Claims

1. A needle guiding system comprising a marking device and a needle guide, wherein the marking device comprises:

a base;

an angle scale having angle markings indicating angle positions of an imaging probe with respect to a plane of the base, wherein the angle scale is adapted to be movable with respect to the base so that an axis passing through a middle of the imaging probe is aligned to the insertion site for different widths of the imaging probe; and

an angle indicator adapted to indicate a probe angle on the angle scale, wherein the angle indicator is configured to move in tandem with the imaging probe to identify an insertion angle for needle insertion when the imaging probe is aligned at the insertion angle at an insertion site;

wherein the needle guide comprises.

a guiding angle scale having guide angle markings corresponding to the angle markings of the marking device for indicating the angle positions of the imaging probe; and

an insertion slot for aligning a needle to the insertion site.

2. The system of claim 1, further comprising a probe interface adapted to operationally connect the imaging probe to the angle indicator.

3. The system of claim 2, wherein the probe interface is adapted to be detachable from the angle scale.

4. The system of claim 2 or claim 3, wherein the probe interface includes a probe holder configured to hold the imaging probe and comprises the angle indicator.

5. The system of any preceding claim, wherein the base further comprises width markings corresponding to respective positions of the movable angle scale for indicating a width of the imaging probe.

6. The system of any preceding claim, wherein the needle guide further comprises needle slots at each of the guide angle markings for aligning the needle to a corresponding angle position.

7. The system of any preceding claim, wherein the base comprises at least one protrusion at a bottom of the base for generating at least one mark on a skin of the patient to indicate a position of the base with respect to the skin of the patient when the imaging probe is aligned at the insertion angle at the insertion site.

8. The system of claim 7, wherein the needle guide further comprises at least one opening corresponding to the at least one protrusion of the base for aligning the needle guide to the insertion site using the at least one mark on the skin of the patient.

9. The system of any preceding claims, wherein the guiding angle scale is adapted to hinge at a needle guide base so that the guiding angle scale is collapsible to be in plane with the needle guide base.

10. The system of any preceding claims, wherein the guiding angle scale is adapted to be detachable from a needle guide base.

11. The system of any preceding claim, wherein the guiding angle scale is in the form of an arch and is adapted to allow the insertion site to be visible from both sides of the arch.

12. The system of any preceding claim, wherein the angle scale is adapted to face a user of the marking device.

13. The system of any preceding claim, wherein the angle positions are regularly spaced at an angular displacement of 5 degrees.

14. The system of any preceding claim, wherein the imaging device includes an ultrasound probe.

15. The system of any one of claims 2 to 4, wherein the probe interface is adapted to be customisable to fit imaging probes of various shapes and sizes.

16. The system of any preceding claim, wherein the angle indicator is adapted to be aligned along a longitudinal mid-plane of a face of the imaging probe.

17. A method of using a needle guiding system for guiding a needle for needle insertion of a patient, the needle guiding system comprising a marking device and a needle guide, wherein the marking device comprises a base, an angle scale having angle markings indicating angle positions of an imaging probe with respect to a plane of the base, wherein the angle scale is adapted to be movable with respect to the base so that an axis passing through a middle of the imaging probe is aligned to the insertion site for different widths of the imaging probe; and an angle indicator adapted to indicate a probe angle on the angle scale, wherein the angle indicator is configured to move in tandem with the imaging probe, and wherein the needle guide comprises a guiding angle scale having guide angle markings corresponding to the angle markings of the marking device for indicating the angle positions of the imaging probe and an insertion slot for aligning a needle to an insertion site, wherein the base of the marking device comprises at least one protrusion and the needle guide further comprises at least one opening corresponding to the at least one protrusion of the base, the method comprising:

aligning the imaging probe to the insertion site and at an insertion angle;

using the angle indicator of the marking device to record the insertion angle associated with the angle markings of the angle scale;

generating at least one mark on a skin of the patient using the at least one protrusion of the base of the marking device for marking the insertion site with respect to the base of the marking device;

replacing the marking device with the needle guide;

aligning the needle guide to the insertion site using the at least one opening of the needle guide and the at least one mark on the skin of the patient; and

placing the needle in the insertion slot of the needle guide and at a guide angle marking corresponding to the insertion angle to guide the needle for needle insertion of the patient.