

# Clinical review

## Adult ECG Electrodes

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## 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.evaluationteam@nhs.net](mailto:clinical.evaluationteam@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.

## 1. Introduction

The NHS Clinical Evaluation Team (CET) was established in April 2016. The team's remit is to add independent clinical review to 'everyday healthcare consumables' used by the NHS.

Everyday 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 Adult Electrocardiogram (ECG) Electrodes that are available to the NHS from the national procurement provider (NHS Supply Chain) and secondly, to provide a clinical overview of functions and properties that the clinicians in the NHS require of Adult ECG Electrodes.

It is apparent that Adult ECG Electrodes, featured in this report, are everyday healthcare consumables which can be found in clinics, wards and within mobile health services. They 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 and culminates in the production of this report for their approval in November 2017.

Based on data collected over a period of 12 months, supplied by the current national provider, NHS Supply Chain, who have approximately 40% of the market share, the NHS purchases more than 152 million Adult ECG Electrodes annually.

There are 242 Adult ECG Electrodes in this category reviewed by the NHS CET which are provided by 11 different suppliers. There are many different types of Adult ECG Electrodes on the market, with new products being launched to the UK market on a regular basis, however, for the purposes of this evaluation, only those products currently available through NHS Supply Chain have been included in the evaluation. This report covers the range of products available as of April 2017.

Information on Adult ECG Electrodes was collated from a variety of sources to provide further details on the current evidence available to support the way in which the devices are designed and clinically evaluated.

Following this information gathering, clinical conversations were held nationwide with the aim to define important clinical criteria for Adult ECG Electrodes from frontline NHS clinicians; identifying what was important, and what was unnecessary, together with additional factors that can truly only be identified by clinicians using these products in everyday practice. With each conversation this clinical criteria was further reviewed, developed and refined to reflect the national opinion.

The national clinical conversation events provided a lot of rich information from generalists and specialists from diverse clinical fields. It was recognised that cardiac physiologists, amongst others, are key clinical stakeholders in this project. Further conversations took place with individual specialists from various backgrounds and

the Society for Cardiological Science and Technology (SCST), the British Heart Foundation (BHF) and the British Heart Rhythm Society (BHRS). This information was reviewed and used to develop clinical criteria for Adult ECG Electrodes, against which all brands available from the national procurement provider were reviewed.

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

A more detailed description of the team, our pathway approach and clinical criteria is available in the NHS Clinical Evaluation Team Operating Manual, which can be found on our website at: [www.nhsbsa.nhs.uk/cet](http://www.nhsbsa.nhs.uk/cet).

## 2. Clinical review

### 2.1 Clinical definition and scope

This report is concerned with Adult ECG Electrodes only. This removed the more specialist areas of Paediatric, Neonate or Neurological in which different types of electrodes are used or supported consumables such as gels and monitoring leads.

The electrodes are categorised into 3 sections within the NHS Supply Chain catalogue:

- Diagnostic
- Monitoring
- Stress/Holter

Within these 3 groups it is possible that the electrodes can be used in different clinical settings and are not restricted by the section they are listed in. However, products have been categorised by component parts for comparison purposes.

### 2.2 Intended clinical use

An ECG is a medical test which is used to check for and diagnose possible cardiac conditions and arrhythmias.

The ECG electrode is a device which is applied to the skin and transfers the electrical activity produced by the heart to a monitoring or diagnostic devices which is capable of visualising the data. The location where electrodes are placed, the quantity used, shape, size and material properties can all vary, yet the functionality is the same (Society of Cardiological Science and Technology (SCST), 2014).

ECGs are an important and integral part of a patient's initial clinical diagnosis, monitoring and the decision making process relating to treatment, particularly life-saving treatment.

## 2.3 Clinical practice

Performing an ECG is part of the basic clinical observations and documenting of vital signs that should be carried out for any acutely unwell patient (Royal College of Nursing, 2017) (Resuscitation Council (UK), 2017).

## 2.4. Clinical impact

Poorly performing products can lead to a delayed reading and therefore misinterpretation, misdiagnosis and substandard patient experiences.

## 2.5. Other clinical considerations

If clinicians follow the best practice guidelines as described in section 3.2 and utilise correct skin preparation, there may be less need for stronger adhesives and advanced gels.

The quality of an ECG is influenced by several factors which can affect the ECG results:

- Immediate environment in which ECG is being recorded
- Patient preparation (see best practice guidelines)
- Type of ECG electrode chosen
- Attachment to the lead wires and connection to the monitor
- The positioning of lead wires
- Correct functioning of the leads
- Service status, age and condition of the ECG monitor

Whilst there are many well trained and qualified personnel, there is evidence that there is lack of competence amongst those who record ECGs. Studies from several countries repeatedly show that practitioners lack essential knowledge and skills and as a consequence, ECGs can be incorrectly recorded resulting in erroneous diagnosis and inappropriate treatment (Society of Cardiological Science & Technology (SCST), 2014).

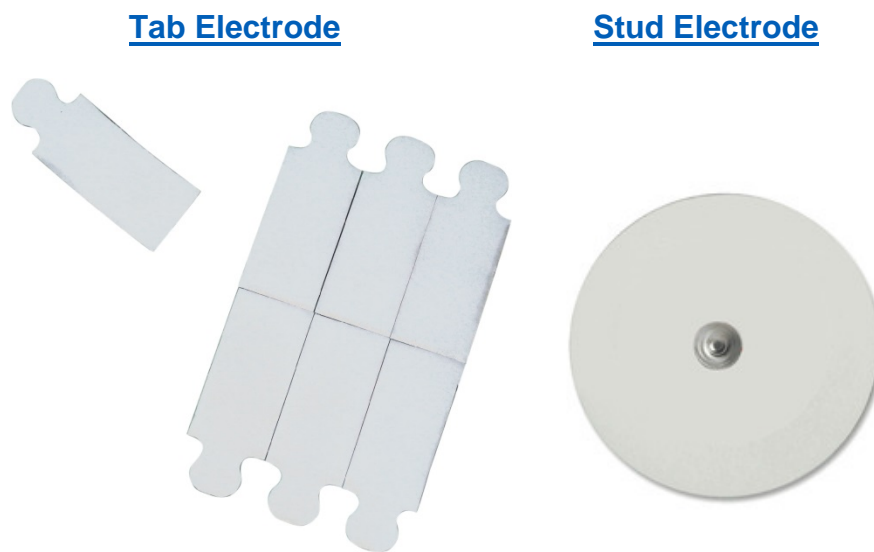
Often, the ECG electrode is the first component to be criticised as this is the obvious variable in the process of undertaking an ECG. However, it is essential that all the above factors are taken into account prior to making this assumption.



## 2.6. Product technical design

Each ECG electrode is attached by a wire to an ECG monitor. The electrical activity of the heart is transmitted via this wire to the monitor, which translates the electrical impulses into a waveform that the machine then displays on a monitor and/or records on graph paper. The ECG records in such detail that the results can be used to diagnose a broad range of heart conditions by a trained clinician.

There are 2 main types of electrodes:



### **Tab electrodes**

These are generally polymer-based products with a conductive adhesive covering the whole surface of the underside. Tab electrodes are generally used in the acquisition of routine assessment ECGs. Although these electrodes can remain on the skin for several hours, they are more commonly used to acquire a single ECG trace before being removed. They connect via a clip that does not offer a secure fix. Patients who require on-going monitoring would have an ECG electrode with a stud fixing or similar applied.

### **Stud electrodes**

Stud electrodes can be produced from a variety of materials. It is important for a user to understand what will work best for the procedure and patient.

### 2.6.1. Connections

Adult ECG electrodes can be connected to an ECG monitor by various types of connections:

- Crocodile Clip Connector – Tab
- Snap Connectors – Stud
- 4mm Banana Connector – 4mm Banana Stud
- Universal (Snap & Tab)

Some electrodes have a Dual Connection (Snap & Tab) feature removing the need to replace electrodes when transferring between ECG devices. Alternatively, universal leads can be used.

### 2.6.2 Offset vs onset

The terms 'offset' and 'onset' refer to the position of the stud connection placement. 'Onset' has the connector placed in the centre of an electrode and 'offset' off-centre, usually in a teardrop shaped electrode.

There is a lack of evidence to support benefits of one type over another. Clinicians have observed that when the ECG lead wires are pulled whilst being attached to an onset stud electrode this causes the electrode gel to lose contact with the skin and the signal of the ECG is interrupted. However, with the offset electrode this pulling movement occurs away from the gel interface and minimises the risk of the signal being interrupted.

### 2.6.3 Material

#### i. Foam

Foams make up the majority of the stud electrodes which are used in everyday settings as they are versatile in their use. The electrode has an adhesive outer ring which adheres to the skin. A gel centre transmits the electrical signal through the connector. Foam electrodes have a protective barrier to prevent fluid interfering and a supplier sticker as a top layer. They can be used for the initial assessment of patients and kept on the skin for several days. There are a variety of different foams, gels and adhesives which are combined by the manufacturer as required. It has not been possible to determine foam or adhesive properties from the data that is available from suppliers.

## ii. Cloth and tape

These are both designed for long term use (24 hours up to 7 days). Tape can follow the body's contours easily and is breathable, whilst cloth offers (in addition to tape features) increased flexibility, allowing the skin to move reducing the risk of damage.

Some adhesives become stronger over time, building a bond with the skin. It is worth noting that if these types of electrodes are removed too soon or incorrectly they can potentially cause skin damage.

Some products have features which allow the user to shower or wash with the electrode in place. Patients have indicated that, where clinically appropriate and with guidance, they would happily replace electrodes that came off themselves.

During this evaluation of products, a number of newer cloth / silicone type electrodes were highlighted as being significantly different to other products offering a pleasant and pain free experience on removal. Although these have some limitations, e.g. slide off in contact with water, they could offer a better clinical option for patients with high risk of skin damage. The evaluation results of these products have remained in the cloth matrix as information was not available to accurately separate them at this stage.

### 2.6.4 Gel types

There are 3 types of gel products available:

#### i. Solid gel

The majority of gels used in practice are classed as a solid gel. These provide a stable and constant performance over time.

#### ii. Wet gel

These products have the ability to obtain a clear and enhanced ECG trace quicker. The research evidence to support this is limited. Wet gel electrodes are also at risk of drying out as the moisture evaporates.

#### iii. Tac /sticky gel

There are newer, hybrid electrodes which are looking to achieve the rapid and clear ECG trace of wet gel and the duration of solid gel electrodes.

### **2.6.5. XRAY/MRI**

Electrodes that meet this requirement have the metal stud fixing replaced by a carbon version which is more expensive to produce. No evidence has been found by the author that suggests that carbon electrodes perform differently to standard electrodes.

### **2.6.6 Storage**

Pouches are designed to protect electrodes from sunlight, moisture and temperature. Once opened the remaining electrodes will have a limited shelf life which can be further influenced by extremes of high and low temperatures. To ensure that the electrodes continue to function correctly, users should store them away from heat sources and reseal or fold over the packaging to prevent the gel and adhesive from drying out. This is to prevent poor performance and failure to acquire a suitable trace.

It is recommended that the electrodes remain stored in the pouch and once opened the new expiry date shall be written on the pouch.

## 3. Pathway methods

Collated evidence has been used as a basis, alongside supplier submitted evidence, to help form initial ideas about product use, performance and requirements. This contributed to the development of the initial clinical criteria for Adult ECG Electrodes which was then taken to frontline clinical staff at national engagement events for development and validation.

### 3.1. Intelligence gathering

In preparation of the criteria, account has been taken of academic and related clinical evidence, known guidance and nationally recognised publications as further described in Section 3.

All suppliers listed within the national framework were invited to submit relevant evidence, product information and testing data to help support the review.

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 carried out.

Finally, the specification used by NHS Supply Chain has been reviewed to understand what has previously been asked of suppliers of these devices.

Evidence from these sources has then been used as a basis to help form initial ideas around suitable clinically based statements of what clinical staff need from an Adult ECG Electrode and how it should perform in order to satisfy those identified clinical requirements.

#### 3.1.1. Literature search

A literature search has been undertaken to establish what current academic knowledge exists on the products for evaluation. It should be noted that the team have not conducted a comprehensive or systematic review of literature. However, the team have interrogated the information to look for common themes which supported the development of the clinical criteria.

Initially, an evidence search was performed across the NICE service using the generic term (ECG, Electrocardiogram) in the following areas;

- Pathways - <https://pathways.nice.org.uk/>
- Guidance - <https://www.nice.org.uk/guidance/published>
- Clinical Knowledge Summaries <https://cks.nice.org.uk>

All searches returned no results.

Whilst this is not a full academic literature search, the principles applied had the same structured method when searching the online academic databases of CINAHL.

On the basis that our initial searches returned no results we then utilised a PIO framework as developed by Sackett (Sackett & al, 2000). This helped to break down the search question into 3 essential elements - **PIO** (**P**opulation or **P**roblem, **I**ntervention, **O**utcome/s).

Keywords were carefully chosen to retrieve the maximum number of relevant returns. Keywords were checked to ensure possible alternatives were included and the truncated symbol was used to include all possible spellings both US and UK and alternative word endings.

POI - Search Term		
Population	Intervention	Outcome
ECG	Electrode	Quality
EKG	Dot	Comparison
Electrocardiogram		Compare
		Adhesive
		Reaction
		Trace
		Problem
		Defect

These search terms produced no relevant results.

These and similar searches were independently verified by a third party experienced clinical librarian confirming the hypothesis that there is a fundamental lack of evidence based research or even low level research in which to support the electrode market.

