TT01-12-050, TT01-5-050,* TT01-05-035, TT01-06-035, TT01-07-035, TT01-08-035, TT01-10-035, TT01-06-050, TT01-07-050, TT01-10-060, TT01-10-050, TT01-14-060, TT01-08-050, TT01-12-060
		Lot no's: 011215FG, 160415FG, 161115FG, 160115FG	Lot No's: 15012842, 15020412	Lot No's: 11881215, 13241212
NPC Codes ITALIC = NPC CODES EVALUATED		*FSQ191, FSQ494, FSY003, FSQ192, FSY003*	*FSQ1134, FSQ248,* FSQ236, FSQ217, FSQ991, FSQ252, FSQ992, FSQ250, FSQ251, FSQ253, FSQ1132, FSQ1135, FSQ1136, FSQ1138, FSQ248	*FSQ1144, FSQ993,* FSQ587, FSQ588, FSQ589 FSQ591, FSQ593, FSQ658, FSQ570, FSQ580, FSQ575, FSQ578, FSQ572, FSQ576
NHSSC BAND 1 UNIT OF ISSUE		UOI: BOX OF 50	UOI: BOX OF 100 FSQ1134, FSQ991, FSQ992, FSQ1132, FSQ1135, FSQ1136, FSQ1133, EACH: FSQ236, FSQ217, FSQ252, FSQ250, FSQ251, FSQ253, FSQ238, FSQ248	UOI:FSQ1144, FSQ993 BOX OF 100, FSQ587, FSQ588, FSQ589 FSQ591, FSQ593, FSQ658, FSQ570, FSQ580, FSQ575, FSQ578, FSQ572, FSQ576 EACH
CLINICAL CRITERIA	**Evaluation Criteria**	**final score**	**final score**	**final score**
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	✗	✓	✓
	Is the External diameter clearly visible?	✓	✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗	✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓	✓	✓
	Is the size identified with a corresponding colour?	✗	✗	✓
	Is the information in English?	✓	✓	✓
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✗	✓	✓
	Is the External diameter clearly visible?	✓	✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗	✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓	✓	✓
	Is the size identified with a corresponding colour?	✗	✓	✓
	Are the identifying marks in the first 1/8 of the catheter packaging?	✗	✓	✗
	Is the information in English?	✓	✓	✓
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other	✓	✓	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✓	✓	✓
	Can the packaging be opened from the bottom using a gloved hand?	✓	✓	✗
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓	✓	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✓	✓	✓
The catheter should include an integrated fingertip vacuum controller.	Is there an integrated finger tip controller?	✓	✓	✓
The catheter should be easy to attach to pre-cut suction tubing		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to attach to bubble tubing		★★☆ (2)	★★☆ (2)	★★☆ (2)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	★★☆ (2)
Packaging - box		No name on the box only the supplier. Size is not identifiable by colour on the external box	Size not identified on external box by colour	Small text. Size of catheter indicated on external box by colour code
Packaging - catheter		No name only the supplier.	Clear packaging but not easy to remove from the box, open well maintaining sterility of the catheter but can be opened form the bottom.	Difficult to read the packaging, some catheters in the box bent and difficult to then use. Difficult to open from the top as the tabs small
Catheter colour coded		All sizes the same colour	✓	✓
Clarity of Graduations				Easy to read

