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(54) **MEDICAL GARMENT FOR SKIN-TO-SKIN CARE AND METHODS OF USE**

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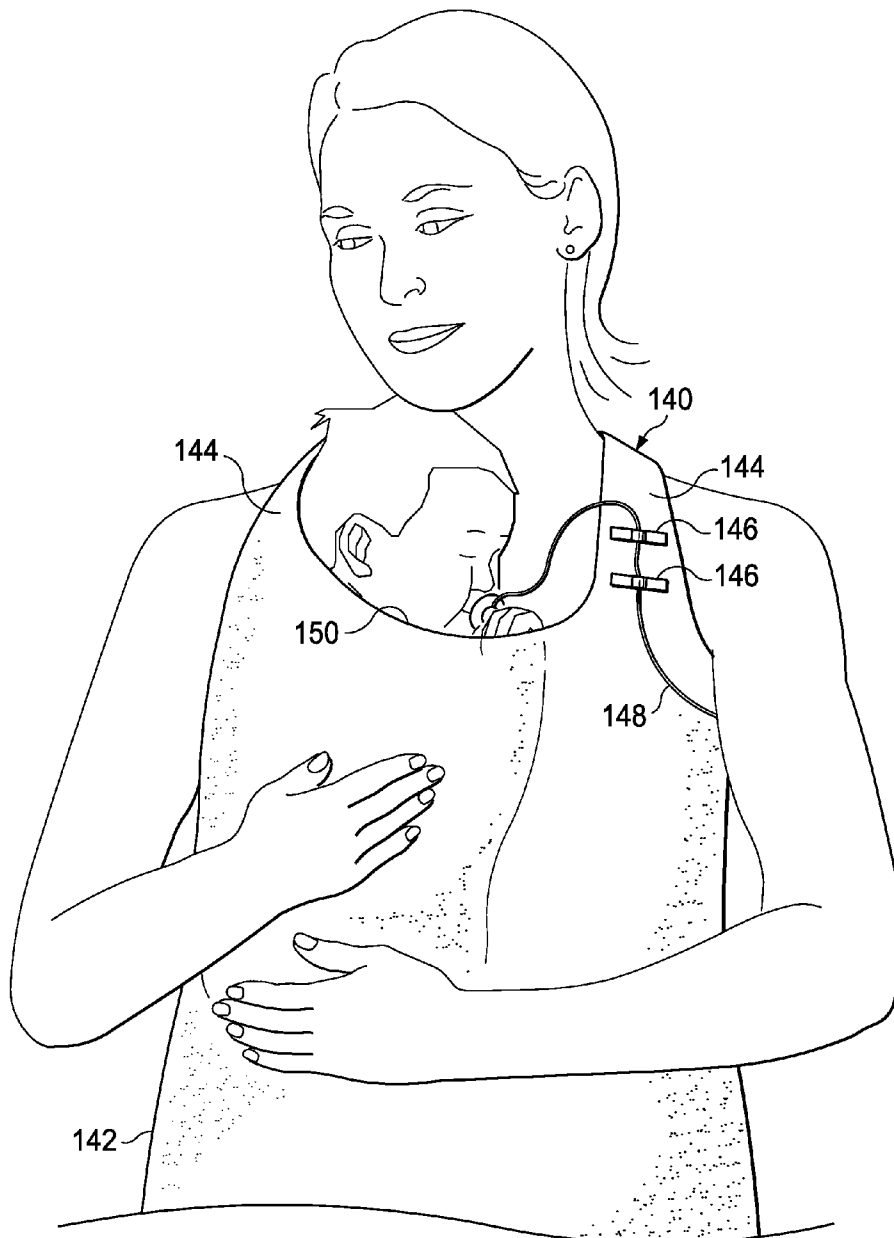
(57) **ABSTRACT**

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**Related U.S. Application Data**

(60) Provisional application No. 61/260,273, filed on Nov. 11, 2009.

A medical garment includes an apron configured to be worn over a wearer's chest and abdomen, the apron including a loose-fitting cowl neckline, at least one strap attached to the apron and configured to be fastened around the wearer's neck, and at least one tie strap disposed on the apron and configured to secure and organize tubing and lines attached to the infant.