### 3.1.2. National procurement provider specification

The current national procurement provider's (NHS Supply Chain) framework specification for the current framework combines ECG monitoring electrodes and ECG diagnostic electrodes in 2 lots. Suppliers can bid for either or both of these lots.

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 ECG electrodes.

The specification, as used by NHS Supply Chain (2016), has been reviewed to understand what has previously been asked of suppliers of Adult ECG electrodes.

The specification includes, for example, the following:

- Electrodes should peel from their backing and affix to the skin with no slippage. They must also be removable without causing damage to the skin of the patient.
- Gel on the electrodes must be non-irritant and suitable for use on patients with sensitive skin.
- Tab electrodes must fix securely to the lead wire and should also be easily and cleanly peeled from their backing.
- Electrodes:
  - are for long or short term monitoring
  - can be either solid gel or wet gel
  - should have backings to be manufactured from foam, micro-porous tape, paper, carbon or cloth
  - can be either stud and/or tab style.

This has resulted in a framework that is significant in size with manufacturers producing electrodes for multiple suppliers. There can be minor differences between products which are not readily identifiable even when they are from the same supplier. It was difficult to find data on electrodes as not all products are listed in supplier catalogues or on company websites.

### **3.1.3. National and international safety and quality standards**

The Medicines and Healthcare products Regulatory Agency (MHRA) website (<https://www.gov.uk/drug-device-alerts>) returned 1 result of limited importance to this case.

Account has also been taken of appropriate international and other standards as they pertain to ECG Electrodes (e.g. from the International Organisation for Standardisation (ISO), European Standards (EN) and/or British Standards Institution (BSI).

Medical Device Directive 93/42/EEC as amended, currently in transition to the new Medical Device Regulation MDR 2017/745

- All products classified as a Medical Device must have their CE marking clearly evident on the product and/or packaging and meet the requirements set out within the standard(s) related to labelling.

BS EN ISO 15223-1-2016

- Symbols to be used with Medical Device Labels

BS EN ISO 10993-1: October 2009 Biological evaluation of medical devices.

- The primary aim is the protection of humans from potential biological risks arising from the use of medical devices. i.e. gels and adhesives

BS EN 60601-1:2006+A12:2014

- Medical electrical equipment, Part 1: General requirements for basic safety and essential performance

ANSI/AAMI EC12:2000 (R)2010 - Disposable ECG Electrodes

- This standard contains minimum labelling, safety and performance requirements; test methods; and terminology for disposable ECG electrodes.

### **3.1.4. Product suppliers and manufacturers**

Requests for information were sent to all suppliers on the framework. A limited amount of information was received back which was reviewed and considered when designing clinical criteria and is summarised here:

- Effective skin preparation can reduce alarm fatigue by up to 77%.
- Changing of electrodes on a daily basis decreases the number of alarms requiring staff intervention (Cvach, et al., 2013) (Sendelbach, et al., 2015). The increased cost of electrodes easily outweighs the staff costs dealing with alarms.
- Offset electrodes help prevent wet gel dispersal when connecting to lead wires compared to onset.

The most common form of intelligence provided was individual data sheets for each different electrode. These supported the development of the matrix, allowing for the product elements to be developed and built upon.

No supplier provided any details on the type or level of adhesives used. As this information could not be found online either, this particular information was not pursued further for the purpose of this review.



This report recognises that some manufacturers of monitoring and diagnostic equipment only recommend the use of connector cabling and electrodes that they approve. These are often those which they supply themselves.

### 3.1.5. Quality of evidence

**Hierarchy of evidence:** Levels of evidence sometimes referred to as hierarchy of evidence are assigned to studies based on the methodological quality of their design, validity, and applicability to patient care.

All the evidence for Adult ECG Electrodes collected by the methods previously described, at best, scored Level 4 while most would be classed as Level 6 or 7.

**(Melnyk & Fineout-Overholt, 2005, p. 10)**

Hierarchy ranking	Description
Level 1	A systematic review of all relevant randomised controlled trials (RCT) or evidence-based clinical practice guidelines based on systematic reviews of RCT evidence
Level 2	Evidence from at least one well designed RCT
Level 3	Evidence from well-designed controlled trials; non-randomised, quasi experimental
Level 4	Well-designed case control & cohort studies
Level 5	Systematic reviews of descriptive and qualitative studies
Level 6	Evidence from a single, descriptive or qualitative study
Level 7	Evidence from the opinion of authorities and/or reports of expert committees

### 3.2. Best practice guidelines

The Society of Cardiological Science and Technology represents the Profession of Cardiac Physiologists and the subject specialists. They have produced a Clinical Guidelines by Consensus Report\* which, in the absence of other national evidence, has been used as the basis for the summarised key points in relation to the use of electrodes (Society of Cardiological Science & Technology (SCST), 2014).

- In pre-planned assessments patients should be given advice (a leaflet) on how to prepare for an ECG. This includes information and instructions not to wear body creams or powders in the locations where electrodes are going to be placed and to clip (not shave) chest hair.
- Ensure that the patient understands what is happening during the examination. This reduces anxiety and muscle tremor. Consent for assessment is obtained.
- Where possible patients are examined in a private, walled room with the addition of a curtain. This provides dignity as “do not enter” signs do not always prevent staff entering and patients remain anxious.
- The room is at a comfortable temperature for someone in a state of undress and they are provided with a gown or blanket to preserve their dignity.
- Correct skin preparation:
  - clip chest hair (not to shave)
  - avoid alcohol-based products (inhibits electrical trace)
  - gently abrade the skin (gauze swabs or non-alcohol wipe)
  - ensure the area is as dry as possible
- Patient is positioned in the correct 45° semi recumbent position.
- Choose the right electrode for the right clinical requirement and the right patient type e.g. a patient with delicate tissue-like skin will need a different electrode to a young healthy adult.
- Attach leads to Centre Stud electrodes prior to electrode backing removal and applying to patient, thus protecting the adhesive border.
- Ensure that lead wires are correctly positioned to minimise distortion.

These extracts are designed to ensure that the patient is as relaxed as possible and the conditions are such that the ECG procedure can be done quickly, efficiently and produce the best trace possible without the need to utilise electrodes with extra adhesives, or replace electrodes due to grease and/or patient tremor. This offers a better patient perspective and clearer trace on which to base important treatment decisions.\* Correct at date of publication

### **3.3. Patient perspectives**

The British Heart Foundation has kindly provided access to its patient networks which has allowed the capture of vital patient perspectives on the subject which have been collated and support the best practice guidelines.

## 4. NHS clinical engagement

In order to develop a shared vision of what an Adult ECG Electrode should offer various methods of engagement were used.

Mapping exercises were undertaken to determine personnel that should be involved and/or consulted regarding these products. This stage of the report focused on NHS clinical staff who are either:

- a) recognised by peers as subject experts, and/or
- b) recognised regular users of the devices in their clinical practice.

Various methods of engagement were undertaken to ensure these clinical opinions were robust, and validated by peers from around the country, options of engagement included:

Regional and national face-to-face events with NHS clinical colleagues;

- Focussed visits to NHS clinicians regional and national face-to-face events;
- Website subscription;
- Attendance at specialist network events;
- Attendance at NHS Business Services Authority events;
- Web-based surveys and e-engagement tools (e.g. email, WebEx, portal-based surveys).

## 4.1. Clinical conversations

To build a broad spectrum of attendees at our events, letters were sent inviting Trusts to nominate clinical colleagues to attend a series of regional group events. These were hosted by NHS organisations throughout England to enable the widest possible access for all invited. This aimed to set aside any pre-existing regional variance.

Details of the information gathered were recorded in workbook 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.

The questions used to stimulate discussion and further information gathering were developed following a questionnaire sent to the clinical procurement specialist network (CPSN), which represents nurses and other clinicians working in procurement roles at NHS Trusts, regional procurement hubs and NHS Supply Chain.

It is understood that electrodes are used in a variety of departments with a range of requirements based upon patient conditions (e.g. sweat levels or patient movement) and level of analysis of the produced ECG.

In order to capture the different requirements at the conversation events the following classification was created and clinical staff were asked to validate:

- Ambulance
- 12-lead diagnostic ECG
- General patient monitoring (includes theatres, labour wards etc.)
- Emergency trolley (crash cart)
- Long term monitoring
- Stress tests
- Ambulance
- Special requirements and cardiac specialists

Based upon the information received in the intelligence gathering phase of the project a series of questions were developed for NHS clinical colleagues to answer.

Examples of the evidence gathering criteria questions posed are:

## **PACKAGING**

### **How important is**

1. Design of the external packaging
2. Design of the internal packaging
3. The quantity of electrodes in a pouch (Please specify any requirements)
4. Wastage, due to incorrect package size
5. The shelf life of the product'

## **OPENING**

### **How important is**

6. Removal from the backing strip
7. A single backing strip
8. Individual backing pieces
9. Backing strip has colour / pattern
10. Guide to accurate placement

## **CLINICAL USE**

### **How important is**

11. That we have a range of different gel products?
12. Is having an abrasive skin prep feature?
13. Shape (note: round, square, oval products available)?
14. Size (any specific requirements)?
15. How long do electrodes need to adhere for? <1hr, 1 to 12hrs, 12 to 24hrs, >24hrs
16. How should the electrode connect to monitor (stud, clip, other, please specify)?
17. Is it to have clear (see-through) electrodes?
18. To have different colour electrodes?
19. Removal of the electrodes after use? What factors influence this?

## **DISPOSAL**

### **How important is**

20. Any specific disposal criteria for this product?
21. What would make a 'perfect' product if you could design your own based on your clinical experience and knowledge? What features would it have?

Clinicians who contributed were also given the opportunity to provide their own comments and narrative.

#### 4.1.1. Clinical conversation insights

With regards to packaging, manufacturers must meet all the required standards; however clinicians expressed the view that it would be helpful if the pouch packaging was improved. Some suppliers include the mandatory information on the external box or accompanying leaflets. In clinical practice, products generally get decanted from the case and placed in drawers, on shelves or in cupboards and crash carts. Any accompanying information therefore gets lost when the outer packaging is disposed of.



#### Language / symbols used in the industry










It had become obvious that the language used in the market was not understood by the majority of those either using or purchasing the electrodes. Clinicians did not understand for example when a wet gel product should be used or why you would need to consider an offset connector.

Symbols have become commonplace on packaging and serve a vital purpose to clearly identify key information, particularly when supplying to multiple countries which require instructions in their native language. Less common was the use of bespoke symbols by individual manufacturers to denote properties (e.g. material composition cloth, tape or foam). These symbols were found to be confusing to users and delay choosing the correct product or identifying the information they need.



These are some of the more common symbols seen on packaging

:

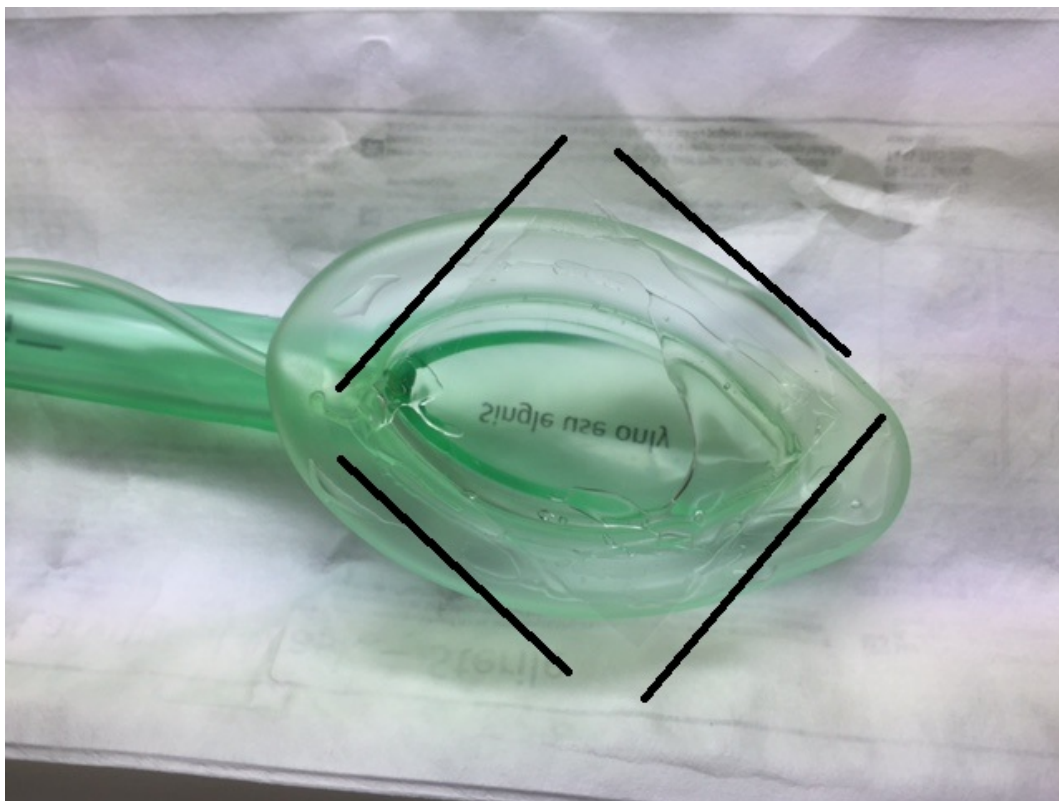
	Catalog Number
<b>QTY</b>	Quantity
<b>Rx Only</b>	Caution: U.S. Federal law restricts this device to sale by or on the order of a physician.
	Batch Code
	Refer to Instructions for Use
	Attention: See Instructions for Use
	Manufacturer
	Irradiation Sterilization
	Latex Free
	Expiration Date YYYY-MM
	Do Not Reuse

## Observed hazards

One area identified through the clinical conversations that caused concern in clinical use was in relation to the plastic discs that protected the adhesive surface of the electrode prior to application. Multiple clinicians had either witnessed or they had slipped on the transparent disc that had fallen on the floor and could not be seen. This is widely recognised as being a trip/slip hazard by regular users particularly when each electrode has its own plastic backing disk.

