CLAIMS

What is claimed is:

1. A patient support apparatus comprising:

a support surface adapted to support a patient;

a first transceiver coupled to a first location on the patient support apparatus, the first transceiver adapted to wirelessly communicate with a wall unit mounted to a wall of a healthcare facility in which the patient support apparatus is positioned;

a second transceiver adapted to communicate with a network of the healthcare facility; and

a controller adapted to use radio frequency (RF) communications between the wall unit and the first transceiver to determine a distance between the wall unit and the first transceiver.

2. The patient support apparatus of claim 1 wherein the controller is further adapted to receive a unique identifier from the wall unit and to forward the unique identifier to the network using the second transceiver.

3. The patient support apparatus of claim 1 wherein the controller determines the distance without using any infrared signals.

4. The patient support apparatus of claim 1 wherein the first transceiver is further adapted to wirelessly communicate with a second wall unit mounted to a second wall of the healthcare facility, and wherein the controller is further adapted to use RF communications between the second wall unit and the first transceiver to determine a second distance between the second wall unit and the first transceiver.

5. The patient support apparatus of claim 1 wherein the first transceiver is an ultra-wideband transceiver.

6. The patient support apparatus of claim 1 wherein the first transceiver is adapted to wirelessly communicate with the wall unit regardless of an orientation of the patient support apparatus with respect to the wall.

7. The patient support apparatus of claim 1 further comprising:

a third transceiver coupled to a second location on the patient support apparatus, the third transceiver adapted to communicate using RF signals with the wall unit; and

a memory containing data identifying a relative position of the third transceiver with respect to the first transceiver.

8. The patient support apparatus of claim 7 further comprising:

a fourth transceiver coupled to a third location on the patient support apparatus, the fourth transceiver adapted to communicate using RF signals with the wall unit; and

wherein the memory further contains data identifying relative positions of the fourth transceiver with respect to the first and third transceivers.

9. The patient support apparatus of claim 8 wherein the controller is further adapted to determine an orientation of the patient support apparatus with respect to the wall to which the wall unit is mounted.

10. The patient support apparatus of claim 8 wherein the controller is further adapted to use RF communications between the wall unit and the third transceiver to determine a second distance between the wall unit and the third transceiver; and to use RF communications between the wall unit and the fourth transceiver to determine a third distance between the wall unit and the fourth transceiver.

11. The patient support apparatus of claim 8 wherein the first, third, and fourth transceivers are further adapted to communicate with a tag attached to a mobile medical device, and the controller is further adapted to use the first, third, and fourth transceivers to determine a relative position of the mobile medical device with respect to the patient support apparatus.

12. The patient support apparatus of claim 11 wherein the controller is further adapted to associate the mobile medical device with the patient support apparatus if the mobile medical device is positioned within a volume of space defined around the patient support apparatus.

13. The patient support apparatus of claim 1 further comprising an orientation sensor adapted to determine a first geographical orientation of the patient support apparatus, wherein the controller is adapted receive a second geographical orientation of the wall unit and to use the first and second geographical orientations to determine if the patient support apparatus and the wall unit are positioned on a common side of a wall.

14. The patient support apparatus of claim 1 further comprising a Bluetooth transceiver adapted to communicate with the wall unit using Bluetooth signals.

15. The patient support apparatus of claim 14 wherein the controller is further adapted to transmit audio signals from a microphone onboard the patient support apparatus to the wall unit using the Bluetooth transceiver.

16. A patient support apparatus comprising:

a support surface adapted to support a patient;

a first transceiver coupled to a first location on the patient support apparatus, the first transceiver adapted to wirelessly communicate with a wall unit mounted to a wall of a healthcare facility in which the patient support apparatus is positioned;

an orientation sensor adapted to determine a first geographical orientation of the patient support apparatus; and

a controller adapted receive a second geographical orientation of the wall unit and to use the first and second geographical orientations to determine if the patient support apparatus and wall unit are positioned on a common side of a wall.

17. The patient support apparatus of claim 16 wherein the controller is adapted to receive the second geographical orientation of the wall unit from the wall unit.

18. The patient support apparatus of claim 16 further comprising a memory in which is stored the second geographical orientation of the wall unit and the controller is adapted to receive the second geographical orientation of the wall unit from the memory.

19. The patient support apparatus of claim 16 wherein the orientation sensor is a magnetometer.

20. The patient support apparatus of claim 16 wherein the first transceiver is an ultra-wideband transceiver.

21. The patient support apparatus of claim 16 further comprising a Bluetooth transceiver adapted to communicate with the wall unit using Bluetooth signals.

22. The patient support apparatus of claim 21 wherein the controller is further adapted to transmit audio signals from a microphone onboard the patient support apparatus to the wall unit using the Bluetooth transceiver.

