Highlights

AEDV

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Washington

#AAD2019
Innovation in pediatric dermatology
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CONTENT...

- FIGHTING WITH PAIN AND ANXIETY
- INNOVATION IN DRUG DEVELOPMENT
- ´OMICs MEDICINE and...
- DEVICES and INSTRUMENTS
DIGITAL AND NON-DIGITAL DISTRACTION TECHNIQUES
NON-PHARMACOLOGIC TECHNIQUES

- Maintaining quiet and controlled atmosphere
- Preparing instrument trays out of view of the patient, and covering with sterile towels when placed at the bedside
- Considering family presence at the beginning of the procedure
- Smiling warmly. Keeping patient eye contact and sitting during explanations
- Talking with the patient!
- Avoiding terms that may evoke fear or anxiety (needles, burns, pain)
- Blowing soap bubbles
DEFINITIONS

**#VIRTUAL REALITY:** COMPUTER TECHNOLOGY THAT CREATES AN ARTIFICIAL 3-D SIMULATED ENVIRONMENT

VR completely immerses the patient in another world, a fully artificial digital environment.

Interacting with immersive VR might divert attention, leading to a slower response to incoming pain signals.

**#AUGMENTED REALITY:** INTERACTIVE EXPERIENCE OF A REAL-WORLD ENVIRONMENT

Objects that reside in the real-world are "augmented" by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory, and olfactory.

AR overlays virtual objects on the real-world environment.
An ingestible self-orienting system for oral delivery of macromolecules

Alex Abramson¹, Ester Caffaredi-Salvador², Minsoo Khang¹, David Dellal¹, David Silverstein¹, Yuan Gao¹, Morten Reesgaard Frederiksen², Andreas Vegge², Fredrikke Buhlck⁻³, Jurrit J. Water², Anders V. Frideidchouë², Johannes Febs¹, Rikke Kaas Kirk⁴, Cody Cleveland¹５, Joy Collins¹, Siddhartha Tamang¹, Alison Hayward¹, Tomás Landili³, Stephen T. Buckley³, Nickas Roxhed¹⁶, Ulrik Rahbek⁵, Robert Langer¹⁷, Giovanni Traverso¹⁸

Fig. 1. Mechanical API localization and injection for oral gastric delivery. (A) The SOMA localizes to the stomach lining, orients its injection mechanism toward the tissue wall, and injects a drug payload through the mucosa. The drug dissolves and the rest of the device passes out of the body. (B) A fabricated SOMA. (C) A comparison between the shape of the leopard tortoise (S. pardalis) and that of the SOMA. The SOMA quickly orients and remains stable in the stomach environment after reaching its preferred orientation. [Photo: M. M. Karm/ Wikimedia Commons, CC BY-SA 2.5] (D) The SOMA uses a compressed spring fixed in caramelized sucrose (brown) to provide a force for drug-loaded millipost (blue) insertion. After actuation, the spring remains encapsulated within the device.
SKIN TISSUE ENGINEERING: 3D BIOPRINTING

MAIN APPLICATIONS

- Disease skin models
  - Melanoma
  - Psoriasis
  - Herpes

- Drug testing
  - Therapeutics
  - Cosmetics

- Regeneration and basic research
  - Wound healing
  - New biomaterials
  - Skin transplantation

Groeber F. Clin plast Surg 2012
Yun YE. Journal of Pharmaceutical Investigation 2018
• QR-313 skip the mutation-containing exon
• Creates a shorter but functional protein

Topical QR-313 in Recessive Dystrophic Epidermolysis Bullosa (RDEB) Due to Mutation(s) in Exon 73 of the COL7A1 gene
Given that the scientific community has already mapped many genes that cause the genetic disease, CRISPR could be useful for numerous research and medical applications.
Tiny wearable UV sensors can help clinicians to optimize dosing during phototherapy

Stick-on wireless temperature monitors

WELCOME TO A WORLD OF SENSORS IN PEDIATRICS!
Glucose measuring systems that eliminate the need for finger sticks, through small sensors that are applied to the back of a user’s upper arm.

Continuous Glucose Measuring Smartwatches

Smart socks that track heart rate and oxygen levels while the baby sleeps.

Welcome to a world of sensors in pediatrics!