An added concern has been a report of a plastic disc going unnoticed until it had entered a patient's airway attached to the surface of an LMA (Laryngeal Mask) and the anaesthetist spotting it before damage could be done. This is a recent incident which has been reported. The pictures below illustrate clearly how this could occur and therefore the impact of design on clinical practice

(The black lines in the image below help identify the backing)



Multiple clinicians observed that they had treated patients who had developed skin damage from the plastic discs going unnoticed amongst the sheets of a patient's bed and becoming stuck to the skin, particularly amongst the elderly and patients who were unconscious and therefore unable to raise concerns.

A small change to making these backing discs coloured or with prominent markings would make significant improvements reducing the risk of slips and staff injury and more importantly eliminate these types of incident.

## 4.2. Choosing the correct Adult ECG Electrode

In order to determine the evaluation criteria and to provide end users with data that helps inform clinical procurement decisions, it was important to first understand how the electrodes would be used and the features that are needed.

Clinicians and specialists provided details and helped to verify these groupings.

Function	Important features	Recommend
12-lead diagnostic ECG and routine examination	<ul style="list-style-type: none"> <li>Pouch design, information and ease of opening</li> <li>Shelf life of an opened pouch (low use areas)</li> <li>Multiple electrodes attached to backing card which are easily removed</li> <li>Ease of removal from patient</li> </ul>	Tab Electrode Solid gel
General patient monitoring (includes theatres, labour wards etc.)	<ul style="list-style-type: none"> <li>Design of the pouch</li> <li>Shelf life once opened</li> <li>Electrodes are easy to remove from the backing and that backing has colour or pattern</li> <li>Electrodes last up to 24hrs</li> <li>Ease of removal</li> </ul>	Foam onset Solid gel
Emergency Trolley (Crash cart)	<ul style="list-style-type: none"> <li>Pouch quantity = 3pk</li> <li>Multiple electrodes attached to backing card which is easily identified and electrodes are easy to remove</li> <li>Last up to 12 hours</li> <li>Stud connector</li> </ul>	Foam onset Solid gel (3 pack)
Long Term Monitoring	<ul style="list-style-type: none"> <li>Pouch shelf life</li> <li>Colour / pattern to backing card</li> <li>Up to 7 days</li> <li>Removal</li> <li>Ability for skin to breathe</li> </ul>	Cloth and tape (not wet gel)
Stress Tests	<ul style="list-style-type: none"> <li>Offset</li> <li>Stud connector</li> <li>Wet gel</li> </ul>	Foam offset
Ambulance	<ul style="list-style-type: none"> <li>Pouch quantity between 10 and 30 to minimise waste</li> <li>Ease of opening robust pouch</li> <li>Date easy to identify</li> <li>Single electrode to backing piece</li> <li>Wet gel, offset</li> <li>Dual connection</li> </ul>	Foam dual connection Wet gel
Special requirements and cardiac specialists	<ul style="list-style-type: none"> <li>Pouch design so that properties and features are easy to spot</li> </ul>	

Long-term electrode feedback indicated that colour and shape were unimportant. Patients explained that they were more concerned with the bulky equipment and the removal of electrodes than how they looked.

### **4.3. Report limitations**

Specialist independent laboratory advice was sought regarding the possibility of developing suitable tests which would add information to aid users with an appropriate and legitimate comparison option.

The evidence discovered was that, at the time of writing, there is yet to be a standard skin adhesion test developed which will be accepted as a benchmark for evaluation of products.

As part of the ISO standards / Medical Devices Directives a decision was taken by the Clinical Evaluation Team, in conjunction with experts, not to re-test standards relating to adhesion and electrical performance as manufacturers have already met the requirements to enter the NHS Supply Chain framework.

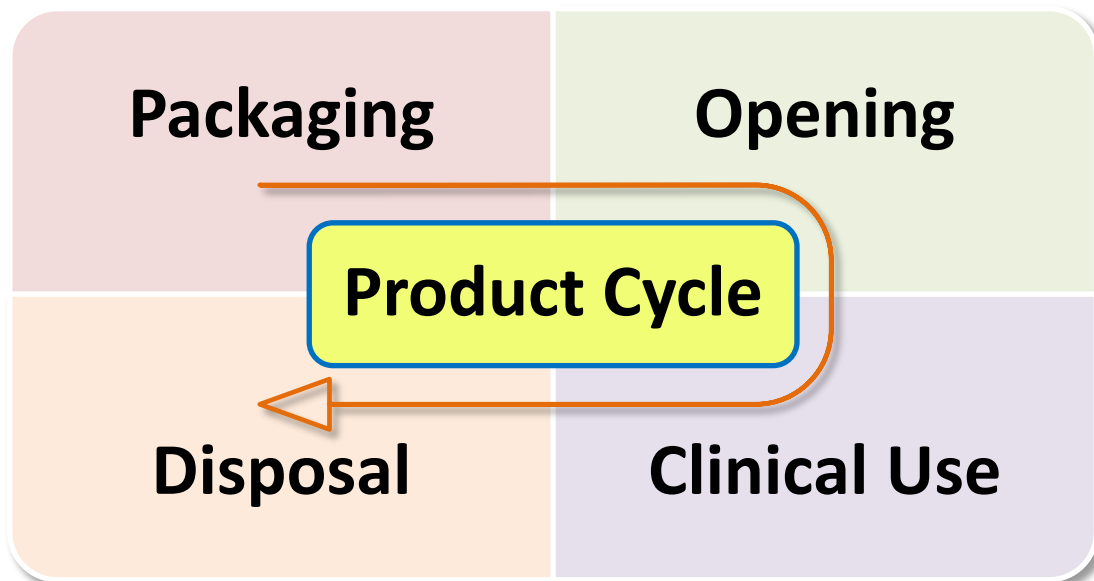
Clinical in-situ testing was considered, however, to acquire sufficient patient data (which would capture the variety of skin types, clinical environments and conditions to have validity) was prohibitive due to the number of products in the report.

It is therefore recommended that this report is used as a guide only.

#### 4.4. Clinical criteria

The data received from all the NHS clinical conversation events, alongside the data collected from individual experts, was assimilated into a series of clinical criteria.

The clinical criteria were formulated to move through the key aspects of product use using the NHS Clinical Evaluation Team product cycle:



NHS Clinical Evaluation Team Product Cycle

A clinical criterion is defined for the purposes of this report as a principle or standard by which products may be evaluated. It is a statement which describes the clinician's requirements for the product.

The proposed criteria were validated by workshop attendees and all other clinical experts engaged in the development process. In addition, other clinical experts who are likely to add further useful insight were also included, leading to the finalised clinical criteria listed on the next page.

<b>Pouch Labelling</b>	Is the Expiry Date & Lot Number Or Manufacturing Date & Shelf Life clearly visible?
	Does the pouch clearly identify product wear time?
	Does the pouch clearly identify the shelf life once pouch opened?
	Are there clear instructions for use, including skin-preparation procedures and electrode preparation?
	Is the manufacturing product code clearly displayed?
	Does the Description clearly identify the electrode properties inside?
	Do the pouch / packet indicate clinical use?
<b>Opening &amp; Preparation:</b>	Does the pouch / packet have a space to record date it was opened or new expiry date?
	Can the pouch / packet be easily opened without splitting or damaging the packaging using hands only?
<b>Clinical Use</b>	Do the electrodes remove easily from the backing piece?
	Does the product apply to the skin correctly and efficiently without wastage?
	Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets?
	Is the electrode comfortable on the skin for the wearer?
	Any indications / aids for removal on the product?
	Discomfort or skin reaction on removal?
<b>Disposal</b>	Is there any indication that the pouch can be recycled?

## 4.5. Product evaluation

Evaluation methodologies are defined for each and every clinical criterion. They reflect the clinical environment.

Wherever possible, 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. Where this has not been possible it was acknowledged as part of the product assessment results matrix.

The evaluation product was ordered and supplied from NHS distribution centres. Products evaluated have been stored post evaluation for a period of three months after publication of this review.

NHS clinical staff, were invited to review the current range of ECG electrodes available through NHS Supply Chain in accordance with the developed criteria. It was not possible to 'blind' the evaluations; in the sense that the evaluators were aware of the product brand; however, the products to be evaluated were independently picked and prepared for evaluation by colleagues who were not otherwise involved in the process.

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:

As part of the evaluation preparation, each evaluator was given a more detailed and product specific definition for each of the scores

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

NHS Clinical Evaluation Team 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 (see matrix below).



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

<b>Point scored</b>	<b>Star value</b>
<b>0 to 0.99</b>	<b>0 Stars</b>
<b>1 to 1.24</b>	<b>1 Star</b>
<b>1.25 to 1.74</b>	<b>1.5 Stars</b>
<b>1.75 to 2.24</b>	<b>2 Stars</b>
<b>2.25 to 2.74</b>	<b>2.5 Stars</b>
<b>2.75 to 3</b>	<b>3 Stars</b>

Conversion of mean scores to star rating

Evaluators were also encouraged to record comments where they felt it necessary to provide rationale for their scoring and answers.

The results obtained have been validated by the NHS Clinical Evaluation Team moderation committee for consistency of scoring and interpretation. These results are presented in the product assessment reports herein.

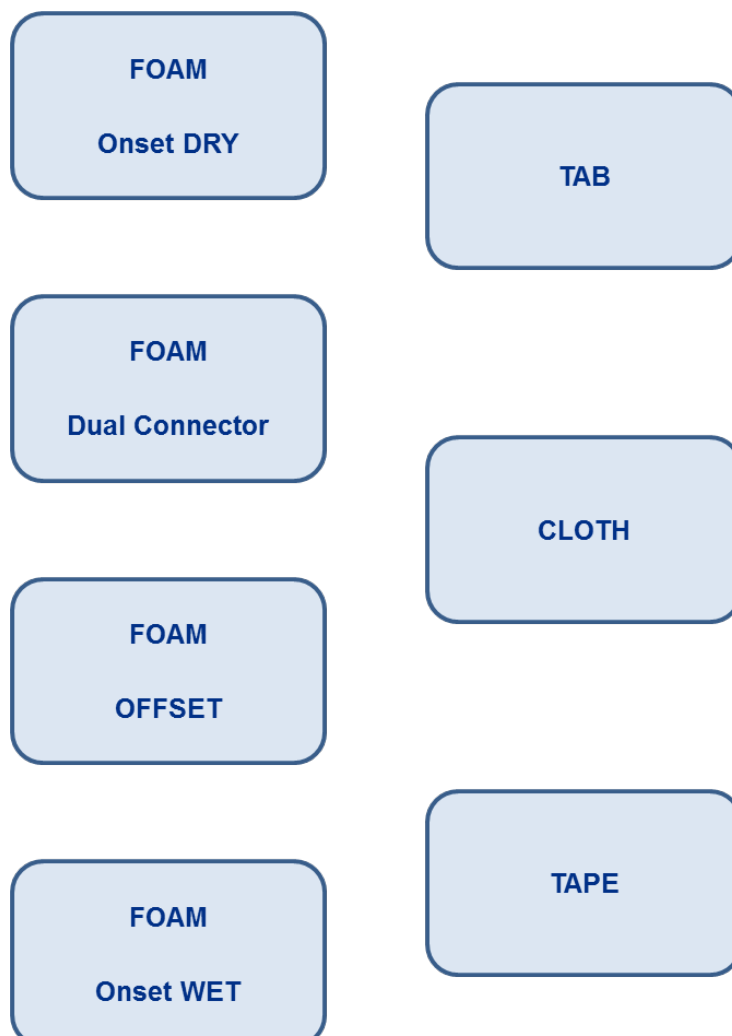
## 5. Product assessment results

The following product assessment results pages show the tested clinical criteria listed vertically on the left-hand side of the page with the tested device found horizontally across the top of the matrix. The accompanying photographs were taken during evaluation. These photographs are of sample products provided for evaluation. Lot numbers were recorded and samples have been retained in storage following the completion of evaluation for at least 3 months.

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

Results can be seen within the product matrix. Each clinical product has been given a star rating.

The product assessment results have been divided into 7 sub-categories of Adult ECG Electrodes based upon their characteristics, as illustrated below:



## 6. Using the Product Assessment Results Matrix

The clinical criteria displayed are designed to capture key clinical elements that health professionals may wish to consider when reviewing/selecting products for their own clinical practice. The report is intended as a guidance tool to aid product selection and is not intended to be a universal determination of the clinical effectiveness of any particular product. Each clinical practitioner should therefore make their own assessments taking into account all relevant considerations for their particular situation.

Not all clinical criteria cited in the report will be relevant or important in all environments,






E.g. does the pouch / packet have a space to record date it was opened or new expiry date?






A cardiology clinic seeing large numbers of patients may not need to record the date the pouch was opened, however a low usage GP practice may identify this as being a benefit to prevent using expired stock.



Likewise not all clinical criteria will be relevant or important for all patient groups.




Clinicians may identify the criteria that most represent their clinical environment and patient demographic, and may choose to build their own hierarchy of importance to aid product(s) selection for patient outcome goals using the matrix presented in this report, their own clinical knowledge, as well as any other resources (including publications) to provide informed choice and transparency of their decision for product(s) being used.