Supplier		GBUK	GBUK	Westbourne medical
Brand		New Caretip	Caretip delicate	Trach-clear open
OPEN SUCTION CATHETER - GRADUATED, INTEGRATED FINGERTIP VACUUM CONTROLLER				
Manufacturer's ref ITALIC = SAMPLES RECEIVED		*CT01.10.035P, CT01.12.060P,* CT01-10-060WP, CT01.14.060P, CT01.10.060P, CT01-05-050P, CT01-08-035P, CT01-010-050P, CT01-05-035P, CT01-06-050P, CT-06-035P, CT01-05-050P, CT01-07-050P, CT01-07-035P, CT01-08-050WP	*DC01.12.015,* MC01.14.010, DC01.07.015, DC.10.015, DC01.06.015,	*TC01-12-060,* TC01-08-035, TC01-16-060, TC01-10-060, TC01-06-050, TC01-07-050, TC01-08-050, TC01-14-060, TC01-10-035, TC01-10-050, TC01-18-060, TC01-06-035, TC01-140050, TC01-16-050, TC01-05-035, TC01-05-050,
		Lot No's: 15110101, 15110101	LOT NO'S : 16030101	LOT NO'S; 2783
NPC Codes ITALIC = NPC CODES EVALUATED		*FSQ1444, FSQ1455,* FSQ1141, FSQ1445, FSQ1443, FSQ1449, FSQ1454, FSQ1450, FSQ1451, FSQ1447, FSQ1452, FSQ967, FSQ1448, FSQ1453, FSQ1139	*FSQ1153,* FSQ1154, FSQ1150, FSQ1152, FSQ1149, FSQ1153	*FSQ1476,* FSQ1465, FSQ1478, FSQ1475, FSQ1468, FSQ1469, FSQ1470, FSQ1477, FSQ1466, FSQ1471, FSQ1479, FSQ1463, FSQ1473, FSQ1474, FSQ1462, FSQ1467
NHSSC BAND 1 UNIT OF ISSUE		UOI: PACK OF 10, FSQ1141, FSQ1139 PACK OF 100, FSQ967 EACHES FSQ1141, FSQ1445, FSQ1443, FSQ1449, FSQ1454, FSQ1450, FSQ1451, FSQ1447, FSQ1452, FSQ1448, FSQ1453, FSQ1139 FSQ1444, FSQ1455	UOI: BOX OF 100	UOI: EACH
CLINICAL CRITERIA	Evaluation Criteria	final score	final score	final score
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	N/A	✓	N/A
	Is the External diameter clearly visible?		✓	
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?		✗	
	Is the expiry date/Lot number and Manufacturer's clearly visible?		✓	
	Is the size identified with a corresponding colour?		✗	
	Is the information in English?		✓	
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✓	✓	✓
	Is the External diameter clearly visible?	✓	✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗	✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓	✓	✓
	Is the size identified with a corresponding colour?	✓	✓	✓
	Are the identifying marks in the first 1/8 of the catheter packaging?	✓	✓	✓
	Is the information in English?	✓	✓	✓
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other?	✓	✓	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✓	✓	✓
	Can the packaging be opened from the bottom using a gloved hand?	✗	✗	✗
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓	✓	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✓	✓	✓
The catheter should include an integrated fingertip vacuum controller.	is there an integrated finger tip controller?	✓	✓	✓
The catheter should be easy to attach to pre-cut suction tubing		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to attach to bubble tubing		★☆☆ (1)	★☆☆ (1)	★★☆ (2)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★☆☆ (1)	★☆☆ (1)	★★☆ (2)
Packaging - box			Clear labelling	
Packaging - catheter		Text was small. Catheter could not be opened from the bottom	Clear print. Catheter could not be opened from the bottom	Difficult to read print on the catheter. Packaging difficult to open from the top. Tore as being opened could compromise sterility of the catheter.
Catheter colour coded		✓	✓	✓
Clarity of Graduations				Easy to read