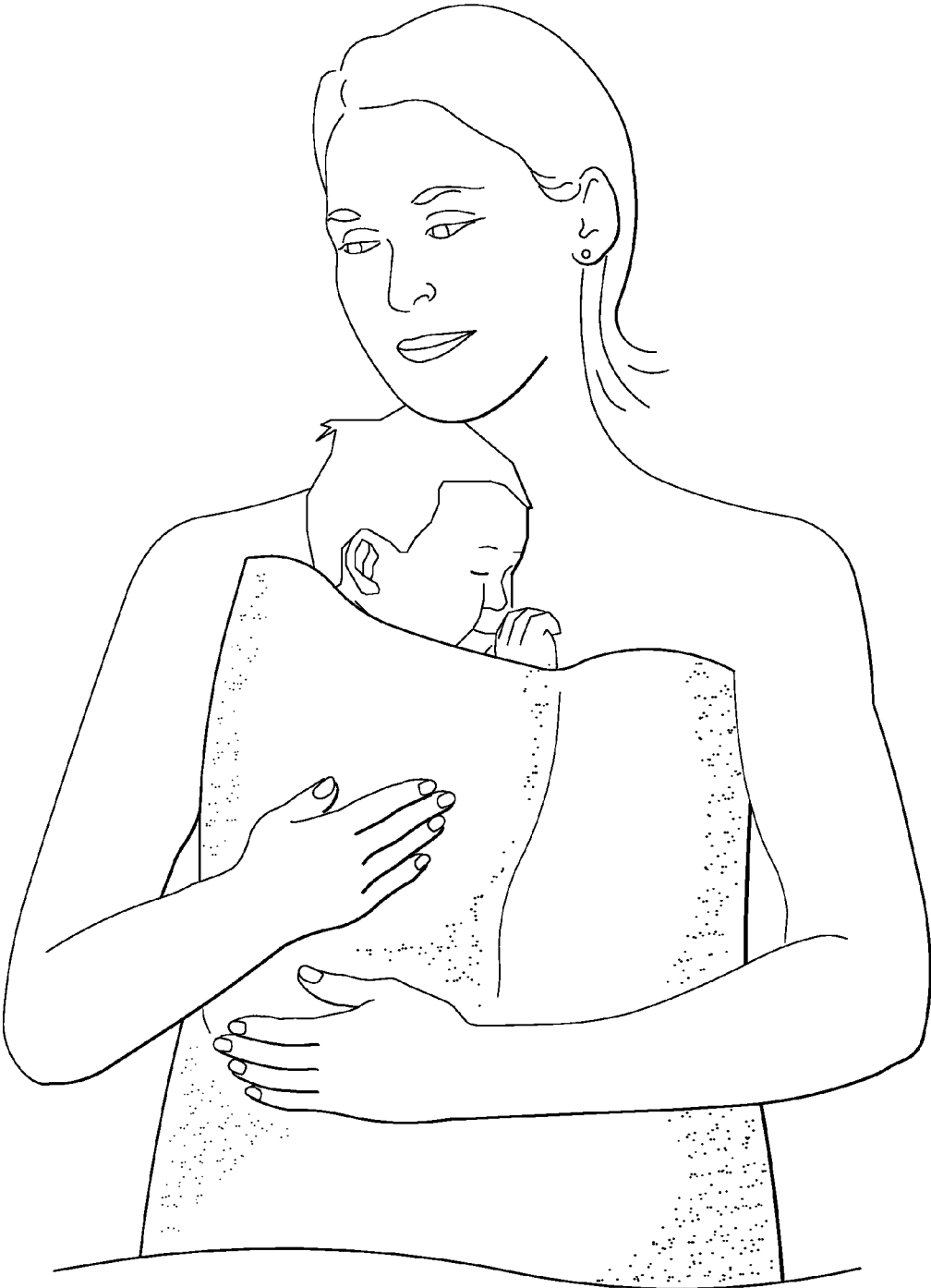


FIG. 1

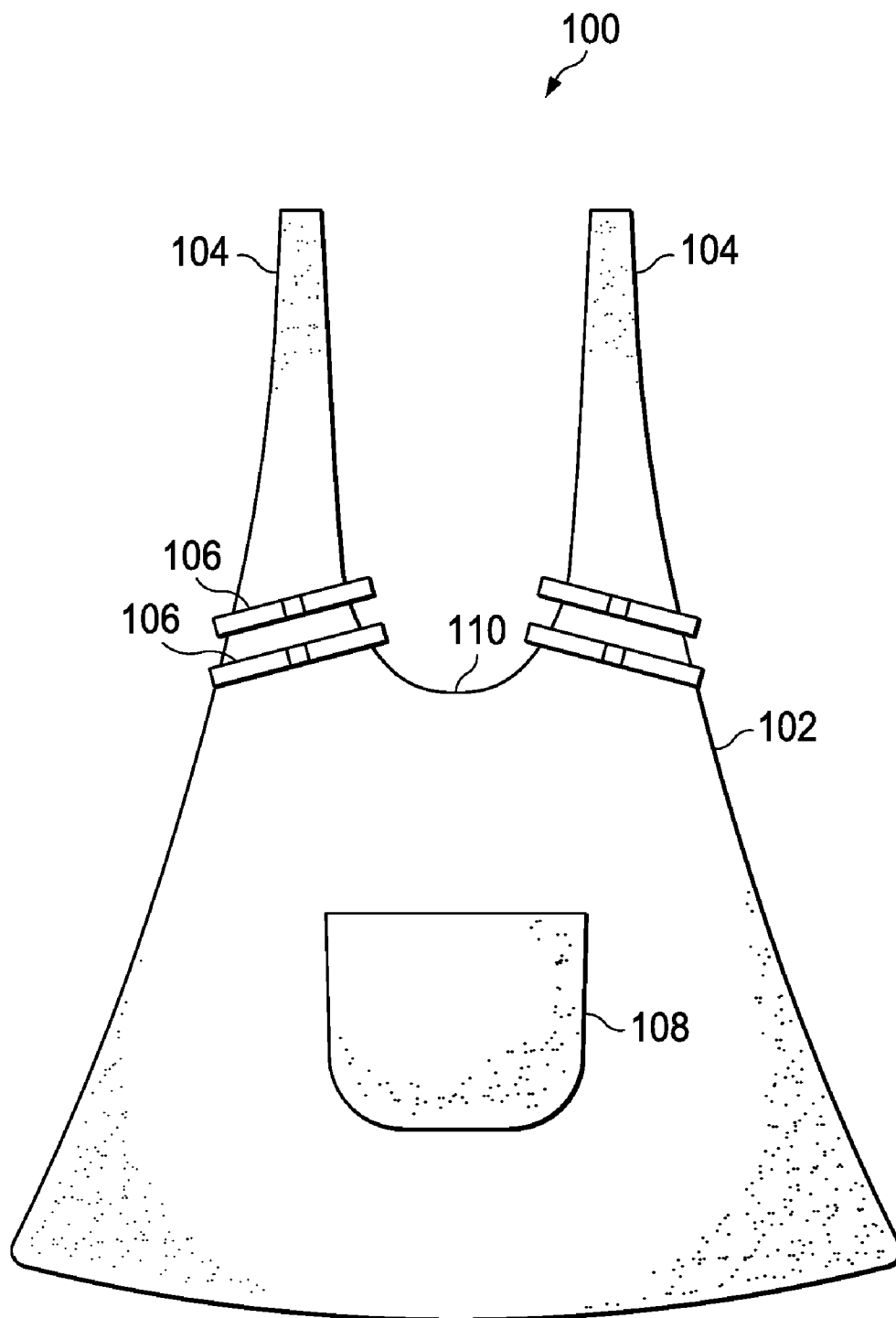


FIG. 2

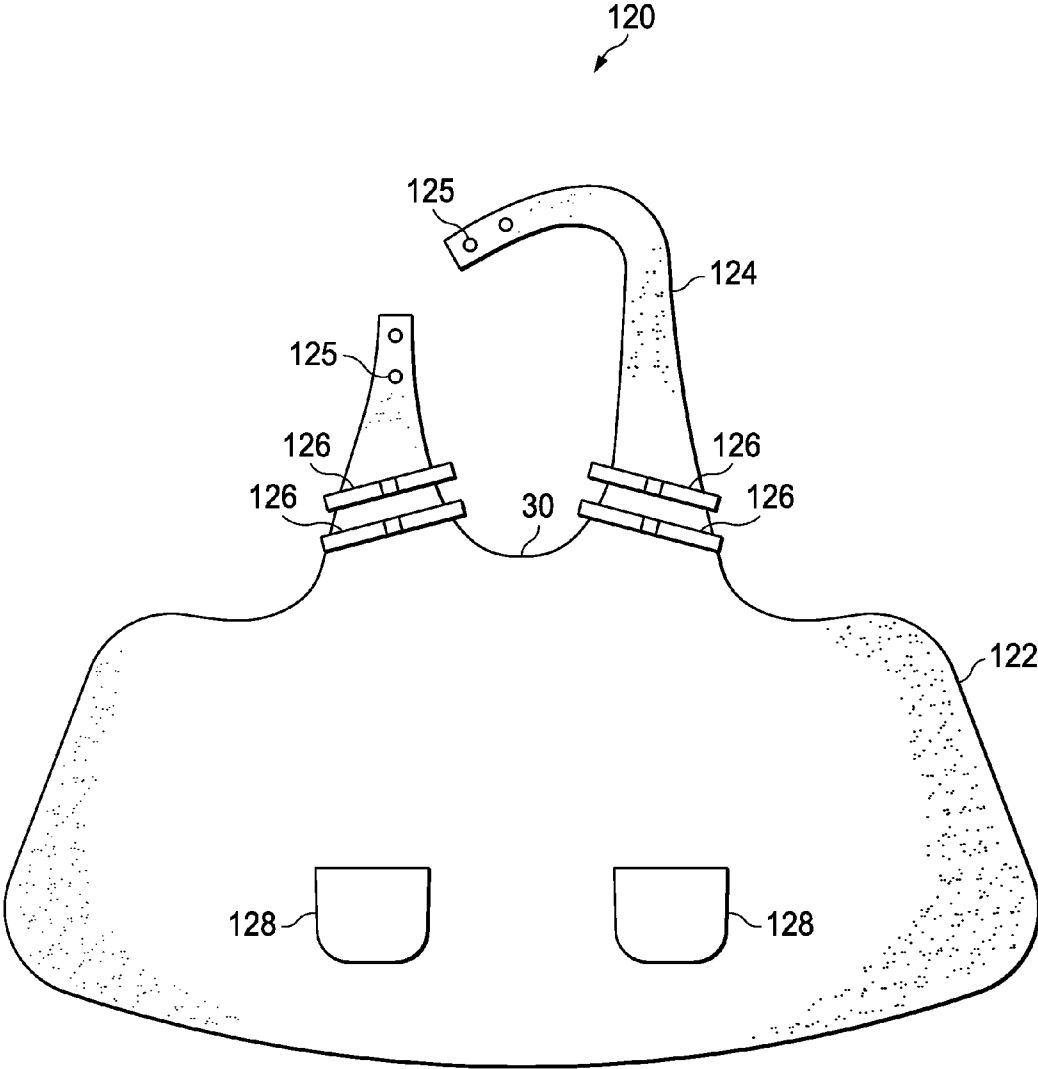


FIG. 3

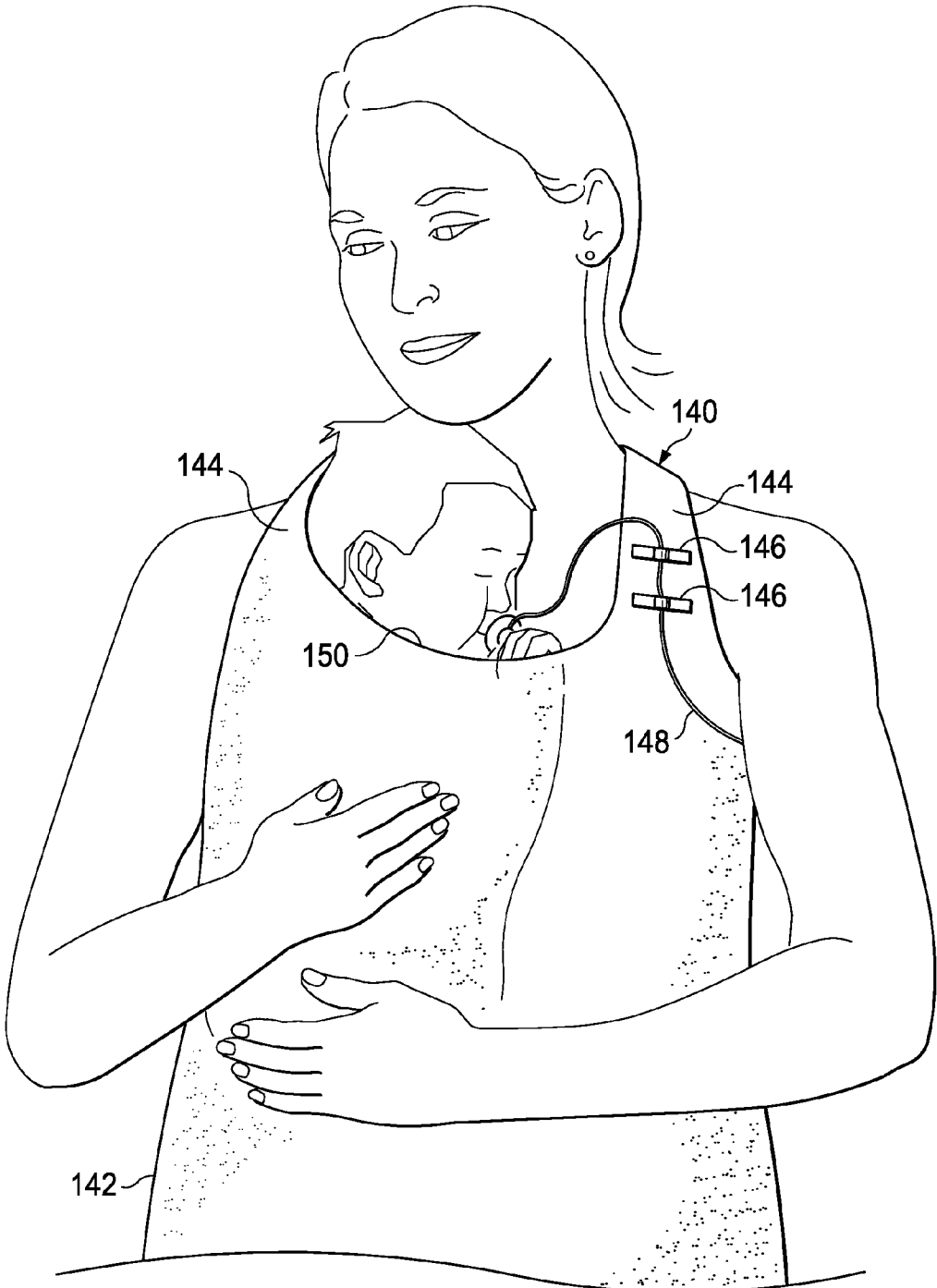


FIG. 4

**MEDICAL GARMENT FOR SKIN-TO-SKIN CARE AND METHODS OF USE**

**CROSS-REFERENCE TO RELATED APPLICATION**

[0001] This application claims the benefit of priority from U.S. Provisional Application No. 61/260,273 filed on Nov. 11, 2009.

**FIELD OF THE DISCLOSURE**

[0002] Embodiments disclosed herein relate generally to medical garments. More particularly, embodiments disclosed herein relate to medical garments for skin-to-skin care and methods of using the medical garment.