## 7. Product Matrix - A) Cloth ECGs

Supplier	3M UK PLC	3M UK PLC	3M UK PLC	AMBU UK LTD	AMBU UK LTD
Brand	3M Red Dot	3M Red Dot	3M Red Dot	Ambu White Sensor	Ambu White Sensor
<b>ADULT ECG ELECTRODES - CLOTH</b>					
MPC	2660-3	2238	2271	4440M	CMM-00-S/30
NPC	FDK076	FDI609	FDK343	FDK892	FDI311
Minimum Order (UOI Description)	Case	Pouch	Pouch	Box	Pouch
Quantity of electrodes in minimum order.(UOI)	600	50	50	300	30
Quantity electrodes in a pouch	3	50	50	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	M	S	S	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Solid	Solid	Solid	Wet	Solid
Shape	rectangle	Circular	Rectangle	Circular	Circular
Size (mm)	40 x 32	61	55 x 51	55	50
X-Ray / MRI	Y	N	N	Y	N
Shelf Life Open Pouch	N/A	30 days	30 days	1 month	1 month
Wear Time	3 days	3 days	3 days	48hrs	24hrs
Feature	Repositionable, Enhanced Adhesive	Removal Tab	Skin Prep Feature, Enhanced Adhesive, Removal Tab		
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	2660- 5 (5 in Pouch)				
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★ ★ ★ (1.80)	★ ★ ★ (1.80)	★ ★ ★ (1.80)	★ ★ ★ (2.00)	★ ★ ★ (2.00)
Does the pouch clearly identify product wear time	★ ★ ★ (0.00)	★ ★ ★ (0.00)	★ ★ ★ (0.00)	★ ★ ★ (0.00)	★ ★ ★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	N/A	★ ★ ★ (2.00)	★ ★ ★ (2.00)	★ ★ ★ (0.00)	★ ★ ★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★ ★ ★ (0.00)	★ ★ ★ (0.80)	★ ★ ★ (1.60)	★ ★ ★ (2.00)	★ ★ ★ (2.00)
Is the manufacturing product code clearly displayed	★ ★ ★ (2.00)	★ ★ ★ (2.00)	★ ★ ★ (2.00)	★ ★ ★ (1.90)	★ ★ ★ (1.80)
Does the Description clearly identify the electrode properties inside.	★ ★ ★ (1.60)	★ ★ ★ (2.00)	★ ★ ★ (2.00)	★ ★ ★ (1.50)	★ ★ ★ (1.20)
Does the pouch / Pouchet indicate clinical use.	★ ★ ★ (1.50)	★ ★ ★ (1.50)	★ ★ ★ (1.50)	★ ★ ★ (1.00)	★ ★ ★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	N/A	★ ★ ★ (2.00)	★ ★ ★ (2.00)	★ ★ ★ (1.26)	★ ★ ★ (1.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	N/A	★ ★ ★ (1.80)	★ ★ ★ (1.80)	★ ★ ★ (1.80)	★ ★ ★ (1.80)
Do the electrodes remove easily from the backing piece	★ ★ ★ (2.30)	★ ★ ★ (2.00)	★ ★ ★ (1.40)	★ ★ ★ (2.00)	★ ★ ★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★ ★ ★ (2.50)	★ ★ ★ (1.80)	★ ★ ★ (1.80)	★ ★ ★ (2.00)	★ ★ ★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★ ★ ★ (0.00)	★ ★ ★ (1.00)	★ ★ ★ (1.80)	★ ★ ★ (0.00)	★ ★ ★ (0.00)
Is the electrode comfortable on the skin for the wearer	★ ★ ★ (2.60)	★ ★ ★ (1.50)	★ ★ ★ (1.60)	★ ★ ★ (1.60)	★ ★ ★ (1.80)
Any indications / aids for removal on the product	★ ★ ★ (2.00)	★ ★ ★ (2.00)	★ ★ ★ (2.00)	★ ★ ★ (1.60)	★ ★ ★ (1.60)
Discomfort or skin reaction on removal	★ ★ ★ (2.80)	★ ★ ★ (1.30)	★ ★ ★ (1.60)	★ ★ ★ (1.80)	★ ★ ★ (1.80)
Is the pouch recyclable	★ ★ ★ (0.50)	★ ★ ★ (0.50)	★ ★ ★ (0.50)	★ ★ ★ (0.00)	★ ★ ★ (0.00)

Supplier	AMBU UK LTD	CAREFUSION UK 306 LTD	ConMed	Covidien UK	FANNIN (STROUD)
Brand	Ambu White Sensor	Vital Signs	Softrace Large	Kendall	Lang Skintact Elite
<b>ADULT ECG ELECTRODES - CLOTH</b>					
MPC	40713	2009111-150	2350C-003	31.1995.21	W-VH01LT
NPC	FDK995	FDK937	FDK648	FDK717	FDK353
Minimum Order (UOI Description)	Pouch	Box	Box	Case	Box
Quantity of electrodes in minimum order.(UOI)	3	500	300	300	300
Quantity electrodes in a pouch	3	50	3	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	S	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Offset Stud
Gel Type	Solid	Solid	Solid	Wet	Wet
Shape	Rectangle	Circular	Square	Circular	Circular
Size (mm)	38 x 20	43	31	55	68
X-Ray / MRI	Y	N	Y	N	N
Shelf Life Open Pouch	1 month			45 days	7 days
Wear Time	48hrs			72hours	72 hours
Feature					Enhanced Adhesive
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam					
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★ (2.00)	★★★ (2.00)	★★★ (1.90)	★★★ (2.00)	★★★ (2.00)
Does the pouch clearly identify product wear time	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (2.00)
Does the pouch clearly identify the shelf life once pouch opened.	N/A	★★★ (0.00)	N/A	★★★ (0.00)	★★★ (1.90)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★ (2.20)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★ (1.80)	★★★ (1.80)	★★★ (1.73)	★★★ (1.65)	★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★ (1.60)	★★★ (2.40)	★★★ (1.30)	★★★ (1.70)	★★★ (1.80)
Does the pouch / Pouchet indicate clinical use.	★★★ (1.00)	★★★ (0.80)	★★★ (1.20)	★★★ (1.00)	★★★ (1.20)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	N/A	★★★ (1.00)	N/A	★★★ (1.80)	★★★ (1.90)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	N/A	★★★ (1.80)	N/A	★★★ (1.60)	★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★ (2.00)	★★★ (2.00)	★★★ (1.60)	★★★ (1.60)	★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★ (2.00)	★★★ (2.00)	★★★ (2.60)	★★★ (2.20)	★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.60)	★★★ (0.00)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★ (2.60)	★★★ (1.60)	★★★ (2.60)	★★★ (1.80)	★★★ (1.40)
Any indications / aids for removal on the product	★★★ (0.60)	★★★ (1.76)	★★★ (1.60)	★★★ (1.80)	★★★ (1.60)
Discomfort or skin reaction on removal	★★★ (2.40)	★★★ (1.50)	★★★ (2.40)	★★★ (1.80)	★★★ (1.20)
Is the pouch recyclable	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.50)	★★★ (0.40)




Supplier	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)
Brand	Lang Skintact Premier	Lang Skintact Premier	Lang Skintact Premier	Lang Skintact Elite	Leonhard Lang
<b>ADULT ECG ELECTRODES - CLOTH</b>					
MPC	W-60	W-601	W-602	W-VH01	W-1RHC
NPC	FDK235	FDK310	FDK103	FDK114	FDK020
Minimum Order (UOI Description)	Pouch	Case	Pouch	Pouch	Box
Quantity of electrodes in minimum order.(UOI)	30	1200	30	30	300
Quantity electrodes in a pouch	30	30	30	30	3
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	S	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Wet	Solid	Solid	Wet	Tac
Shape	Circular	Circular	Circular	Circular	Square
Size (mm)	60	50	60	68	38
X-Ray / MRI	N	N	N	N	Y
Shelf Life Open Pouch	7 days	7 days	7 days	7 days	7 days
Wear Time	72 hours	72 hours	72 hours	72 hours	72 hours
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam					
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)
Does the pouch clearly identify product wear time	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	N/A
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)
Does the pouch / Pouchet indicate clinical use.	★★★ (1.20)	★★★ (1.20)	★★★ (1.20)	★★★ (1.20)	★★★ (1.20)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	N/A
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	N/A
Do the electrodes remove easily from the backing piece	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (1.60)	★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★★ (1.80)	★★★★ (2.30)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★ (1.60)	★★★★ (1.40)	★★★ (1.60)	★★★★ (1.20)	★★★★ (2.80)
Any indications / aids for removal on the product	★★★ (1.60)	★★★ (1.60)	★★★ (1.60)	★★★ (1.60)	★★★ (1.20)
Discomfort or skin reaction on removal	★★★ (1.20)	★★★ (1.60)	★★★ (1.80)	★★★ (0.80)	★★★★ (2.80)
Is the pouch recyclable	★★★ (0.40)	★★★ (0.40)	★★★ (0.40)	★★★ (0.40)	★★★ (0.40)

Supplier	GRAPHIC CONTROLS LTD	HENRY SCHEIN MEDICAL	MEDIMAXTECH UK LTD
Brand	Vermed	Henry Schein	MMT
<b>ADULT ECG ELECTRODES - CLOTH</b>			
MPC	N-LFO-500	ECG243 - 9006699	MXC 55R
NPC	FJE6298	FJE6409	FJE6337
Minimum Order (UOI Description)	Box	Pouch	Case
Quantity of electrodes in minimum order.(UOI)	400	50	6000
Quantity electrodes in a pouch	50	50	30
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud
Gel Type	Solid	Wet	Solid
Shape	Circular	Circular	Circular
Size (mm)	50	50	50
X-Ray / MRI	N	N	N
Shelf Life Open Pouch	15 days		
Wear Time	72 hours	72 hours	
Feature		Resealable Pouch	
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam			
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★ (2.00)	★★★ (1.90)	★★★ (1.60)
Does the pouch clearly identify product wear time	★★★ (0.00)	★★★★ (1.80)	★★★ (0.50)
Does the pouch clearly identify the shelf life once pouch opened.	★★★ (2.00)	★★★ (0.30)	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★ (2.20)	★★★★ (2.60)	★★★ (1.20)
Is the manufacturing product code clearly displayed	★★★ (1.90)	★★★★ (1.80)	★★★ (1.10)
Does the Description clearly identify the electrode properties inside.	★★★ (1.40)	★★★★ (1.80)	★★★ (1.60)
Does the pouch / Pouchet indicate clinical use.	★★★ (1.20)	★★★★ (1.90)	★★★ (1.70)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★ (1.60)	★★★ (1.30)	★★★ (0.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★ (1.80)	★★★★ (2.30)	★★★ (1.70)
Do the electrodes remove easily from the backing piece	★★★ (2.00)	★★★★ (1.80)	★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★ (2.00)	★★★★ (2.00)	★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.50)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★ (1.80)	★★★★ (1.60)	★★★ (1.30)
Any indications / aids for removal on the product	★★★ (1.60)	★★★★ (1.80)	★★★ (1.30)
Discomfort or skin reaction on removal	★★★ (1.60)	★★★★ (1.60)	★★★ (1.50)
Is the pouch recyclable	★★★ (0.00)	★★★ (0.50)	★★★ (0.40)


## B) Foam Dual Connectors

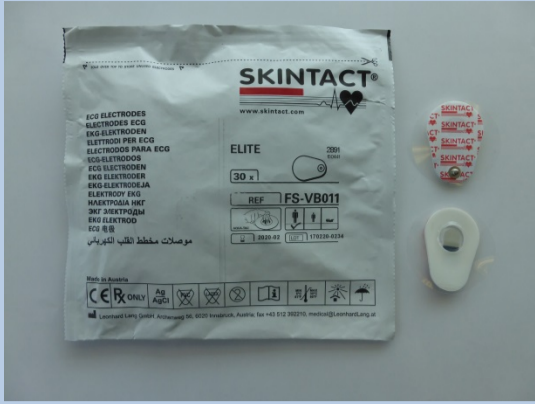


Supplier	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)
Brand	Lang Skintact Tab 'n' Snap	Lang Skintact Tab 'n' Snap	Lang Skintact Tab 'n' Snap	Lang Skintact Tab 'n' Snap	Lang Skintact Tab 'n' Snap
<b>ADULT ECG ELECTRODES FOAM DUAL CONNECTORS</b>					
MPC	FS-WA01C+/10	XL-BM01	FS-WA10C	F-WA10C	FS-VM01/10
NPC	FDK932	FDK912	FDK155	FDK231	FDK420
Minimum Order (UOI Description)	Box	Box	Pouch	Pouch	Box
Quantity of electrodes in minimum order.(UOI)	500	1000	50	50	500
Quantity electrodes in a pouch	10	50	50	50	10
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	M	M	S
Connector Type	Dual Connector Offset	Dual Connector Offset	Dual Connector Onset	Dual Connector Onset	Dual Connector Offset
Gel Type	Wet	Wet	Wet	Wet	Wet
Shape	Teardrop	Teardrop	Rectangle	Teardrop	Teardrop
Size (mm)	37 x 32	45 x 35	37 x 32	37 x 32	45 x 35
X-Ray / MRI	Y	N	Y	Y	N
Shelf Life Open Pouch	7days	7 days	7days	7days	7days
Wear Time	72hours	72 hours	72hours	72hours	72hours
Feature			Enhanced Adhesive		Enhanced Adhesive
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	FS-WA01-10A (Different Foam) FSWA01C+/50 (50 in Pouch)				FS-VM01 (50 in pouch)
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.20)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (1.60)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.20)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Discomfort or skin reaction on removal	★★★★ (1.80)	★★★★ (1.40)	★★★★ (1.60)	★★★★ (2.00)	★★★★ (2.00)
Is the pouch recyclable	★★★★ (0.40)	★★★★ (0.40)	★★★★ (0.40)	★★★★ (0.40)	★★★★ (0.40)