Supplier		UNOMEDICAL	UNOMEDICAL	PENNINE HEALTHCARE GRADUATED
Brand		Vacutip standard mat METRIC	Vacutip optimal mat	Pennine Healthcare Graduated
OPEN SUCTION CATHETER - GRADUATED, INTEGRATED FINGERTIP VACUUM CONTROLLER				
Manufacturer's ref ITALIC = SAMPLES RECEIVED		***12041182, 12047182, 12046182, 12038182, 12088182, 12040182, 12037182, 12085182, 12043182, 12044182*** 12085182, 12039182, 12088182, 12079182, 12087182, 12090182, 12048182, 12086182	***12094182, 12092182,*** 12095182, 12093182, 12096182	***OSC-1208/48, OSC-1812/60,*** OSC-1206/48, OSC-1207/48, OSC-1210/48, OSC1212/48
		LOT NO'S: 220311, 232274, 226823, 229674, 237414, 210958, 219520, 226811, 236692, 236693	LOT NO'S: 237459, 237428	LOT NO'S: 044614,
NPC Codes ITALIC = NPC CODES EVALUATED		***FSQ246, FSQ075, FSY124, FSR000, FSQ007, FSY195, FSR344, FSQ169, FSR386, FSQ074,*** FSQ619, FSQ070, FSQ077, FSQ179, FSQ136, FSQ138, FSQ618, FSQ076	***FSQ162, FSQ154,*** FSQ166, FSQ156, FSQ168	***FSQ938, FSQ1177,*** FSQ939, FSQ938, FSQ937, FSQ940, FSQ1175, FSQ1178, FSQ1176, FSQ1179
NHSSC BAND 1 UNIT OF ISSUE		UOI :EACHES FSQ075, FSY124, FSR000, FSQ007, FSY195, FSR344, FSQ169, FSR386, FSQ074, FSQ619, FSQ070, FSQ077, FSQ618, FSQ076 BOX OF 100 FSQ246 , FSQ179, FSQ136, FSQ138	UOI: BOX OF 100	UOI :EACHES. FSQ938, FSQ939, FSQ 937, FSQ940 BOXES OF 400 FSQ1177, FSQ1175, FSQ1178, FSQ1176, FSQ1179
CLINICAL CRITERIA	**Evaluation Criteria**	**final score**	**final score**	**final score**
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	N/A	✗	N/A
	Is the External diameter clearly visible?		✓	
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?		✗	
	Is the expiry date/Lot number and Manufacturer's clearly visible?		✓	
	Is the size identified with a corresponding colour?		✗	
	Is the information in English?		✓	
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✓	✓	✓
	Is the External diameter clearly visible?	✓	✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗	✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓	✓	✓
	Is the size identified with a corresponding colour	✓	✓	✗
	Are the identifying marks in the first 1/8 of the catheter packaging?	✗	✗	✗
	Is the information in English?	✓	✓	✓
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other	✓	✓	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✓	✓	✓
	Can the packaging be opened from the bottom using a gloved hand?	✗	✗	✗
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓	✓	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✓	✓	✓
The catheter should include an integrated fingertip vacuum controller.	Is there an integrated finger tip controller?	✓	✓	✓
The catheter should be easy to attach to pre-cut suction tubing		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to attach to bubble tubing		★☆☆ (1)	★★☆ (2)	★★☆ (2)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	★★☆ (2)
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★☆☆ (1)	★★☆ (2)	★★☆ (2)
Packaging - box			Print small and only on one side of the box	
Packaging - catheter		Used abbreviations on external packaging	Not full description and abbreviated. Catheter packaging opened well	Text small and difficult to read, multiple languages
Catheter colour coded		✓	✓	
Clarity of Graduations				Difficult to read

Supplier		**UNOMEDICAL**
Brand		**Vacutip coude**
OPEN SUCTION CATHETER - GRADUATED, INTEGRATED FINGERTIP VACUUM CONTROLLER		
Manufacturer's ref ITALIC = SAMPLES RECEIVED		***12101182***
		15390
NPC Codes ITALIC = NPC CODES EVALUATED		***FSQ177***
NHSSC BAND 1 UNIT OF ISSUE		**UOI: BOX OF 100**
CLINICAL CRITERIA	**Evaluation Criteria**	**final score**
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	✓
	Is the External diameter clearly visible?	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓
	Is the size identified with a corresponding colour?	✗
	Is the information in English?	✓
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✓
	Is the External diameter clearly visible?	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓
	Is the size identified with a corresponding colour?	✓
	Are the identifying marks in the first 1/8 of the catheter packaging?	✗
	Is the information in English?	✓
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✓
	Can the packaging be opened from the bottom using a gloved hand?	✗
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✓
The catheter should include an integrated fingertip vacuum controller.	Is there an integrated finger tip controller?	✓
The catheter should be easy to attach to pre-cut suction tubing		★★☆ (2)
The catheter should be easy to attach to bubble tubing		★★☆ (2)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★★☆ (2)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★★☆ (2)
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★★☆ (2)
Packaging - box		
Packaging - catheter		Used abbreviations on external packaging
Catheter colour coded		
Clarity of Graduations		