**BACKGROUND**

[0003] Newborn infants require special care and observation to ensure they have successfully transitioned through the delivery and immediate post-partum period safely with no underlying problems. Premature infants, or infants that are born before approximately 9 months, as well as term and post-term infants with health issues, may require specialized treatment and care in a Neonatal Intensive Care Unit (“NICU”), often for an extended period of time. The NICU patient may need to be kept in an incubator and may require respiratory support, as well as intravenous fluids and medications to sustain the infant, which may prevent or hinder contact between the infant and parent for a period of time. Once the patient’s condition has stabilized, contact between the infant and the parent can be beneficial to both, and therefore, certain care techniques have been developed to promote and facilitate this contact.

[0004] Skin-to-skin care, shown in FIG. 1, is one way to create closeness between the parent and the infant in the NICU that might be otherwise unavailable. During skin-to-skin care, the infant is dressed in a diaper and the mother or father sits in a chair with the infant lying chest-to-chest in an upright position on the parent’s bare chest. Skin-to-skin care may range from 30 minutes to several hours, as long as both the infant and parent are comfortable and the infant remains stable.

[0005] Skin-to-skin care benefits infants in the NICU in many ways. It helps to stabilize heart and respiratory rates, regulates the infant’s temperature, improves oxygenation and promotes weight gain. Skin-to-skin care has also been shown to help infants regulate sleep and wake cycles more efficiently. The mother benefits as well, often seeing an increase in her breast milk supply and subsequently, a higher rate of success with breastfeeding. In addition to positive physical effects, skin-to-skin care helps create an important bond between the parent and infant. In essence, skin-to-skin care provides an active way for parents to participate in the care of their baby, as well as develop a lasting bond between them.