Supplier	FANNIN (STROUD)	FANNIN (STROUD)	GRAPHIC CONTROLS LTD
Brand	Lang Skintact Tab 'n' Snap	Lang Skintact Tab 'n' Snap	Vermed
<b>ADULT ECG ELECTRODES FOAM DUAL CONNECTORS</b>			
MPC	FS-VM01/A1.5	FS-VF01C	4010429C
NPC	FDK553	FDK342	FJE7450
Minimum Order (UOI Description)	Box	Box	Box
Quantity of electrodes in minimum order.(UOI)	1000	500	1200
Quantity electrodes in a pouch	50	50	60
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	M
Connector Type	Dual Connector Offset	Dual Connector Offset	Dual Connector Onset
Gel Type	Wet	Wet	Wet
Shape	Teardrop	Teardrop	Rectangle
Size (mm)	45 x 35	35 x 45	45 x 32
X-Ray / MRI	N	Y	Y
Shelf Life Open Pouch	7days	7days	30 days
Wear Time	72hours	72hours	48 hours
Feature		Enhanced Adhesive	Resealable Pouch
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	FSVM01/A1.5/10 (10 in Pouch, 500 in Box)	FS-VF01 (Not XRAY/MRI, minimum order pouch of 50) FS-VF01/10 (10 in Pouch)	
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)
Does the pouch clearly identify product wear time	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.40)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (1.90)	★★★★ (1.90)	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.00)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.60)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.20)	★★★★ (1.20)	★★★ (0.80)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.90)	★★★★ (1.90)	★★★★ (2.00)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.50)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (1.80)	★★★★ (2.00)	★★★★ (1.60)
Discomfort or skin reaction on removal	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)
Is the pouch recyclable	★★★ (0.40)	★★★ (0.40)	★★★★ (1.60)


## C) Foam Offset Connectors




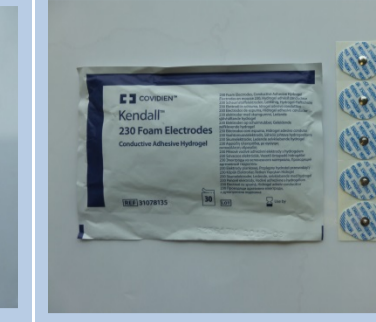

Supplier	AMBU UK LTD	AMBU UK LTD	AMBU UK LTD	AMBU UK LTD	FANNIN (STROUD)
Brand	Ambu Blue Sensor	Ambu Blue Sensor	Ambu Blue Sensor	Ambu Blue Sensor	Lang Skintact Elite
<b>ADULT ECG ELECTRODES FOAM OFFSET CONNECTORS</b>					
MPC	R-00-S	Q-00-S	P-00-S	M-00-S	FS-VB01
NPC	FDK165	FDK586	FDK134	FDK958	FDK119
Minimum Order (UOI Description)	Pouch	Pouch	Pouch	Pouch	Pouch
Quantity of electrodes in minimum order.(UOI)	25	25	50	50	30
Quantity electrodes in a pouch	25	25	50	50	30
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	S	S	S
Connector Type	Offset Stud	Offset Stud	Offset Stud	Offset Stud	Offset Stud
Gel Type	Wet	Wet	Wet	Wet	Wet
Shape	Circular	Teardrop	Tearfrop	Teardrop	Teardrop
Size (mm)	46	53.2 x 40	40.8 x 34	40.8 x 34	55 x 36
X-Ray / MRI	N	N	N	N	N
Shelf Life Open Pouch	1 month	1 month	1 month	1 month	7 days
Wear Time	24hrs	24hrs	24hrs	24hrs	72 hours
Feature	Enhanced Adhesive	Enhanced Adhesive	Enhanced Adhesive	Enhanced Adhesive	Enhanced Adhesive
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	R-00-S/3 (3 in pouch)		P-00 A/50 (4mm Banana Adaptor) P-00 S/12 (12 in Pouch)	M-00 A/50 (4mm Banana Adaptor)	FS-VB01/3 (3 in Pouch)
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (2.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (1.90)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.80)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.20)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.26)	★★★★ (1.26)	★★★★ (1.26)	★★★★ (1.26)	★★★★ (1.90)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.20)	★★★★ (2.00)	★★★★ (2.20)	★★★★ (2.20)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.20)	★★★★ (2.00)	★★★★ (2.20)	★★★★ (2.20)	★★★★ (1.80)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.40)	★★★★ (2.20)	★★★★ (1.40)
Any indications / aids for removal on the product	★★★★ (2.20)	★★★★ (2.00)	★★★★ (2.20)	★★★★ (2.00)	★★★★ (1.40)
Discomfort or skin reaction on removal	★★★★ (1.80)	★★★★ (1.80)	★★★★ (2.20)	★★★★ (1.80)	★★★★ (1.20)
Is the pouch recycleable	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.40)

Supplier	FANNIN (STROUD)	GRAPHIC CONTROLS LTD	GRAPHIC CONTROLS LTD
Brand	Lang Skintact Elite	Vermed	Vermed
<b>ADULT ECG ELECTRODES FOAM OFFSET CONNECTORS</b>			
MPC	FS-VB011	4010425C	4010453C
NPC	FDK109	FJE7451	FJE7454
Minimum Order (UOI Description)	Pouch	Box	Box
Quantity of electrodes in minimum order.(UOI)	30	1200	1200
Quantity electrodes in a pouch	30	60	60
Presentation in pouch S = Single M = Multiple items on backing protection	S	M	M
Connector Type	Offset Stud	Offset Stud	Offset Stud
Gel Type	Tac	Wet	Wet
Shape	Teardrop	Teardrop	Teardrop
Size (mm)	54 x 35	52 x 35	42 x 27
X-Ray / MRI	N	N	N
Shelf Life Open Pouch	7 days	30 days	30 days
Wear Time	72 hours	48 hours	48 hours
Feature	Enhanced Adhesive	Resealable Pouch	Resealable Pouch
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam		4010452C (XRAY/MRI)	
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (1.80)	★★★★ (1.80)
Does the pouch clearly identify product wear time	★★★★ (2.00)	★★★★ (1.40)	★★★★ (1.40)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (1.90)	★★★ (0.00)	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.30)	★★★★ (2.00)	★★★★ (2.00)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.80)	★★★★ (1.60)	★★★★ (1.60)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.20)	★★★ (0.80)	★★★ (0.80)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.90)	★★★★ (2.00)	★★★★ (2.00)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (1.80)	★★★★ (1.80)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (1.40)	★★★★ (1.60)	★★★★ (1.60)
Discomfort or skin reaction on removal	★★★ (1.00)	★★★★ (1.40)	★★★★ (1.60)
Is the pouch recyclable	★★★ (0.40)	★★★★ (1.60)	★★★★ (1.60)



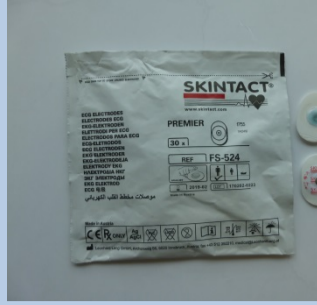
## D) Onset Dry Connectors

Supplier	3M UK PLC	3M UK PLC	3M UK PLC	ALBERT WAESCHLE LTD	AMBU UK LTD
Brand	3M	3M Red Dot	3M Red Dot	Lessa	Ambu White Sensor
<b>ADULT ECG ELECTRODES ONSET DRY CONNECTORS</b>					
MPC	2228	2570	2237	99.830.03	Ws-00-S/50
NPC	FDK176	FDK098	FDK598	FJE6290	FDK519
Minimum Order (UOI Description)	Pouch	Box	Pouch	Box	Pouch
Quantity of electrodes in minimum order.(UOI)	50	1000	50	30	50
Quantity electrodes in a pouch	50	50	50	30	50
Presentation in pouch S = Single M = Multiple items on backing protection	M	M	S	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Sticky	Sticky	Solid	Tac	Solid
Shape	Rectangle	Rectangle	Circular	Teardrop	Teardrop
Size (mm)	38 x 33	41 x 35	44	50	40 x 36
X-Ray / MRI	N	Y	N	N	N
Shelf Life Open Pouch	30 days	45 days	30 days	7days	1 month
Wear Time	3 days	5 Day	3 days	72 hours	24hrs
Feature		Skin Prep Feature	Removal Tab		
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	2228BA (4mm Banana Adaptor)	2560 (NOT XRAY/MRI)			WS-00-S/RT/50 (XRAY/MRI) WS-00-S/3 (3 in pouch)
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.87)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (1.50)	★★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (2.00)	★★★★ (1.60)	★★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.80)	★★★★ (1.80)	★★★★ (2.00)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.90)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.60)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.20)	★★★★ (1.50)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.60)	★★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.26)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.60)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (1.60)	★★★★ (1.80)	★★★★ (1.00)	★★★★ (0.00)	★★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (0.60)	★★★★ (0.60)	★★★★ (2.00)	★★★★ (1.60)	★★★★ (1.80)
Discomfort or skin reaction on removal	★★★★ (1.40)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)
Is the pouch recyclable	★★★★ (0.50)	★★★★ (0.50)	★★★★ (0.50)	★★★★ (0.40)	★★★★ (0.00)

Supplier	AMBU UK LTD	CAREFUSION UK 306 LTD	CAREFUSION UK 306 LTD	ConMed	ConMed
Brand	Ambu WhiteSensor	GE Healthcare	Vital Signs	Suretrace	Postrate
<b>ADULT ECG ELECTRODES</b> <b>ONSET DRY CONNECTORS</b>					
MPC	4841P	2009110-003	2009110-050R	1800-030	1870-030
NPC	FDK949	FDK761	FDK778	FDK639	FDK656
Minimum Order (UOI Description)	Box	Box	Box	Box	Box
Quantity of electrodes in minimum order.(UOI)	60	600	500	600	600
Quantity electrodes in a pouch	60	3	50	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	M	S	S	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Solid	Solid	Solid	Solid	Solid
Shape	Circular	Circular	Circular	Circular	Circular
Size (mm)	42	55	43	44	50
X-Ray / MRI	Y	N	Y	N	N
Shelf Life Open Pouch	1 month				
Wear Time	24hrs				
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam					
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (1.60)	★★★★ (2.00)	★★★★ (1.90)	★★★★ (1.90)
Does the pouch clearly identify product wear time	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	N/A	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Is the manufacturing product code clearly displayed	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.73)	★★★★ (1.73)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.50)	★★★★ (1.60)	★★★★ (2.40)	★★★★ (1.30)	★★★★ (1.30)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.00)	★★★★ (1.00)	★★★★ (0.80)	★★★★ (1.20)	★★★★ (1.20)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.26)	N/A	★★★★ (1.00)	★★★★ (1.80)	★★★★ (1.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	N/A	★★★★ (1.80)	★★★★ (1.60)	★★★★ (1.60)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (1.40)	★★★★ (1.40)	★★★★ (1.80)	★★★★ (1.60)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (2.20)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (1.00)	★★★★ (1.40)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.40)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (1.40)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.20)	★★★★ (0.40)
Discomfort or skin reaction on removal	★★★★ (2.00)	★★★★ (1.40)	★★★★ (1.40)	★★★★ (1.60)	★★★★ (1.80)
Is the pouch recyclable	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)




Supplier	Covidien UK	Covidien UK	Covidien UK	Covidien UK	Covidien UK
Brand	Kendall	Kendall	Kendall	Kendall	Kendall
<b>ADULT ECG ELECTRODES ONSET DRY CONNECTORS</b>					
MPC	31.1915821	31013926	31050522	31078135	31439725
NPC	FJE6310	FDK875	FJE6312	FDK876	FJE6313
Minimum Order (UOI Description)	Box	Case	Box	Box	Box
Quantity of electrodes in minimum order.(UOI)	500	600	1000	600	600
Quantity electrodes in a pouch	50	30	100	30	3
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	M	M	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Solid	Solid	Solid	Solid	Solid
Shape	Oval	Circular	Teardrop	Teardrop	Teardrop
Size (mm)	57 x 34	45	35	35	30
X-Ray / MRI	Y / Y	N	N	N	N
Shelf Life Open Pouch	45 days	45 days	45 days	45 days	
Wear Time	72 hours	72 hours	72 hours	72 hours	72 hours
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	31.1914821 (4mm Banana Adaptor - XRAY/MRI) 31.1914.21 (4mm Banana Adaptor ) 31.1925.21 (NOT XRAY/MRI)				31118733 (Box of 1000)
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.40)
Does the pouch clearly identify product wear time	★★★★ (0.00)	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.50)	★★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	N/A
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (0.00)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (0.00)
Is the manufacturing product code clearly displayed	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.70)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	N/A
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)	N/A
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (1.80)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (1.30)	★★★★ (1.40)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (2.00)
Discomfort or skin reaction on removal	★★★★ (1.70)	★★★★ (1.80)	★★★★ (2.20)	★★★★ (2.00)	★★★★ (1.75)
Is the pouch recyclable	★★★★ (0.50)	★★★★ (0.50)	★★★★ (0.50)	★★★★ (0.50)	★★★★ (0.50)

