Cleveland Clinic Innovations

PRODUCT
A device that cognitively disconnects a patient from their limb so they feel less pain during needle procedures.

INDICATION
Any type of needle procedure including phlebotomy, finger joint injections, and digital nerve block placements.

VALUE PROPOSITION
- A more effective method of dealing with fear of needles.
- Improved patient experience by reducing pain during needle stick procedures.
- Less anxiety surrounding medical visits.

DEVELOPMENT STAGE
IRB study underway

INTELLECTUAL PROPERTY
US 17/980,164
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Improving Needle Stick Experiences by Cognitively Disconnecting the Patient from Their Pain

Paul Marasco, PhD, et al.

UNMET NEED
Pain suffered during procedures involving needles can negatively influence a patient's healthcare experience, leading to distress, anxiety, and resistance to future medical visits. The impact on many facets of medical care including patient experience, clinical workflow interruption, and reduced patient encounters is significant because 25% of all adults fear needles. These phobias likely developed early in life because needle sticks are described by children and their parents as one of the most traumatic aspects of medical visits.

The efficacy of conventional needle pain management strategies, including topical anesthesia, tactile stimulation, and conversational distraction techniques, remains unsatisfactory. There is a need for a more effective method of mitigating fear and reducing pain caused by procedures involving needles to improve patient experience and optimize clinical efficiency.

SOLUTION
Cleveland Clinic inventors have developed a device that reduces needle pain by cognitively disconnecting people from their limb which is undergoing the procedure.

Our brains use the combination of vision and touch to establish "body ownership". Our device exploits this cognitive mechanism to cause the patient's brain to take ownership of a proxy hand instead of their real hand which significantly reduces the pain felt during needle procedures (right graph below).

The device works within seconds, improves patient experience, does not interrupt clinical workflow, improves clinical efficiency with phobic patients, and will likely prevent the development of adult phobias when used in pediatric populations.