[0006] While skin-to-skin care is commonly practiced in NICUs, there are few products currently available that allow a comfortable and private experience for the parent and infant. Typically, a hospital may merely provide a blanket or hospital gown to cover the infant while the infant rests on the parent, however, this technique may not provide adequate and necessary privacy in an open, busy unit.

[0007] The current technique of draping is unsatisfactory for additional reasons. Specifically, the blanket or hospital gown is unequipped to properly and safely secure respiratory

support tubing, intravenous (“IV”) lines, feeding tubes, or any other tubing that may still be attached to the infant. When using a blanket or hospital gown, tubing and lines are usually taped to the parent’s arm or shoulder, which can be cumbersome and may not always properly secure the lines. Alternatively, there are garments that use hook and loop tape to secure tubing. However, the smooth surface of tubing and lines may slip through hook and loop tape and smaller diameter tubing also poses a problem because the hook and loop tape can only safely secure certain diameters of tubing. Accordingly, there exists a need for a garment for use during skin-to-skin care to provide adequate privacy and comfort for the parent and infant while conveniently and safely organizing lines and tubing to the infant.

**SUMMARY OF THE DISCLOSURE**

[0008] In one aspect, embodiments disclosed herein relate to a medical garment to be worn during skin-to-skin care, the medical garment including an apron configured to be worn over a wearer’s chest and abdomen, the apron including a loose-fitting cowl neckline, at least one strap attached to the apron and configured to be fastened around the wearer’s neck, and at least one tie strap disposed on the apron and configured to secure and organize tubing and lines attached to the infant.

[0009] In other aspects, embodiments disclosed herein relate to a method of providing skin-to-skin care, the method including securing an apron over a wearer’s chest and abdomen, wherein the apron is configured having a loose-fitting neckline, placing an infant under the apron and proximate to the loose-fitting neckline, wherein the infant rests in skin-to-skin contact with the wearer, and securing lines and tubing attached to the infant with tie straps disposed on the apron.

[0010] Other aspects and advantages of the invention will be apparent from the following description and the appended claims.

**BRIEF DESCRIPTION OF DRAWINGS**

[0011] FIG. 1 is a perspective view of a parent and infant during skin-to-skin care.

[0012] FIG. 2 is a front view of a medical garment for providing improved skin-to-skin care in accordance with embodiments of the present disclosure.

[0013] FIG. 3 is a front view of another medical garment for providing improved skin-to-skin care in accordance with embodiments of the present disclosure.

[0014] FIG. 4 is a perspective view of a parent and infant during skin-to-skin care using another medical garment for providing improved skin-to-skin care in accordance with embodiments of the present disclosure.

**DETAILED DESCRIPTION**

[0015] In one aspect, embodiments disclosed herein relate to a medical garment to provide improved skin-to-skin care for infants in the NICU. Referring now to FIG. 2, a front view of the medical garment 100 for providing skin-to-skin care for premature infants and infants with health issues is shown in accordance with embodiments of the present disclosure. Medical garment 100 includes an apron 102 that is configured to be worn by the parent and positioned on a front side of the parent such that the parent’s front side (e.g., chest and abdomen) is adequately covered when worn. Additionally, apron 102 may extend around and cover the sides of the parent when

worn. Apron **102** may be a soft material, such as cotton or other similar materials, to provide the most comfort for both the infant and the parent.

[0016] Medical garment **100** also includes straps **104** at a top portion of the apron **102**. Straps **104** may be tied around the neck of the parent to secure the garment **100** when worn. In the alternative, strap **104** may be configured as a single strap configured to fit over the parent's head and around the back of the parent's neck. Those skilled in the art will understand convenient and comfortable alternatives for straps **104**. Additionally, apron **102** may have a cowl neckline **110**, which may be described as a loose-fitting neckline, which does not fit tightly around the infant as the infant rests on parent's chest. The loose-fitting, cowl neckline **110** allows for the infant's head to be uncovered and for accessibility to the infant during skin-to-skin care.