Supplier	Covidien UK	Covidien UK	Covidien UK	Covidien UK	Covidien UK
Brand	Kendall	Kendall	Kendall	Kendall	Kendall
<b>ADULT ECG ELECTRODES ONSET DRY CONNECTORS</b>					
MPC	31.1245.21	31.1355.21	31.1715.21	31.1917.21	31.1935.21
NPC	FJE6315	FJE6316	FJE6311	FDK722	FDK709
Minimum Order (UOI Description)	Box	Box	Box	Case	Case
Quantity of electrodes in minimum order.(UOI)	500	500	300	500	500
Quantity electrodes in a pouch	50	50	30	50	50
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	S	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Solid	Solid	Solid	Solid	Solid
Shape	Circular	Circular	Rectangle	Oval	Oval
Size (mm)	24	43 x 35	58 x 51	57 x 34	42 x 24
X-Ray / MRI	N	N	N	N	N
Shelf Life Open Pouch	45 days	45 days	45 days	45 days	45 days
Wear Time	72 hours	72 hours	72 hours	72 hours	72 hours
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam					
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Is the manufacturing product code clearly displayed	★★★★ (1.65)	★★★★ (1.65)	★★★★ (1.65)	★★★★ (1.65)	★★★★ (1.65)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.70)	★★★★ (1.70)	★★★★ (1.70)	★★★★ (1.70)	★★★★ (1.70)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.60)	★★★★ (1.80)	★★★★ (1.60)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (2.25)	★★★★ (1.80)	★★★★ (0.80)	★★★★ (1.80)	★★★★ (1.80)
Discomfort or skin reaction on removal	★★★★ (2.40)	★★★★ (2.00)	★★★★ (1.60)	★★★★ (2.00)	★★★★ (2.00)
Is the pouch recyclable	★★★★ (0.50)	★★★★ (0.50)	★★★★ (0.50)	★★★★ (0.50)	★★★★ (0.50)






Supplier	Covidien UK	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)
Brand	Kendall	Lang Skintact Premier	Lang Skintact Premier	Lang Skintact Premier	Lang Skintact Premier
ADULT ECG ELECTRODES ONSET DRY CONNECTORS					
MPC	31.1946.21	F-RG1	FS-TC1	FS-524	F-TB1
NPC	FDK873	FDK237	FDK099	FDK118	FDK110
Minimum Order (UOI Description)	Case	Pouch	Pouch	Pouch	Pouch
Quantity of electrodes in minimum order.(UOI)	300	30	30	30	30
Quantity electrodes in a pouch	30	30	30	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	S	M	M	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Solid	Tac	Tac	Aqua Set	Tac
Shape	Circular	Rectangle	Teardrop	Oval	Circular
Size (mm)	50 x 45	40 x 32	41 x 35	50 x 35	50 x 55
X-Ray / MRI	Y	N	N	N	N
Shelf Life Open Pouch	45 days	7 days	7 days	7 days	7 days
Wear Time	72 hours	72hours	72hours	72hours	72hours
Feature	Skin Prep Feature			Enhanced Adhesive	
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam			FS-TC1/1.0 (case 1200 6 electrodes to backing strip)		
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★ (0.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★ (0.00)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.90)	★★★★ (1.90)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★ (0.00)	★★★★ (2.50)	★★★★ (2.50)	★★★★ (2.30)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★★ (1.65)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.70)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.00)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.90)	★★★★ (1.90)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.60)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.30)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (2.00)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (1.80)	★★★★ (2.00)
Discomfort or skin reaction on removal	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Is the pouch recyclable	★★★ (0.50)	★★★ (0.40)	★★★ (0.40)	★★★ (0.40)	★★★ (0.40)



Supplier	FANNIN (STROUD)	GRAPHIC CONTROLS LTD	GRAPHIC CONTROLS LTD	HENRY SCHEIN MEDICAL	MEDIMAXTECH UK LTD
Brand	Leonhard Lang	Vermed	Vermed	Henry Schein	MMT
<b>ADULT ECG ELECTRODES ONSET DRY CONNECTORS</b>					
MPC	F1-RHC	FS50	HTFS365	ECG242 - 9006698	MXF 35T
NPC	FDK354	FJE6297	FJE6412	FJE6408	FJE6338
Minimum Order (UOI Description)	Box	Box	Box	Pouch	Case
Quantity of electrodes in minimum order.(UOI)	300	400	400	50	6000
Quantity electrodes in a pouch	3	50	50	50	30
Presentation in pouch S = Single M = Multiple items on backing protection	M	S	S	M	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Solid	Solid	Solid	Solid	Solid
Shape	Square	Circular	Oval	Circular	Teardrop
Size (mm)	38	50	50 x 36	38	41 x 35
X-Ray / MRI	Y	N	N	N	N
Shelf Life Open Pouch	7 days	15 days	15 days		
Wear Time	72 hours	72 hours	48 hours	72hours	
Feature				Resealable Pouch	
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	F1RHC/120 (Box 120)	FS50R (XRAY/MRI)			
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.90)	★★★★ (1.60)
Does the pouch clearly identify product wear time	★★★★ (2.00)	★★★ (0.50)	★★★ (0.50)	★★★★ (1.80)	★★★ (0.50)
Does the pouch clearly identify the shelf life once pouch opened.	N/A	★★★ (0.00)	★★★ (0.00)	★★★ (0.30)	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.30)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (2.60)	★★★★ (1.20)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (1.10)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.60)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.20)	★★★★ (2.40)	★★★★ (2.40)	★★★★ (1.90)	★★★★ (1.70)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	N/A	★★★ (0.30)	★★★ (0.30)	★★★★ (1.30)	★★★ (0.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	N/A	★★★★ (1.60)	★★★★ (1.60)	★★★★ (2.30)	★★★★ (1.70)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.50)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.40)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★ (1.20)	★★★ (0.00)	★★★ (0.00)	★★★★ (1.60)	★★★★ (2.00)
Discomfort or skin reaction on removal	★★★★ (2.40)	★★★★ (1.80)	★★★★ (1.40)	★★★★ (2.20)	★★★★ (2.00)
Is the pouch recyclable	★★★ (0.40)	★★★ (0.00)	★★★ (0.00)	★★★ (0.50)	★★★ (0.40)

Supplier	MEDIMAXTECH UK LTD	PHILIPS HEALTHCARE	PHILIPS HEALTHCARE
Brand	MMT	Philips Healthcare	Philips Healthcare
<b>ADULT ECG ELECTRODES ONSET DRY CONNECTORS</b>			
MPC	MXF43T	989803148801	M4612A
NPC	FJE6832	FJE6304	FJE6386
Minimum Order (UOI Description)	Case	Box	Box
Quantity of electrodes in minimum order.(UOI)	6000	1500	300
Quantity electrodes in a pouch	30	30	5
Presentation in pouch S = Single M = Multiple items on backing protection	S	M	S
Connector Type	Onset Stud	Onset Stud	Onset Stud
Gel Type	Solid	Solid	Solid
Shape	Teardrop	Rectangle	Teardrop
Size (mm)	45 x 43	41 x 32	50
X-Ray / MRI	N	N	N
Shelf Life Open Pouch		7 days	7 days
Wear Time		3 days	24hours
Feature			
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	MXF43TC (XRAY/MRI)		
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (1.60)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (0.50)	★★★★ (0.00)	★★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	★★★★ (0.00)	N/A
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (1.20)	★★★★ (2.30)	★★★★ (1.60)
Is the manufacturing product code clearly displayed	★★★★ (1.10)	★★★★ (1.80)	★★★★ (1.80)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.60)	★★★★ (1.40)	★★★★ (1.40)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.70)	★★★★ (1.00)	★★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (0.80)	★★★★ (2.00)	N/A
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.70)	★★★★ (1.80)	N/A
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.40)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (2.00)	★★★★ (1.40)	★★★★ (1.40)
Discomfort or skin reaction on removal	★★★★ (1.60)	★★★★ (2.00)	★★★★ (1.60)
Is the pouch recyclable	★★★★ (0.40)	★★★★ (0.00)	★★★★ (0.00)

## E) Onset Wet Connectors

Supplier	ALBERT WAESCHLE LTD	AMBU UK LTD	AMBU UK LTD	CAREFUSION UK 306 LTD	CAREFUSION UK 306 LTD
Brand	Lessa	Ambu White Sensor	Ambu White Sensor	Vital Signs	Silver Trace
<b>ADULT ECG ELECTRODES ONSET WET CONNECTORS</b>					
MPC	99.832.02	4535M	4500M	2014777-001	2014786-0001
NPC	FJE6291	FDK047	FDK246	FDK775	FDK777
Minimum Order (UOI Description)	Box	Pouch	Pouch	Box	Box
Quantity of electrodes in minimum order.(UOI)	30	60	30	300	300
Quantity electrodes in a pouch	30	60	30	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	S	M	M	S	M
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Wet	Wet	Wet	Wet	Wet
Shape	Circular	Rectangle	Teardrop	Circular	Rectangle
Size (mm)	50	44 x 32	50	55	45 x 32
X-Ray / MRI	N	N	Y	N	Y
Shelf Life Open Pouch	7days	1 month	1 month	7 days	7 days
Wear Time	72hours	24hrs	24hrs	72hours	72hours
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam		4530M (XRAY/MRI Box 300) 4540M (4mm Banana Adaptor)	4570M (Shape/Size)		2014778-001 (4mm Banana Adaptor - Not XRAY/MRI )
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (1.87)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (1.50)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (1.60)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★ (0.00)	★★★ (0.00)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (2.00)	★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.20)	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.40)	★★★★ (1.40)
Does the pouch / Pouchet indicate clinical use.	★★★★ (2.60)	★★★ (1.00)	★★★ (1.00)	★★★ (0.40)	★★★ (0.40)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (2.00)	★★★★ (1.26)	★★★★ (1.26)	★★★★ (2.00)	★★★★ (2.00)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.60)	★★★★ (1.60)
Do the electrodes remove easily from the backing piece	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★ (1.00)	★★★★ (1.60)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Discomfort or skin reaction on removal	★★★ (0.20)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.40)	★★★★ (2.00)
Is the pouch recyclable	★★★ (0.40)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)






Supplier	CAREFUSION UK 306 LTD	ConMed	ConMed	ConMed	Covidien UK
Brand	Silver Trace	Dynatrace	Exactrace	Dynatrace Mini Stress	Kendall
<b>ADULT ECG ELECTRODES ONSET WET CONNECTORS</b>					
MPC	900703-805	1500-003	1510-030	1555-005	31.1345.21
NPC	FJE6347		FDK645	FJE6309	FDK714
Minimum Order (UOI Description)	Box	Box	Box	Box	Case
Quantity of electrodes in minimum order.(UOI)	600	600	600	600	300
Quantity electrodes in a pouch	5	3	30	5	30
Presentation in pouch S = Single M = Multiple items on backing protection	M	M	S	M	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Wet	Wet	Wet	Wet	Wet
Shape	Oval	Circular	Circular	Circular	Circular
Size (mm)	50 x 38		51	38	50 x 45
X-Ray / MRI	N	Y	N	Y	N
Shelf Life Open Pouch	7 days				45 days
Wear Time	72hours				72 hours
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	900703-830 (30 Loose in Pouch)				
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	N/A	N/A	★★★★ (0.00)	N/A	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (1.73)	★★★★ (1.73)	★★★★ (1.73)	★★★★ (1.65)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.40)	★★★★ (1.30)	★★★★ (1.30)	★★★★ (1.30)	★★★★ (1.70)
Does the pouch / Pouchet indicate clinical use.	★★★ (0.40)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	N/A	N/A	★★★★ (1.80)	N/A	★★★★ (1.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	N/A	N/A	★★★★ (1.60)	N/A	★★★★ (1.60)
Do the electrodes remove easily from the backing piece	★★★★ (1.40)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (1.40)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (1.80)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★★ (1.40)	★★★★ (1.20)	★★★★ (1.40)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.20)	★★★★ (1.80)
Any indications / aids for removal on the product	★★★ (0.60)	★★★ (0.40)	★★★★ (1.40)	★★★ (0.00)	★★★★ (1.80)
Discomfort or skin reaction on removal	★★★★ (1.40)	★★★★ (2.20)	★★★★ (1.40)	★★★★ (1.60)	★★★★ (1.40)
Is the pouch recyclable	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.50)

Supplier	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)
Brand	Lang Skintact Premier	Lang Skintact Premier	Lang Skintact Premier	Lang Skintact Premier	Lang Skintact Premier
<b>ADULT ECG ELECTRODES ONSET WET CONNECTORS</b>					
MPC	FS-TF	FS-RE/6	FS-50C	FS-RB5	FS-TA
NPC	FDK234	FDK121	FDK341	FDK116	FDK233
Minimum Order (UOI Description)	Pouch	Pouch	Box	Pouch	Pouch
Quantity of electrodes in minimum order.(UOI)	30	30	300	30	30
Quantity electrodes in a pouch	30	30	30	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	M	M	S	M	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	4mm banana adaptor	Onset Stud
Gel Type	Wet	Wet	Wet	Wet	Wet
Shape	Teardrop	Rectangle	Circular	Rectangle	Circular
Size (mm)	45	44 x 32	50	44 x 28	37
X-Ray / MRI	N	N	Y	N	N
Shelf Life Open Pouch	7 days	7 days	7 days	7 days	7 days
Wear Time	72hours	72 hours	72hours	72 hours	72 hours
Feature					Enhanced Adhesive
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	FS-TF/6 (6 electrodes to backing strip in a case of 1200 )				
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★☆☆ (0.00)	★★★★ (1.00)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.50)	★★★★ (2.50)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.20)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.83)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.50)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★☆☆ (0.00)	★★★☆☆ (0.00)	★★★☆☆ (0.00)	★★★☆☆ (0.00)	★★★☆☆ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (1.60)	★★★★ (1.83)
Any indications / aids for removal on the product	★★★★ (2.00)	★★★★ (2.30)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (1.83)
Discomfort or skin reaction on removal	★★★★ (1.83)	★★★★ (1.80)	★★★★ (1.20)	★★★★ (1.80)	★★★★ (1.83)
Is the pouch recyclable	★★★☆☆ (0.40)	★★★☆☆ (0.40)	★★★☆☆ (0.40)	★★★☆☆ (0.40)	★★★☆☆ (0.40)