Supplier		vygon	Covidien (uk)	Sentra Medical
Brand		Vygon de lee	Argyle sure-grip. Tapered end	Suction catheter
OPEN SUCTION CATHETER - REQUIRES SEPARATE CONNECTOR				
Manufacturer's ref ITALIC = SAMPLES RECEIVED		***533.04, 533.05, 533.06, 533.08, 533.10, 533.12***	***1180830125, 1180830141, 1180830083, 1180-830109,*** 1180830182, 1180830067	2001/10FG, 2001/24FG, 2001/6FG, 2001/16FG, 2001/18FG, 2001/22FG, 2001/12FG, 2001/20FG, 2001/8FG, 2001/5FG, ***2001/14FG***
NPC Codes ITALIC = NPC CODES EVALUATED		***FSR150, FSQ1294, FSQ633, FSQ994, FSQ242, FSQ1194***	***FSQ121, FSQ122, FSQ118, FSQ119,*** FSR149, FSQ989	FSQ1837, FSQ1844, FSQ1835, FSQ1840, FSQ1841, FSQ1843, FSQ1838, FSQ1842, FSQ1836, FSR368, ***FSQ1839***
NHSSC BAND 1 UNIT OF ISSUE		BOX OF 50	EACH	BOX OF 100
CLINICAL CRITERIA	**Evaluation Criteria**	**Final Score**	**Final Score**	**Final Score**
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	✓	N/A	✓
	Is the External diameter clearly visible?	✓		✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗		✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓		✓
	Is the size identified with a corresponding colour	✗		✓
	Is the information in English?	✓		✓
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✓	✓	✓
	Is the External diameter clearly visible?	✓	✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗	✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✓	✓	✓
	Is the size identified with a corresponding colour	✗	✓	✓
	Are the identifying marks in the first 1/8 of the catheter packaging	✗	✓	✗
	Is the information in English?	✓	✓	✓
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other	✓	✓	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✓	✓	✓
	Can the packaging be opened from the bottom using a gloved hand?	✓	✓	✗
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓	✓	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✗	✗	✗
The catheter should include an integrated fingertip vacuum controller.	Is there an integrated finger tip controller	✗	✗	✗
The catheter should be easy to attach to pre-cut suction tubing		★☆☆ (1)	★★☆ (2)	
The catheter should be easy to attach to bubble tubing		★☆☆ (1)	★★☆ (2)	★☆☆ (1)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★☆☆ (1)	★★☆ (2)	★★½ (2.5)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★★☆ (2)	★★☆ (2)	★☆☆ (1)
Evaluators comments	Packaging - box	Size not identified by a colour on external box	No box	Good colour coding to indicate the size on the box
	Packaging - catheter	Can be opened from the bottom	Can be opened from the bottom	Easy to open from the top
	Catheter colour coded	✗	✓	✓
	Type of connector	Separate	Separate	Separate

Supplier		Pennine	GBUK	ISKUS Health
Brand		Endobronchial	Suction catheter ideal tip (Bicakcilar)	Suction catheter with 2 lateral eyes
OPEN SUCTION CATHETER - REQUIRES SEPARATE CONNECTOR				
Manufacturer's ref ITALIC = SAMPLES RECEIVED		***SC-1020/48, SC-1010/48, SC-1005/48, SC1014/48, SC-1018/48, SC-1016/48, SC-1012/48, SC-1008/48,*** SC-1006/48	***19012851,*** 19016851, 19020851, 19014851, 19008851, 19006851, 19018851, 19010851	***07.078.18.235 07.***078.16.235 07.078.12.235 07.078.08.235 07.078.14.235 07.078.06.235 07.078.10.235
NPC Codes ITALIC = NPC CODES EVALUATED		***FSQ146, FSQ763, FSQ766, FSQ053, FSQ052, FSQ764, FSQ762,*** FSQ761	***FSQ1157,*** FSQ1159, FSQ1161, FSQ1769, FSQ1830, FSQ1162, FSQ1160, FSQ1771, FSQ1157	***FPA163,*** FPA160, FPA158, FPA,161, FPA,075, FPA159
NHSSC BAND 1 UNIT OF ISSUE		EACH	BOX OF 100	BOX OF 25
CLINICAL CRITERIA	**Evaluation Criteria**	**Final Score**	**Final Score**	**Final Score**
The external carton must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with.	Is the name clearly visible?	N/A	✓	N/A
	Is the External diameter clearly visible?		✓	
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?		✗	
	Is the expiry date/Lot number and Manufacturer's clearly visible?		✓	
	Is the size identified with a corresponding colour		✗	
	Is the information in English?		✓	
The individual catheter packaging must be clearly marked with the name of the product, the supplier, lot no, manufacturer's reference, expiry date catheter size both written and indicated by colour coding, size of tracheostomy tube and endotracheal tube that the catheter is compatible with. Markings must be in the top 1/8 of the catheter packaging	Is the name clearly visible?	✗	✓	✓
	Is the External diameter clearly visible?	✗	✓	✓
	Is the size of Endotracheal/Tracheostomy tube to which it is compatible clearly visible?	✗	✗	✗
	Is the expiry date/Lot number and Manufacturer's clearly visible?	✗	✓	✓
	Is the size identified with a corresponding colour	✓	✓	✓
	Are the identifying marks in the first 1/8 of the catheter packaging	✗	✗	✗
	Is the information in English?	✓	✓	✗
The open suction catheters must be able to be separated from each other without compromising the integrity of the individual catheter.	Separate the catheters from each other	✓	✓	✓
The open suction catheter can be prepared for clinical use without compromising sterility.	Can the packaging be opened from the top using a gloved hand?	✓	✓	✓
	Can the packaging be opened from the bottom using a gloved hand?	✓	✗	✗
	Can the packaging be opened without compromising the sterility of the suction catheter?	✓	✓	✓
Certain clinical indications require the catheter to have graduations	Does the catheter have graduations?	✗	✗	✗
The catheter should include an integrated fingertip vacuum controller.	is there an integrated finger tip controller	✗	✗	✗
The catheter should be easy to attach to pre-cut suction tubing		★☆☆ (1)	☆☆☆ (0)	★☆☆ (1)
The catheter should be easy to attach to bubble tubing		★☆☆ (1)	☆☆☆ (0)	★☆☆ (1)
The suction catheter must be capable of suctioning the liquid provided with the suction regulator set to 10-13kPa.		★☆☆ (1)	★★☆ (2)	★☆☆ (1)
The catheter should be easy to remove from the pre-cut tubing without contaminating the staff &/or environment		★☆☆ (1)	☆☆☆ (0)	★☆☆ (1)
The catheter should be easy to remove from the bubble tubing without contaminating the staff &/or environment		★☆☆ (1)	☆☆☆ (0)	★☆☆ (1)
Evaluators comments	Packaging - box	No box	Name was only on 1 side of the box and the print was small. Size not identified by a colour on external box	No box
	Packaging - catheter	Can be opened from the bottom	Text on catheter package was difficult to read difficult to open from the top	Print was difficult to read in multiple languages
	Catheter colour coded	✓	✓	✓
	Type of connector	Separate	Separate	Separate