[0017] Further, medical garment **100** includes one or more tie straps **106**, which may be disposed on garment **100** near the strap **104**. Tie straps **106** may be securely attached (e.g., sewn) to apron **102** using any method for garment fabrication known in the art. Tie straps **106** are configured to secure and organize many of the respiratory tubes, IV lines, feeding tubes or other devices or tubing that may be attached to, or used with, the infant. Tie straps **106** may be tied around the various tubing and lines to prevent the tubing and lines from accidentally becoming dislodged or disconnected from the infant. The tie straps **106** also help keep the tubing and lines in an organized manner during care.

[0018] Medical garment **100** may also include a pouch-like pocket **108** disposed on apron **102**. Pocket **108** may be used for storage of various devices for the infant, e.g., burp cloths, pacifiers, etc. Pocket **108** may be sewn, ironed, or attached to apron **102** using any method for garment fabrication known in the art. Pocket **108** may be sized as appropriate to store necessary items for the infant, which will also be understood by those skilled in the art.

[0019] Methods of using medical garment **100** include dressing the parent with the garment and positioning the apron **102** to cover the chest, abdomen, and sides of the parent. The parent may recline in a chair and the infant may then be delivered to the parent. The infant may be placed in an upright position beneath the apron in skin-to-skin contact with the parent and proximate to the cowl neckline **110** (i.e., near the parent's neck and upper chest region). Any lines or tubing attached to the infant may be securely tied with the tie straps **106** for the duration of the skin-to-skin care. At the conclusion of care, the tie straps **106** may be untied and the infant returned to bed.

[0020] Methods of using medical garment **100** may also include the delivering the infant to the parent who may be reclining in a chair. The infant may be placed in a prone position in skin-to-skin contact with the parent and near the parent's neck and upper chest region. The parent may be dressed with the garment by positioning the apron **102** to cover the infant and the chest, abdomen, and sides of the parent. Apron **102** may be placed such that the cowl neck line **110** is proximate to the infant and the infant's head may remain uncovered. Any lines or tubing attached to the infant may be securely tied with the tie straps **106** for the duration of the skin-to-skin care. At the conclusion of care, the tie straps **106** and/or strap **104** may be untied, medical garment **100** removed, and the infant returned to bed.

[0021] FIG. 3 depicts a front view of another embodiment of the present disclosure for providing skin-to-skin care for

infants. Medical garment **120** includes an apron **122** that is configured to be worn by the parent and positioned on a front side of the parent such that the parent's front side (e.g., chest and abdomen) is adequately covered when worn. Additionally, apron **122** may extend around and cover the sides of the parent when worn. As discussed above, apron **122** may be a soft material, such as cotton or other similar materials, to provide the most comfort for both the infant and the parent.

[0022] Medical garment **120** also includes strap **124** at a top portion of the apron **122**. Strap **124** is depicted as a single strap with snaps **125** located at the distal end of strap **124** which may be fastened to snaps **125** located at the top of apron **102**, whereby strap **124** is connected around the neck of the parent to secure the garment **100** when worn. Those skilled in the art will understand that convenient and comfortable connection methods and mechanisms may be employed for securing the strap **124** behind the neck of a parent. In addition, those skilled in the art will recognize that connection methods and mechanisms which provide an expedient means of removal may be selected to improve the ability of medical staff to access the infant in a NICU environment.

[0023] Additionally, apron **122** may have a cowl neckline **130**, which may be described as a loose-fitting neckline, which does not fit tightly around the infant as the infant rests on parent's chest. The cowl neckline **130** allows for the infant's head to be uncovered during skin-to-skin care.

[0024] Further, medical garment **120** includes one or more tie straps **126**, which may be disposed on garment **120** near strap **124** and/or the top of apron **122** near snaps **125**. Tie straps **126** may be securely attached to apron **122** using any method for garment fabrication known in the art. Tie straps **126** are configured to secure and organize many respiratory tubes, IV lines, feeding tubes or many other devices or tubing that may be attached to the infant. Tie straps **126** may be tied around the various tubing and lines to prevent the tubing and lines from accidentally becoming dislodged or disconnected from the infant. The tie straps **126** also help keep the tubing and lines in an organized manner during care.

[0025] Medical garment **120** may also include a pouch-like pockets **128** disposed on apron **122**. Pockets **128** may be used for storage of various devices for the infant, e.g., burp cloths, pacifiers, etc. Pockets **128** may be attached to apron **122** using any method for garment fabrication known in the art. Pockets **128** may be sized as appropriate to store necessary items for the infant, which will also be understood by those skilled in the art. Those skilled in the art will understand the size, shape and number of pockets may vary among embodiments of the present disclosure.

