What is claimed is:

1. An optical sensor configured to be worn on a patient's finger and determine an optical signal indicative of a photoplethysmograph waveform, the sensor comprising:

a housing configured to wrap around the base of the patient's finger and position over the interior base of the finger proximate to an artery which permits monitoring of the absorption characteristics of oxygenated and deoxygenated hemoglobin and which carries a pulse pressure wave which permits determination of blood pressure from the pulse transit time (i) a light source that emits optical radiation, and (ii) a photodetector configured to detect the optical radiation after reflection by the artery and to generate the optical signal.

2. An optical sensor according to claim 1, the housing configured to wrap around the base of the patient's thumb and position over the interior base of the thumb proximate to the princeps pollicis artery (i) the light source that emits optical radiation, and (ii) the photodetector configured to detect the optical radiation after reflection by the princeps pollicis artery and to generate the optical signal.

3. An optical sensor according to claim 1, further comprising circuitry configured to receive the optical signal and convert the optical signal into a photoplethysmograph waveform.

4. An optical sensor according to claim 3, wherein the photoplethysmograph waveform is an analog waveform.

5. An optical sensor according to claim 1, wherein the band is configured to be worn by the patient while leaving the tip of the patient's finger uncovered.

6. An optical sensor according to claim 1, comprising at least two light sources.

7. An optical sensor according to claim 6, wherein at least one light source operates in the 400-700 nm range, and at least one other light source operates in the 700-1000 nm range.

8. A method of obtaining an optical signal indicative of a photoplethysmograph waveform, comprising:

positioning a housing around the base of a patient's thumb, wherein the housing comprises (i) a light source that emits optical radiation, and (ii) a photodetector configured to detect the optical radiation, wherein the light source and photodetector are each positioned over the interior base of the thumb proximate to the princeps pollicis artery;

energizing the light source to illuminate the thumb with optical radiation; and

detecting optical radiation the after reflection by the princeps pollicis artery with the photodetector and generating an optical signal therewith.

9. A method according to claim 8, further comprising converting the optical signal into a photoplethysmograph waveform.

10. A method according to claim 9, further comprising determining one or more of a blood oxygen saturation level, a pulse rate, a pulse transit time, and a blood pressure for the patient using the photoplethysmograph waveform.

11. A method of obtaining an optical signal indicative of a photoplethysmograph waveform, comprising:

positioning a housing around the base of a patient's finger, thereby positioning over the interior base of the finger proximate to an artery which permits monitoring of the absorption characteristics of oxygenated and deoxygenated hemoglobin and which carries a pulse pressure wave which permits determination of blood pressure from the pulse transit time (i) a light source that emits optical radiation, and (ii) a photodetector configured to detect the optical radiation after reflection by the artery and to generate the optical signal;

energizing the light source to illuminate the finger with optical radiation; and

detecting optical radiation the after reflection by the artery with the photodetector and generating an optical signal therewith.

12. A method according to claim 11, further comprising converting the optical signal into a photoplethysmograph waveform.

13. A method according to claim 12, further comprising determining one or more of a blood oxygen saturation level, a pulse rate, a pulse transit time, and a blood pressure for the patient using the photoplethysmograph waveform.

What is claimed is:

1. An optical sensor configured to be worn on a patient's finger and determine an optical signal indicative of a photoplethysmograph waveform, the sensor comprising:

a housing configured to wrap around the base of the patient’s finger and position over the interior base of the finger proximate to an artery which permits monitoring of the absorption characteristics of oxygenated and deoxygenated hemoglobin and which is capable of carrying a pulse pressure wave for permitting determination of blood pressure from the pulse transit time (i) a light source that configured to emit optical radiation, and (ii) a photodetector configured to detect the optical radiation after reflection by the artery and to generate the optical signal.

2. An optical sensor according to claim 1, the housing configured to wrap around the base of the patient’s thumb and position over the interior base of the thumb proximate to the princeps pollicis artery (i) the light source configured to emit optical radiation, and (ii) the photodetector configured to detect the optical radiation after reflection by the princeps pollicis artery and to generate the optical signal.

3. An optical sensor according to claim 1, further comprising circuitry configured to receive the optical signal and convert the optical signal into a photoplethysmograph waveform.

4. An optical sensor according to claim 3, wherein the photoplethysmograph waveform is an analog waveform.

5. An optical sensor according to claim 1, wherein the band is configured to be worn by the patient while leaving the tip of the patient’s finger uncovered.

6. An optical sensor according to claim 1, comprising at least two light sources.

7. An optical sensor according to claim 6, wherein at least one light source is configured to operate in the 400-700 nm range, and at least one other light source is configured to operate in the 700-1000 nm range.

8. A method of obtaining an optical signal indicative of a photoplethysmograph waveform, comprising:

positioning a housing around the base of a patient's thumb, wherein the housing comprises (i) a light source that emits optical radiation, and (ii) a photodetector configured to detect the optical radiation, wherein the light source and photodetector are each positioned over the interior base of the thumb proximate to the princeps pollicis artery;

energizing the light source to illuminate the thumb with optical radiation; and

detecting optical radiation the after reflection by the princeps pollicis artery with the photodetector and generating an optical signal therewith.

9. A method according to claim 8, further comprising converting the optical signal into a photoplethysmograph waveform.

10. A method according to claim 9, further comprising determining one or more of a blood oxygen saturation level, a pulse rate, a pulse transit time, and a blood pressure for the patient using the photoplethysmograph waveform.

11. A method of obtaining an optical signal indicative of a photoplethysmograph waveform, comprising:

positioning a housing around the base of a patient's finger, thereby positioning over the interior base of the finger proximate to an artery which permits monitoring of the absorption characteristics of oxygenated and deoxygenated hemoglobin and which carries a pulse pressure wave which permits determination of blood pressure from the pulse transit time (i) a light source that emits optical radiation, and (ii) a photodetector configured to detect the optical radiation after reflection by the artery and to generate the optical signal;

energizing the light source to illuminate the finger with optical radiation; and

detecting optical radiation the after reflection by the artery with the photodetector and generating an optical signal therewith.

12. A method according to claim 11, further comprising converting the optical signal into a photoplethysmograph waveform.

13. A method according to claim 12, further comprising determining one or more of a blood oxygen saturation level, a pulse rate, a pulse transit time, and a blood pressure for the patient using the photoplethysmograph waveform.