23. The patient support apparatus of claim 16 wherein the controller is further adapted to use radio frequency (RF) communications between the wall unit and the first transceiver to determine a distance between the wall unit and the first transceiver.

24. The patient support apparatus of claim 23 further comprising a second transceiver adapted to communicate with a network of the healthcare facility, wherein the controller is further adapted to receive a unique identifier from the wall unit and to forward the unique identifier to the network using the second transceiver.

25. The patient support apparatus of claim 23 wherein the controller determines the distance without using any infrared signals.

26. The patient support apparatus of claim 24 wherein the first transceiver is adapted to wirelessly communicate with a second wall unit mounted to a second wall of the healthcare facility, and wherein the controller is further adapted to use RF communications between the second wall unit and the first transceiver to determine a second distance between the second wall unit and the first transceiver.

27. The patient support apparatus of claim 16 wherein the first transceiver is adapted to communicate with the wall unit regardless of an orientation of the patient support apparatus with respect to the wall.

28. The patient support apparatus of claim 24 further comprising:

a third transceiver coupled to a second location on the patient support apparatus, the third transceiver adapted to communicate using RF signals with the wall unit; and

a memory containing data identifying a relative position of the third transceiver with respect to the first transceiver.

29. The patient support apparatus of claim 28 further comprising:

a fourth transceiver coupled to a third location on the patient support apparatus, the fourth transceiver adapted to communicate using RF signals with the wall unit; and

wherein the memory further contains data identifying relative positions of the fourth transceiver with respect to the first and third transceivers.

30. The patient support apparatus of claim 29 wherein the controller is further adapted to determine an orientation of the patient support apparatus with respect to the wall to which the wall unit is mounted.

31. The patient support apparatus of claim 29 wherein the controller is further adapted to use RF communications between the wall unit and the third transceiver to determine a second distance between the wall unit and the third transceiver; and to use RF communications between the wall unit and the fourth transceiver to determine a third distance between the wall unit and the fourth transceiver.

32. The patient support apparatus of claim 29 wherein the first, third, and fourth transceivers are adapted to communicate with a tag attached to a mobile medical device, and the controller is further adapted to use the first, third, and fourth transceiver to determine a relative position of the mobile medical device with respect to the patient support apparatus.

33. The patient support apparatus of claim 32 wherein the controller is further adapted to associate the mobile medical device with the patient support apparatus if the mobile medical device is positioned within a volume of space defined around the patient support apparatus.

34. A wall unit adapted to be mounted to a wall of a healthcare facility, the wall unit comprising:

a first transceiver adapted to wirelessly communicate with a patient support apparatus; and

a controller adapted to use radio frequency (RF) signals between the patient support apparatus and the first transceiver to determine a distance between the patient support apparatus and the first transceiver.

35. The wall unit of claim 34 wherein the controller is further adapted to forward the distance to the patient support apparatus.

36. The wall unit of claim 34 further including an orientation sensor adapted to determine a geographical orientation of the wall unit, and wherein the controller is adapted transmit the geographical orientation of the wall unit to the patient support apparatus.

37. The wall unit of claim 34 further comprising a memory in which is stored a geographical orientation of the wall unit, and wherein the controller is adapted to transmit the geographical orientation of the wall unit to the patient support apparatus.

38. The wall unit of claim 34 further comprising a shielding layer positioned between the first transceiver and the wall unit, the shielding layer adapted to attenuate the RF signals emitted from the first transceiver that travel toward the wall.

39. The wall unit of claim 38 wherein the shielding layer includes a mu metal.

40. The wall unit of claim 34 further comprising a nurse call interface adapted to electrically couple to a wall outlet mounted in the wall, the nurse call interface including a plurality of first pins adapted to electrically couple to a plurality of second pins defined in the wall outlet when the nurse call interface is coupled to the wall outlet; and wherein the controller is adapted to change an electrical state of first one of the plurality of first pins in response to a message received from the patient support apparatus.

41. The wall unit of claim 40 further comprising a Bluetooth transceiver adapted to communicate with the patient support apparatus using Bluetooth signals.

42. The wall unit of claim 41 wherein the controller is further adapted to receive audio signals via the Bluetooth transceiver from the patient support apparatus and to transfer the audio signals to a second one of the plurality of first pins.

43. The wall unit of claim 34 wherein the first transceiver is further adapted to concurrently wirelessly communicate with a second patient support apparatus, and wherein the controller is further adapted to use RF communications between the second patient support apparatus and the wall unit to determine a second distance between the patient support apparatus and the first transceiver.

44. The wall unit of claim 43 wherein the controller is further adapted to forward the second distance to the second patient support apparatus.

45. The wall unit of claim 34 further comprising:

a second transceiver adapted to wirelessly communicate with the patient support apparatus;

a memory containing data identifying a relative position of the first transceiver with respect to the second transceiver; and

wherein the controller is further adapted to use RF signals between the patient support apparatus and the second transceiver to determine a second distance between the patient support apparatus and the second transceiver.