Conclusions

All open suction catheters and tubing evaluated were found to at least partially meet the clinical criteria for usability as defined by the NHS. The majority fully met these criteria.

However, comments were made in relation to the labelling of the external cartons and the individual catheter packaging labelling. Most evaluators felt that the packaging could be improved.

Evaluators noted that the NHS requested information as to the size of endotracheal tube or tracheostomy tube that the suction catheter is compatible with to be printed on the individual catheter packaging and on the external box. No manufacturer supplied this information

Catheters are either supplied as ‘eaches’ or in conjoined strips. Evaluators noted that in some boxes of multiple strips the catheters were curled up in the box and difficult to remove and then use as the catheter was ‘curled’.

Evaluators commented that there was variability between the different suppliers as to the ease to which the individual catheter wrap could be opened without tearing and compromising the sterility of the catheter.

A whole group of catheters failed to meet the criteria for an integrated fingertip vacuum controller.

Recommendations for the future

Open Suction Catheters

Should be offered with graduations and without so clinical staff can select the appropriate catheter to meet the clinical needs of their patient group.

The integrated vacuum controller must be colour coded to indicate the external diameter of the catheter lumen; however, clinical staff did not express a preference for opaque colour controller or clear controller with colour coded band.

Clinicians do not want to have to add a separate connector. This introduces an additional step in the process and could lead to poor practice if the connector is not readily available. Consideration could be given to removing catheters which require a separate connector from the national supplier’s catalogue. Consideration could also be given to removing catheters with ‘Coude’ tips as the literature does not support their efficacy over straight catheters.

Catheter Packaging

The clarity of the information on the individual catheter packets is important.

Information should be colour coded, with improved clarity of the expiry date, size, lot no, fully compliant GS1 bar code, size of compatible endotracheal tube and tracheostomy tube on the individual catheter wrapping as well as the outer box

Unit of issues should be considered as many clinical areas want smaller quantities such as packs of 10

Suction Tubing:

Clinical stakeholders and the evaluators felt that these products should be offered in a range of gauges and both sterile pre-cut and non-sterile cut to length at point of use to meet different clinical situations and that there was little choose between the different suppliers

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'Quality, safety and value are at the heart of our work and it's important that we use our clinical experience to deliver high standards of care while reducing cost and waste in the NHS.'

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