CLAIMS

WHAT WE CLAIM IS:

1. A device for detecting an infection in a wound, comprising:

a) an indicator unit; wherein the indicator unit comprises:

i. a sensor tube having an open proximal end; and

ii. a sensor positioned in the sensor tube; and

b) a swab unit, wherein the swab unit comprises:

i. a swab shaft having a proximal end and a distal end;

ii. a swab tip positioned at the distal end of the swab shaft; and

iii. a swab handle connected to the swab shaft at the proximal end of the swab shaft, the swab handle being configured to sealingly engage the open proximal end of the sensor tube,

wherein the swab handle defines a liquid chamber and wherein the swab handle is operable to contain a liquid in the liquid chamber and release the liquid into the sensor tube after the swab tip is positioned within the sensor tube,

wherein the swab handle is configured for manual release of the liquid from the liquid chamber,

wherein the swab handle comprises a retaining element configured to attach to the sensor tube, the retaining element defining a cavity, and a movable element retained within the cavity and movable relative to the retaining element,

wherein the liquid chamber is contained within the movable element, and

wherein the movable element further comprises a liquid chamber seal, wherein the handle further comprises a piercing member fixedly attached to the retaining element, and

wherein moving the movable element from a proximal position to a distal position causes the piercing member to pierce the liquid chamber seal to release the liquid into the sensor tube.

2. The device of claim 1, wherein the sensor comprises a carrier material and at least one substrate that is operable to undergo a visible color change in response to expression of a specific infection marker present in wound fluid.

3. The device of claim 2, wherein the sensor comprises at least two substrates, each substrate operable to undergo a visible color change in response to expression of a different marker present in wound fluid.

4. The device of claim 1, wherein the indicator unit further comprises a sensor retaining insert sealingly engaged to a distal end of the sensor tube, and wherein the sensor is affixed to the sensor retaining insert.

5. The device of claim 4, wherein the sensor retaining insert defines a cavity configured to receive the swab tip when the swab unit is sealingly engaged to the indicator unit.

6. The device of claim 5, wherein the sensor retaining insert comprises at least one structural feature in or adjacent to the cavity to guide the swab tip as it enters the sensor retaining insert into a desired juxtaposition with the sensor.

7. The device of claim 6, wherein the at least one structural feature is selected from rib features, inclined cavity walls and combinations thereof.

8. The device of claim 1 wherein the seal comprises a member selected from the group consisting of a metallic foil and a plastic film.

9. The device of claim 8, wherein the swab shaft is fixedly attached to the retaining element such that a proximal end of the swab shaft extends into the cavity, and wherein the piercing member comprises the proximal end of the swab shaft.

10. The device of claim 9, wherein the swab shaft comprises a tube defining a longitudinal passageway therethrough, and wherein, after the liquid chamber seal is pierced, the liquid chamber is in fluid communication with the sensor tube through the passageway.

11. The device of claim 10, wherein the swab shaft defines a radial aperture at its distal end near the swab tip, and wherein, after the liquid chamber seal is pierced, the liquid chamber is in fluid communication with the sensor tube through the passageway and the aperture.

12. The device of claim 1, further comprising a locking mechanism that is operable to prevent the movable element from moving in a proximal direction after the liquid chamber seal is pierced.

13. The device of claim 1, wherein the swab handle is configured for automatic release of the liquid from the liquid chamber when the handle of the swab unit is sealingly engaged to the open proximal end of the sensor tube.

14. The device of claim 13, wherein the swab handle comprises a liquid chamber seal positioned at a distal end of the liquid chamber, wherein the indicator unit further comprises a piercing member fixedly attached to the sensor tube at a location whereby the piercing member contacts the liquid chamber seal only when the distal end is inserted into the sensor tube, and wherein inserting the distal end into the sensor tube causes the piercing member to pierce the liquid chamber seal to release the liquid into the sensor tube.

15. The device of claim 14 wherein the piercing member is a piercing ring.