[0026] A perspective view of a parent and infant using medical garment **140** for providing skin-to-skin care is shown in FIG. 4. The infant is shown against the parent's front side and is engaging in skin-to-skin care. Medical garment **140** includes an apron **142** that is worn by the parent and positioned over the infant and on a front side of the parent such that the parent's front side (e.g., chest and abdomen) is adequately covered when worn.

[0027] Medical garment **140** also includes straps **144** at a top portion of the apron **142**. Straps **144** may be tied around the neck of the parent to secure the garment **140** when worn. Additionally, apron **142** has a cowl neckline **150** which does not fit tightly around the infant as the infant rests on the parent's chest. The cowl neckline **150** allows for the infant's head to be uncovered during skin-to-skin care.

[0028] Further, medical garment 140 includes one or more tie straps 146, which may be disposed on garment 140 near the strap 144. Tie straps 146 are tied around tube 148 to prevent tube 148 from accidentally becoming dislodged or disconnected from the infant. The tie straps 146 may also help keep multiple tubes and lines in an organized manner during care.

[0029] Advantageously, embodiments of the present disclosure provide a medical garment capable of improving skin-to-skin care for infants. As previously described, skin-to-skin care is beneficial to infants in the NICU and promotes stable heart and respiratory rates, more efficient thermoregulation, decreased oxygen needs and improved weight gain. Further, skin-to-skin care allows parent-infant bonding much sooner than may normally have been possible. The embodiments of the garment disclosed herein allow skin-to-skin care between the infant and the parent while providing maximum privacy and comfort. Additionally, the garment provides a means to organize and properly secure life-sustaining lines and tubing to the infant during the skin-to-skin care. Further, the tie straps used to secure the tubing are capable of properly securing many different lines or tubing that may be attached to the infant.

[0030] While the present disclosure has been described with respect to a limited number of embodiments, those skilled in the art, having benefit of this disclosure, will appreciate that other embodiments may be devised which do not depart from the scope of the disclosure as described herein. Accordingly, the scope of the disclosure should be limited only by the attached claims.

1. A medical garment to be worn during skin-to-skin care, the medical garment comprising:

- an apron configured to be worn over a wearer's chest and abdomen, the apron comprising:
  - a loose-fitting cowl neckline;
  - at least one strap attached to the apron and configured to be fastened around the wearer's neck; and
  - at least one tie strap disposed on the apron and configured to secure and organize tubing and lines attached to an infant.

2. The medical garment of claim 1, further comprising at least one pocket on a front side of the apron.

3. The medical garment of claim 1, wherein the apron is configured to provide privacy to the infant and the wearer.

4. The medical garment of claim 1, wherein the apron is configured to extend around and cover the sides of the wearer.

5. The medical garment of claim 1, wherein the apron is made of a soft fabric.

6. The medical garment of claim 5, wherein the soft fabric is cotton.

7. A method of providing skin-to-skin care, the method comprising:

- securing an apron over a wearer's chest and abdomen, wherein the apron is configured having a loose-fitting neckline;
- laying the infant under the apron and proximate to the loose-fitting neckline, wherein the infant rests in skin-to-skin contact with the wearer; and
- securing lines and tubing attached to the infant with tie straps disposed on the apron.

8. The method of claim 7, further comprising providing a pocket on a front side of the apron for storage.

9. The method of claim 7, further comprising covering the wearer's sides with the apron.

10. The method of claim 7, further comprising providing privacy of the wearer and the infant.

11. A medical garment to be worn during skin-to-skin care, the medical garment comprising:

- an apron, the apron comprising:
  - a neckline;
  - at least one strap configured to fit around a wearer's neck; and
  - at least one tie strap proximate to said neckline and configured to secure tubing and lines.

12. The medical garment of claim 11, further comprising at least one pocket.

13. The medical garment of claim 11, wherein the apron is configured to provide privacy of an infant and the wearer.

14. The medical garment of claim 11, wherein the apron is configured to extend around and cover the sides of the wearer.

15. The medical garment of claim 11, wherein the apron is made of a soft fabric.

16. The medical garment of claim 15, wherein the soft fabric is cotton.

17. The medical garment of claim 11, wherein the strap is configured to be securable around the wearer's neck.

18. The medical garment of claim 11, wherein said neckline comprises a loose-fitting neckline configured to allow accessibility to an infant.

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