Supplier	FANNIN (STROUD)	FANNIN (STROUD)	GRAPHIC CONTROLS LTD	MEDIMAXTECH UK LTD	PHILIPS HEALTHCARE
Brand	Lang Skintact Premier	Lang Skintact Premier	Vermed	MMT	Philips Healthcare
ADULT ECG ELECTRODES ONSET WET CONNECTORS					
MPC	F-TB	F-REC	FW50	MXF 55RW	M2202A
NPC	FDK124	FDK123	FJE6299	FJE6339	FDI237
Minimum Order (UOI Description)	Pouch	Pouch	Box	Case	Box
Quantity of electrodes in minimum order.(UOI)	30	30	400	6000	300
Quantity electrodes in a pouch	30	30	50	30	5
Presentation in pouch S = Single M = Multiple items on backing protection	S	M	S	S	M
Connector Type	Onset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Wet	Wet	Wet	Wet	Wet
Shape	Circular	Rectangle	Circular	Circular	Circular
Size (mm)	50	44 x 32	50	55	50
X-Ray / MRI	N	Y	N	N	Y
Shelf Life Open Pouch	7 days	7days	15 days		7 days
Wear Time	72hours	72hours	72 hours		3 days
Feature					Enhanced Adhesive
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	FTB/3 Quantity in Pouch		FW50R (XRAY/MRI)		
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.60)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (2.00)	★★★★ (2.00)	★★★ (0.50)	★★★ (0.50)	★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (1.90)	★★★★ (1.90)	★★★ (0.00)	★★★ (0.00)	N/A
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.30)	★★★★ (2.30)	★★★★ (1.90)	★★★★ (1.20)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.10)	★★★★ (1.80)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.60)	★★★★ (1.00)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.20)	★★★★ (1.20)	★★★★ (2.40)	★★★★ (1.70)	★★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.90)	★★★★ (1.90)	★★★ (0.30)	★★★ (0.80)	N/A
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.60)	★★★★ (1.70)	N/A
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.25)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (1.60)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (2.00)	★★★★ (1.80)	★★★ (0.00)	★★★★ (1.80)	★★★★ (2.00)
sDiscomfort or skin reaction on removal	★★★★ (1.83)	★★★★ (1.80)	★★★★ (1.40)	★★★★ (1.60)	★★★★ (1.80)
Is the pouch recyclable	★★★ (0.40)	★★★ (0.40)	★★★ (0.00)	★★★ (0.40)	★★★ (0.00)




Supplier	PHILIPS HEALTHCARE	PHILIPS HEALTHCARE
Brand	Philips Healthcare	Philips Healthcare
<b>ADULT ECG ELECTRODES ONSET WET CONNECTORS</b>		
MPC	40420A	40493E
NPC	FJE6380	FDK895
Minimum Order (UOI Description)	Box	Box
Quantity of electrodes in minimum order.(UOI)	1000	300
Quantity electrodes in a pouch	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	M	S
Connector Type	Onset Stud	Onset Stud
Gel Type	Wet	Wet
Shape	Teardrop	Circular
Size (mm)	65 x 28	54
X-Ray / MRI	N	N
Shelf Life Open Pouch	7 days	7 days
Wear Time	3 days	3 days
Feature	Enhanced Adhesive	
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam		40493D (5 in pouch)
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★ ★ ★ (2.00)	★ ★ ★ (2.00)
Does the pouch clearly identify product wear time	★ ★ ★ (0.00)	★ ★ ★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★ ★ ★ (0.00)	★ ★ ★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★ ★ ★ (1.60)	★ ★ ★ (1.60)
Is the manufacturing product code clearly displayed	★ ★ ★ (1.80)	★ ★ ★ (1.80)
Does the Description clearly identify the electrode properties inside.	★ ★ ★ (1.40)	★ ★ ★ (1.40)
Does the pouch / Pouchet indicate clinical use.	★ ★ ★ (1.00)	★ ★ ★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★ ★ ★ (2.00)	★ ★ ★ (2.00)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★ ★ ★ (1.80)	★ ★ ★ (1.80)
Do the electrodes remove easily from the backing piece	★ ★ ★ (1.80)	★ ★ ★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★ ★ ★ (2.00)	★ ★ ★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★ ★ ★ (0.00)	★ ★ ★ (0.00)
Is the electrode comfortable on the skin for the wearer	★ ★ ★ (2.00)	★ ★ ★ (2.00)
Any indications / aids for removal on the product	★ ★ ★ (1.80)	★ ★ ★ (1.80)
Discomfort or skin reaction on removal	★ ★ ★ (2.00)	★ ★ ★ (1.80)
Is the pouch recyclable	★ ★ ★ (0.00)	★ ★ ★ (0.00)






## F) Tab Connectors

Supplier	3M UK PLC	ALBERT WAESCHLE LTD	AMBU UK LTD	AMBU UK LTD	AMBU UK LTD
Brand	3M Red Dot	Lessa	Ambu Blue Sensor	Ambu White Sensor	Ambu Blue Sensor
<b>ADULT ECG ELECTRODES TAB CONNECTORS</b>					
MPC	2330	99.832.38	SU-00-C/100	0715M	BS-Tab-2300
NPC	FDI536	FJE6292	FDK061	FDI307	FDI306
Minimum Order (UOI Description)	Pouch	Box	Pouch	Box	Box
Quantity of electrodes in minimum order.(UOI)	100	100	100	500	500
Quantity electrodes in a pouch	100	100	100	100	100
Presentation in pouch S = Single M = Multiple items on backing protection	M	M	M	M	M
Connector Type	Tab	Tab	Tab	Tab	Tab
Gel Type	Solid	Solid	Wet	Solid	Solid
Shape	Rectangle	Rectangle	Teardrop	Rectangle	Rectangle
Size (mm)	20 x 30	34 x 22	49 x 33	34 x 26	34 x 23
X-Ray / MRI	Y	N	N	Y	Y
Shelf Life Open Pouch	7 days		1 month	1 month	1 month
Wear Time			24hrs	2 hrs	2 hrs
Feature			Enhanced Adhesive		Enhanced Adhesive
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam			SU-00-A (Banana Adaptor)	0615M (size 37x26) 0415M (5000 in box, size 34x23) 0315M (size 35x21)	
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (1.80)	★★★★ (1.87)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★ (0.00)	★★★★ (1.00)	★★★★ (2.00)	★★★★ (2.20)	★★★★ (2.20)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.90)	★★★★ (1.80)	★★★★ (1.80)
Does the Description clearly identify the electrode properties inside.	★★★★ (2.00)	★★★★ (1.20)	★★★★ (1.50)	★★★★ (1.60)	★★★★ (1.60)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.50)	★★★★ (1.60)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.26)	★★★★ (1.80)	★★★★ (1.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.60)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.20)	★★★★ (1.20)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.30)	★★★★ (2.30)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.20)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (1.20)	★★★★ (1.20)	★★★★ (2.20)	★★★★ (1.00)	★★★★ (1.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.20)	★★★★ (2.20)	★★★★ (2.00)	★★★★ (2.20)	★★★★ (2.40)
Any indications / aids for removal on the product	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.40)	★★★★ (1.60)	★★★★ (2.20)
Discomfort or skin reaction on removal	★★★★ (2.20)	★★★★ (1.20)	★★★★ (1.80)	★★★★ (2.20)	★★★★ (2.60)
Is the pouch recyclable	★★★ (0.50)	★★★ (0.40)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)











Supplier	CAREFUSION UK 306 LTD	CAREFUSION UK 306 LTD	ConMed	ConMed	Covidien UK
Brand	Vital Signs	Vital Signs	Fastrace	HeartBeat	Kendall
<b>ADULT ECG ELECTRODES TAB CONNECTORS</b>					
MPC	2009101-003P	9623-810P	1915-100	1925-100	31433538
NPC	FDK1005	FDK941	FDK651	FDK653	FDK877
Minimum Order (UOI Description)	Box	Box	Box	Box	Case
Quantity of electrodes in minimum order.(UOI)	1000	1000	1000	1000	4000
Quantity electrodes in a pouch	100	100	100	100	100
Presentation in pouch S = Single M = Multiple items on backing protection	M	M	M	M	M
Connector Type	Tab	Tab	Tab	Tab	Tab
Gel Type	Solid	Solid	Solid	Solid	Solid
Shape	Rectangle	Rectangle	Rectangle	Rectangle	Rectangle
Size (mm)	34 x 26	34 x 22	34 x 22	32 x 20	33 x 23
X-Ray / MRI	N	N	N	N	N
Shelf Life Open Pouch	7 days				45 days
Wear Time	1 hour	1 hour			72 hours
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam	2009101-003 (adhesive change, size 34x23)				
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★ (0.00)	★★★★ (1.00)	★★★ (0.00)	★★★ (0.00)	★★★★ (1.50)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★ (0.00)	★★★★ (2.00)	★★★ (0.00)	★★★ (0.00)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★★ (1.80)	★★★★ (2.00)	★★★★ (1.73)	★★★★ (1.73)	★★★★ (1.80)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.25)	★★★★ (1.25)	★★★★ (1.30)	★★★★ (1.30)	★★★★ (1.40)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.25)	★★★★ (1.25)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (2.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.00)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.70)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (1.80)	★★★★ (1.40)	★★★★ (2.50)	★★★★ (1.80)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.40)	★★★★ (2.00)	★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★★ (1.20)	★★★★ (2.60)	★★★★ (2.40)	★★★★ (1.20)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.00)	★★★★ (2.20)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.20)	★★★★ (1.60)	★★★★ (2.00)
Discomfort or skin reaction on removal	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.20)	★★★★ (2.00)	★★★★ (1.80)
Is the pouch recyclable	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.50)




Supplier	Covidien UK	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)
Brand	Kendall	Lang Skintact EasiTabs	Lang Skintact EasiTabs	Lang Skintact EasiTabs	Lang Skintact EasiTabs
ADULT ECG ELECTRODES TAB CONNECTORS					
MPC	30807732	FS-WB00	F-WA00	RT-38	RT74BD
NPC	FDK731	FDK244	FDK117	FDK245	FDK1053
Minimum Order (UOI Description)	Case	Box	Pouch	Box	Case
Quantity of electrodes in minimum order.(UOI)	2000	500	50	500	5000
Quantity electrodes in a pouch	100	100	50	100	100
Presentation in pouch S = Single M = Multiple items on backing protection	M	M	M	M	M
Connector Type	Tab	Tab	Tab	Tab	Tab
Gel Type	Solid	Wet	Wet	Solid	Solid
Shape	Rectangle	Square	Rectangle	Rectangle	Rectangle
Size (mm)	33 x 23	28	37 x 32	25 x 21	26 x 24
X-Ray / MRI	N	Y	Y	N	N
Shelf Life Open Pouch	45 days	7 days	7 days	7 days	7 days
Wear Time	72 hours	72hours	72hours	24 hours	24 hours
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam					RT74 (Minimum Order of 1 Pouch)
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (1.50)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★☆☆ (0.00)	★★★☆☆ (0.00)	★★★☆☆ (0.00)	★★★★★ (2.40)	★★★★★ (2.40)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★★ (2.30)	★★★★★ (2.50)	★★★★★ (2.50)	★★★★★ (2.50)	★★★★★ (2.50)
Is the manufacturing product code clearly displayed	★★★★★ (1.80)	★★★★★ (2.00)	★★★★★ (2.00)	★★★★★ (2.00)	★★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★★ (1.40)	★★★★★ (1.80)	★★★★★ (1.80)	★★★★★ (1.80)	★★★★★ (1.80)
Does the pouch / Pouchet indicate clinical use.	★★★★★ (2.00)	★★★★★ (1.20)	★★★★★ (1.20)	★★★★★ (1.50)	★★★★★ (1.50)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★★ (1.80)	★★★★★ (1.80)	★★★★★ (1.80)	★★★★★ (1.80)	★★★★★ (1.80)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★★ (1.70)	★★★★★ (1.80)	★★★★★ (1.80)	★★★★★ (1.80)	★★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★★ (1.80)	★★★★★ (2.00)	★★★★★ (2.00)	★★★★★ (2.00)	★★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★★ (2.00)	★★★★★ (1.80)	★★★★★ (2.00)	★★★★★ (2.00)	★★★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★★ (1.20)	★★★★★ (1.80)	★★★★★ (1.80)	★★★★★ (1.20)	★★★★★ (1.20)
Is the electrode comfortable on the skin for the wearer	★★★★★ (2.20)	★★★★★ (2.20)	★★★★★ (2.20)	★★★★★ (2.40)	★★★★★ (2.20)
Any indications / aids for removal on the product	★★★★★ (1.80)	★★★★★ (2.20)	★★★★★ (2.20)	★★★★★ (2.00)	★★★★★ (1.80)
Discomfort or skin reaction on removal	★★★★★ (2.00)	★★★★★ (2.40)	★★★★★ (2.20)	★★★★★ (1.80)	★★★★★ (1.80)
Is the pouch recyclable	★★★☆☆ (0.50)	★★★☆☆ (0.40)	★★★☆☆ (0.40)	★★★☆☆ (0.40)	★★★☆☆ (0.40)