46. The wall unit of claim 45 wherein the controller is further adapted to forward the second distance to the patient support apparatus.

47. The wall unit of claim 34 further comprising an infrared transceiver adapted to detect an infrared interrogation signal from the patient support apparatus, wherein the controller is further adapted to respond to the infrared interrogation signal by transmitting a unique identifier of the wall unit to the patient support apparatus using the infrared transceiver.

48. The wall unit of claim 34 wherein the controller is further adapted to use RF signals between the first transceiver and a tag attached to a mobile medical device to determine a second distance between the first transceiver and the tag, and wherein the controller is further adapted to forward the second distance to the patient support apparatus.

49. The wall unit of claim 34 wherein the controller is further adapted to use RF signals to determine a second distance between the first transceiver and a second transceiver positioned onboard a temperature management device adapted to control a temperature of a patient, wherein the temperature management device includes a control panel, a pump, and a heat exchanger, and the temperature management device is adapted to deliver temperature controlled fluid to a thermal pad positioned in contact with the patient.

50. A wall unit adapted to be mounted to a wall of a healthcare facility, the wall unit comprising:

a first transceiver adapted to wirelessly communicate with a patient support apparatus;

an orientation sensor adapted to determine a geographical orientation of the wall unit; and

a controller adapted transmit the geographical orientation of the wall unit to the patient support apparatus using the first transceiver.

51. The wall unit of claim 50 wherein the orientation sensor is a magnetometer.

52. The wall unit of claim 50 wherein the first transceiver is an ultra-wideband transceiver.

53. The wall unit of claim 50 wherein the controller is further adapted to use radio frequency (RF) communications between the patient support apparatus and the first transceiver to determine a distance between the patient support apparatus and the first transceiver.

54. The wall unit of claim 53 wherein the controller is further adapted to forward the distance to the patient support apparatus.

55. The wall unit of claim 54 further comprising a shielding layer positioned between the first transceiver and the wall unit, the shielding layer adapted to attenuate RF signals emitted from the first transceiver that travel toward the wall.

56. The wall unit of claim 55 wherein the shielding layer includes a mu metal.

57. The wall unit of claim 54 further comprising a nurse call interface adapted to electrically couple to a wall outlet mounted in the wall, the nurse call interface including a plurality of first pins adapted to electrically couple to a plurality of second pins defined in the wall outlet when the nurse call interface is coupled to the wall outlet; and wherein the controller is adapted to change an electrical state of first one of the plurality of first pins in response to a message received from the patient support apparatus.

58. The wall unit of claim 57 further comprising a Bluetooth transceiver adapted to communicate with the patient support apparatus using Bluetooth signals.

59. The wall unit of claim 58 wherein the controller is further adapted to receive audio signals via the Bluetooth transceiver from the patient support apparatus and to transfer the audio signals to a second one of the plurality of first pins.

60. The wall unit of claim 54 wherein the first transceiver is further adapted to concurrently wirelessly communicate with a second patient support apparatus, and wherein the controller is further

adapted to use RF communications between the second patient support apparatus and the wall unit to determine a second distance between the patient support apparatus and the first transceiver.

61. The wall unit of claim 60 wherein the controller is further adapted to forward the second distance to the second patient support apparatus.

62. The wall unit of claim 54 further comprising:

a second transceiver adapted to wirelessly communicate with the patient support apparatus;

a memory containing data identifying a relative position of the first transceiver with respect to the second transceiver; and

wherein the controller is further adapted to use RF signals between the patient support apparatus and the second transceiver to determine a second distance between the patient support apparatus and the second transceiver.

63. The wall unit of claim 62 wherein the controller is further adapted to forward the second distance to the patient support apparatus.

64. The wall unit of claim 50 further comprising an infrared transceiver adapted to detect an infrared interrogation signal from the patient support apparatus, wherein the controller is further adapted to respond to the infrared interrogation signal by transmitting a unique identifier of the wall unit to the patient support apparatus using the infrared transceiver.

65. The wall unit of claim 54 wherein the controller is further adapted to use RF signals between the first transceiver and a tag attached to a mobile medical device to determine a second distance between the first transceiver and the tag, and wherein the controller is further adapted to forward the second distance to the patient support apparatus.

66. The wall unit of claim 50 wherein the controller is further adapted to transmit the geographical orientation of the wall unit to a temperature management device adapted to control a temperature of a patient, wherein the temperature management device includes a control panel, a pump, and a heat exchanger, and the temperature management device is adapted to deliver temperature controlled fluid to a thermal pad positioned in contact with the patient.

67. The wall unit of claim 66 wherein the controller is further adapted to use radio frequency (RF) communications between the temperature management device and the first transceiver to determine a distance between the temperature management device and the first transceiver.