Supplier	GRAPHIC CONTROLS LTD	GRAPHIC CONTROLS LTD	MEDIMAXTECH UK LTD	MEDIMAXTECH UK LTD	PHILIPS HEALTHCARE
Brand	Vermed	Vermed	MMT	MMT	Philips Healthcare
ADULT ECG ELECTRODES TAB CONNECTORS					
MPC	A10201	4010423C	MXT-2034	MXT-2634	13943B
NPC	FJE6323	FJE7453	FDK983	FDK985	FDK534
Minimum Order (UOI Description)	Box	Box	Case	Case	Box
Quantity of electrodes in minimum order.(UOI)	100	1500	5000	5000	1000
Quantity electrodes in a pouch	100	100	100	100	100
Presentation in pouch S = Single M = Multiple items on backing protection	M	M	M	M	M
Connector Type	Tab	Tab	Tab	Tab	Tab
Gel Type	Solid	Wet	Solid	Solid	Solid
Shape	Rectangle	Teardrop	Rectangle	Rectangle	Rectangle
Size (mm)	34 x 23	52 x 35	34 x 20	34 x 26	35 x 22
X-Ray / MRI	Y	Y	N	N	N
Shelf Life Open Pouch	15 days	30 days			7 days
Wear Time	24 hours	48 hours			3 days
Feature		Resealable Pouch			
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam					
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (1.40)	★★★★ (1.80)	★★★★ (1.40)	★★★★ (1.40)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (1.10)	★★★★ (1.40)	★★★★ (1.00)	★★★★ (1.00)	★★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.60)	★★★★ (2.00)	★★★★ (1.20)	★★★★ (1.20)	★★★★ (0.00)
Is the manufacturing product code clearly displayed	★★★★ (2.20)	★★★★ (2.00)	★★★★ (1.10)	★★★★ (1.10)	★★★★ (1.80)
Does the Description clearly identify the electrode properties inside.	★★★★ (2.00)	★★★★ (1.60)	★★★★ (1.40)	★★★★ (1.40)	★★★★ (1.40)
Does the pouch / Pouchet indicate clinical use.	★★★★ (2.40)	★★★★ (0.80)	★★★★ (2.40)	★★★★ (2.40)	★★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (2.00)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.60)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (1.60)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (1.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Any indications / aids for removal on the product	★★★★ (1.80)	★★★★ (1.60)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (2.00)
Discomfort or skin reaction on removal	★★★★ (2.00)	★★★★ (1.60)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Is the pouch recyclable	★★★★ (0.00)	★★★★ (1.60)	★★★★ (0.40)	★★★★ (0.40)	★★★★ (0.00)

## G) Tape Connectors

Supplier	3M UK PLC	AMBU UK LTD	AMBU UK LTD	AMBU UK LTD	AMBU UK LTD
Brand	3M Red Dot	Ambu Blue Sensor	Ambu Blue Sensor	Ambu Blue Sensor	Ambu White Sensor
<b>ADULT ECG ELECTRODES TAPE CONNECTORS</b>					
MPC	2239	VLC-00-s/10	VL-00-S	L-00-S	7841P
NPC	FDK148	FDK432	FDK587	FDK188	FDI298
Minimum Order (UOI Description)	Pouch	Pouch	Pouch	Pouch	Pouch
Quantity of electrodes in minimum order.(UOI)	50	10	25	25	60
Quantity electrodes in a pouch	50	10	25	25	60
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	S	S	M
Connector Type	Onset Stud	Offset Stud	Offset Stud	Offset Stud	Onset Stud
Gel Type	Solid	Wet	Wet	Wet	Solid
Shape	Circular	Teardrop	Teardrop	Teardrop	Square
Size (mm)	61	72 x 68	72 x 68	68.2 x 55	42
X-Ray / MRI	N	N	N	N	Y
Shelf Life Open Pouch	30 days	1 month	1 month	1 month	1 month
Wear Time	3 days	72hrs	72hrs	72hrs	24hrs
Feature	Removal Tab	Enhanced Adhesive	Enhanced Adhesive	Enhanced Adhesive	Clear Electrode
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam		VLC00-S/25 (25 in Pouch)			
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (2.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★ (0.80)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Is the manufacturing product code clearly displayed	★★★★ (2.00)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.90)
Does the Description clearly identify the electrode properties inside.	★★★★ (2.00)	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.50)	★★★★ (1.50)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.50)	★★★ (1.00)	★★★ (1.00)	★★★ (1.00)	★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (2.00)	★★★★ (1.26)	★★★★ (1.26)	★★★★ (1.26)	★★★★ (1.26)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (1.90)	★★★★ (1.90)	★★★★ (1.80)	★★★★ (2.25)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.25)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (1.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★★ (2.20)
Is the electrode comfortable on the skin for the wearer	★★★★ (1.80)	★★★★ (1.40)	★★★★ (1.40)	★★★★ (1.60)	★★★★ (2.75)
Any indications / aids for removal on the product	★★★★ (2.00)	★★★★ (1.60)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (2.00)
Discomfort or skin reaction on removal	★★★★ (1.80)	★★★ (1.00)	★★★ (1.20)	★★★★ (1.40)	★★★★ (2.30)
Is the pouch recyclable	★★★ (0.50)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)

Supplier	ConMed	ConMed	Covidien UK	FANNIN (STROUD)	FANNIN (STROUD)
Brand	Cleartrace	Cleartrace LT	Kendall	Lang Skintact Premier	Lang Skintact XL T-V002
<b>ADULT ECG ELECTRODES TAPE CONNECTORS</b>					
MPC	1700-030	2710-030	22700	XL-TVO01	XL-TVO02
NPC	FDK640	FDK657	FDK707	FDK905	FDK911
Minimum Order (UOI Description)	Box	Box	Case	Case	Case
Quantity of electrodes in minimum order.(UOI)	600	600	1000	300	300
Quantity electrodes in a pouch	30	30	50	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	M	S	S
Connector Type	Onset Stud	Onset Stud	Onset Stud	Offset Stud	Offset Stud
Gel Type	Solid	Solid	Solid	Wet	Wet
Shape	Circular	Square	Circular	Circular	Circular
Size (mm)	45	50	45	60	68
X-Ray / MRI	N	N	N	N	N
Shelf Life Open Pouch			45 days	7days	7days
Wear Time		7 Days	72hours	72hours	72hours
Feature					
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam		2700-030 (XRAY/MRI)	22750 (XRAY/MRI)		
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★★ (1.90)	★★★★ (1.90)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify product wear time	★★★★ (0.00)	★★★★ (0.00)	★★★★ (1.50)	★★★★ (2.00)	★★★★ (2.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.00)	★★★★ (1.90)	★★★★ (1.90)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (0.00)	★★★★ (0.00)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★★ (1.73)	★★★★ (1.73)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (2.00)
Does the Description clearly identify the electrode properties inside.	★★★★ (1.30)	★★★★ (1.30)	★★★★ (1.60)	★★★★ (1.80)	★★★★ (1.80)
Does the pouch / Pouchet indicate clinical use.	★★★★ (1.20)	★★★★ (1.20)	★★★★ (1.00)	★★★★ (1.20)	★★★★ (1.20)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.90)	★★★★ (1.90)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.60)	★★★★ (1.80)	★★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★★ (2.00)	★★★★ (2.20)	★★★★ (2.00)	★★★★ (2.00)	★★★★ (1.80)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★★ (0.60)	★★★★ (0.50)	★★★★ (1.60)	★★★★ (0.00)	★★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★★ (2.20)	★★★★ (2.20)	★★★★ (2.00)	★★★★ (1.20)	★★★★ (1.20)
Any indications / aids for removal on the product	★★★★ (1.80)	★★★★ (2.00)	★★★★ (1.80)	★★★★ (1.80)	★★★★ (1.80)
Discomfort or skin reaction on removal	★★★★ (1.80)	★★★★ (1.80)	★★★★ (2.00)	★★★★ (1.20)	★★★★ (1.00)
Is the pouch recyclable	★★★★ (0.00)	★★★★ (0.00)	★★★★ (0.50)	★★★★ (0.40)	★★★★ (0.40)

Supplier	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	FANNIN (STROUD)	PHILIPS HEALTHCARE
Brand	Lang Skintact Elite	Lang Skintact Elite	Lang Skintact Premier	Lang Skintact Premier	Lang Skintact Premier	Philips Healthcare
ADULT ECG ELECTRODES TAPE CONNECTORS						
MPC	T-VO02	T-VO01	T-602	T-60	CT-601	40489E
NPC	FDK929	FDK902	FDK105	FDK115	FDK108	FDK1003
Minimum Order (UOI Description)	Box	Box	Pouch	Pouch	Pouch	Box
Quantity of electrodes in minimum order.(UOI)	300	300	30	30	30	300
Quantity electrodes in a pouch	30	30	30	30	30	30
Presentation in pouch S = Single M = Multiple items on backing protection	S	S	S	S	S	S
Connector Type	Offset Stud	Offset Stud	Onset Stud	Onset Stud	Onset Stud	Onset Stud
Gel Type	Wet	Wet	Tac	Wet	Tac	Wet
Shape	Circular	Circular	Circular	Circular	Circular	Circular
Size (mm)	72	66 x 60	60	60	50	59
X-Ray / MRI	N	N	N	N	N	N
Shelf Life Open Pouch	7 days	7 days	7 days	7 days	7days	7 days
Wear Time	72hours	72hours	72hours	72hours	72hours	3 days
Feature					Clear Tape Backing	
Variations e.g. Radiotranslucent Enhanced Adhesive Different Foam						
Is the Expiry Date & Lot Number or Manufacturing Date & Shelf Life Clearly visible	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)
Does the pouch clearly identify product wear time	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (0.00)
Does the pouch clearly identify the shelf life once pouch opened.	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	★★★ (0.00)
Are there clear instructions for use, including skin-preparation and electrode preparation	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)	★★★★ (2.30)
Is the manufacturing product code clearly displayed	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (1.80)
Does the Description clearly identify the electrode properties inside.	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.40)
Does the pouch / Pouchet indicate clinical use.	★★★ (1.20)	★★★ (1.20)	★★★ (1.20)	★★★ (1.20)	★★★ (1.20)	★★★ (1.00)
Does the pouch / Pouchet have a space to record date it was opened or new expiry date	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	★★★ (1.90)	★★★ (2.00)
Can the pouch / Pouchet be easily opened without splitting or damaging the Packaging using hands only	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)	★★★ (1.80)
Do the electrodes remove easily from the backing piece	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)
Does the product apply to the skin correctly and efficiently without wastage.	★★★ (2.00)	★★★ (1.83)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)	★★★ (2.00)
Does the backing card have a colour or pattern which would make it visible on a floor or in the bedsheets.	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)	★★★ (0.00)
Is the electrode comfortable on the skin for the wearer	★★★ (1.20)	★★★ (1.33)	★★★ (1.40)	★★★ (1.40)	★★★ (1.40)	★★★ (1.80)
Any indications / aids for removal on the product	★★★ (1.60)	★★★ (1.67)	★★★ (1.80)	★★★ (1.60)	★★★ (1.80)	★★★ (1.80)
Discomfort or skin reaction on removal	★★★ (1.00)	★★★ (1.17)	★★★ (1.40)	★★★ (1.40)	★★★ (1.20)	★★★ (1.60)
Is the pouch recyclable	★★★ (0.40)	★★★ (0.40)	★★★ (0.40)	★★★ (0.40)	★★★ (0.40)	★★★ (0.00)

## **8. Further considerations and recommendations**

### **8.1. Future recommendations**

#### **8.1.1. Packaging**

- Pouch packaging should include all the mandatory information as specified by the relevant standards.
- Standard symbols with text to be used by suppliers to identify material type. Existing symbols are not understood and inconsistent.
- RX only symbol should have '(USA only)' clearly marked on the packaging to avoid potential confusion as language and symbols are easily adopted in other countries.

#### **8.1.2. Opening**

- All backing plastic to be differentially coloured or display a pattern as described in the report.
- Where pouches contain at least 30 electrodes they should be able to be resealed or closed (folded) so they protect electrodes and maintain shelf life.
- Packaging for pouches with more than 10 electrodes should have space and be made of material that allows a standard black ink pen to record the new expiry date once they have been opened.

#### **8.1.3. Clinical use**

- Functioning electrodes which are correctly located should not be routinely replaced as patients transfer through their care pathway.
- Suppliers are to improve information so that linked products and variants can be identified. Manufacturing product codes and descriptions rarely show a connection between products.

#### **8.1.4. Disposal**

- Whilst suppliers informed us that the packaging was recyclable there needs to be clear recycling instructions on the pouch packaging.

### **8.1.5. NHS Supply Chain**

- Product data sheets which includes information on adhesive properties to be published on the NHS Supply Chain online catalogue and supplier websites for ease of review when required.
- Consideration to a new category for silicon-based products which can be used as an alternative when they are clinically required.

## **8.2. Barcodes**

The CET are aware of the Scan4Safety project and are aligned with the ambitions of the programme, which will deliver significant benefits in terms of patient safety and efficiency, to the NHS. The adoption of standards, driven by Scan4Safety, enables patient, product and location identification and traceability from the supply chain to the patient.

Adoption of these standards has also been shown to improve the quality of care by minimising the risk of human error.

The CET will be considering the inclusion of an evaluation criteria relating to the presence of GS1 compliant barcodes in future reports, as following our clinical conversations we have seen clinical staff asking for it to be included, but further information will be issued by the CET on this to stakeholders in advance.



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## 10. Disclaimer

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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.’**

**Mandie Sunderland**  
**Chair, Clinical Reference Board**  
**(Governing body of the NHS Clinical Evaluation Team)**

