

## 5 Innovative Future Advances in Pediatrics for Indian Nurses

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### ABSTRACT

Paediatric nurse practitioners (PNPs) aim to deliver positive health outcomes for children while working in varying fields such as oncology, critical care, and wellness education. PNPs dedicate themselves to improving treatment outcomes for children and advancing the PNP profession. In these capacities, pediatric nurse practitioners play an integral role in promoting professional development for their discipline, educating children and families about important health interventions, and improving wellness among the child's population. These health professionals support wellness for children and their families in forums hosted by influential health leaders, politicians, and agency directors. PNPs might pursue these objectives by assuming community leadership roles, serving on advocacy committees, or acting as a liaison between families and health officials.

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### Introduction

Organizations such as the American Academy of Pediatrics (AAP) recommend showing policymakers how pediatric R&D will benefit adult constituents. Adult care provider facilities receive a disproportionate amount of attention and innovation compared to children's facilities due in part to the fact that there are nearly 6,000 adult hospitals in the United States compared to 200 pediatric hospitals. This also results in pediatric facilities receiving a mere 6-percent of medical resources versus the 94-percent disbursed to adult institutions. Unfortunately, this ratio serves to limit the

resources made available for pediatric research and development, which has encouraged a growing number of pediatric nurse practitioners to pursue research and development on their own. To continue promoting improvements in pediatrics, nurse practitioners are looking for new and creative ways to deliver services. With this in mind, the following 5 innovations are changing the shape of pediatric care in the United States which can be soon adopted by the Indian pediatric nurse practitioners.

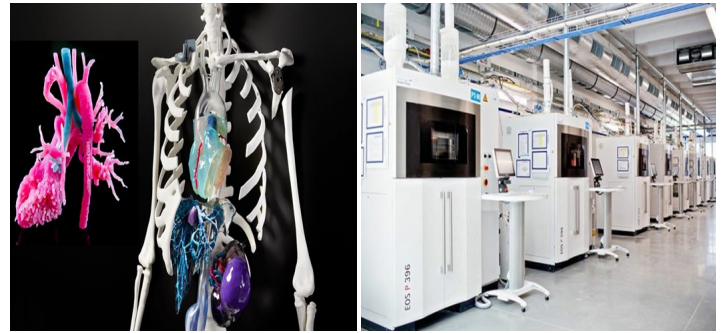
## Genomics

**Genomics** is the study of entire **genomes**, including the complete set of genes, their nucleotide sequence and organization, and their interactions within a species and with other species. The advances in **genomics** have been made possible by DNA sequencing technology. Genomics research is helping scientists find cures for conditions such as heart disease and cancer. To facilitate such outcomes, genetics experts are mapping the human genome so that other researchers can identify and cure illnesses. Over the next 25 years, gene sequencing experts such as Dr. Anthony Chang of the Children's Hospital of Orange County expect pediatrics to ride on the heels of discoveries that have so far been applied to adult patients. There are many pediatric patients afflicted with unidentifiable conditions. Duly, genomics will serve as a breakthrough in the field.



## 3D Printing

The U.S. Food and Drug Administration (FDA) has approved a 3D printing technology called Materialise for patients from 7-years old through adulthood to aid orthopedists in building models that will help them to plan complex surgeries. The 3D printed guides, in conjunction with 3D pre-operation planning, streamlines treatment development and boosts surgeon confidence.



Before Materialise, surgeons used x-rays and freehand sketches to prepare for Pediatrics operations. Today, Materialise aids surgeons in planning and executing intricate operations with increased accuracy and certainty.

## Infusionarium

Some paediatric care providers have renovated their facilities to encourage social activity among teenage patients. The Cook County Children's Medical Center infusion clinic houses play areas for children and teenagers where they can engage with other children and not feel alone during treatments. The outpatient infusion clinic features large open spaces, bright lighting, and seating clusters that encourage socialization. The facility also provides cameras for children who want to document their experiences.



## Extender-Based Medicine

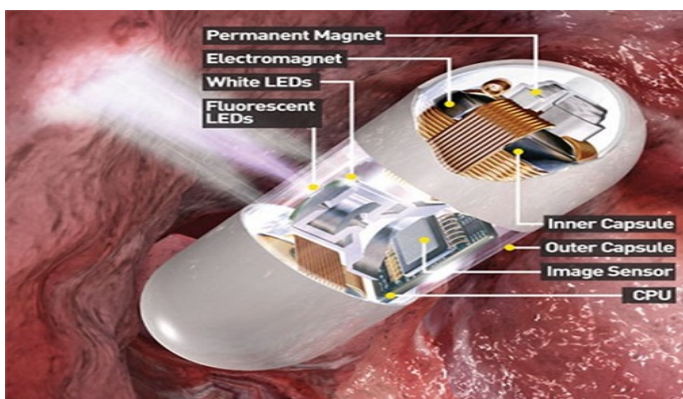
Health care extenders are non-physician medical professionals who treat patients. This might encompass dietitians, health care educators, nurse practitioners, medical assistants, and social workers.

These individuals play a vital role in the treatment of pediatric patients; they safely deliver advanced treatments under the guidance of a physician. Combined with telemedicine, these professionals can deliver services virtually anywhere. This development opens more opportunities for PNP's to practice to the full extent of their capabilities.

### Smart Pills

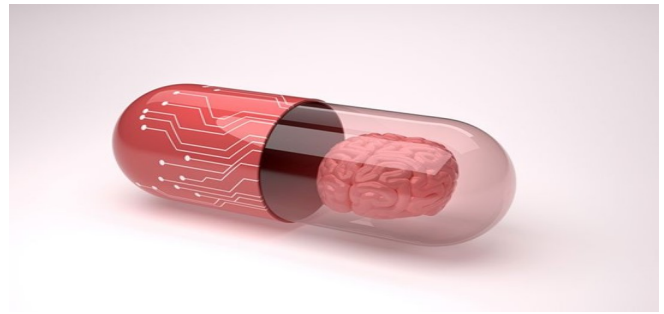
Smart pill technology involves a normal, prescription medication that's embedded with a minute sensor that sends a signal to a patch worn on the patient's body. The patch then forwards the information, for example, to the patient's computer, which sends the information a care provider, allowing them to monitor prescription compliance. Children's Health in Dallas, Texas is the first organization to utilize the technology for pediatrics. The technology also allows pediatricians to monitor patients' heart rates, sleep levels, and physical activity. Dr. Dev Desai, chief of transplantation at Children's Health, expresses that smart pills are exemplar of technology that improves patient care.

As innovations emerge in pediatrics, nurse educators



will incorporate developing technologies into curricula, and pediatric nurse practitioners will update their skill sets to provide the best treatments and services available. As these changes take place, educators, students, and practitioners must keep a close eye out for pediatric innovations so that they can grow along with the discipline.

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**Example: Capsule endoscopy** is a procedure used to record internal images of the gastrointestinal tract for use in medical diagnosis. Newer developments are also able to take biopsies and release medication at specific locations of the entire gastrointestinal tract. The capsule (aka pill cam) is similar in shape to a standard pharmaceutical capsule, although a little larger, and contains a tiny camera and an array of LEDs powered by a battery. After a patient swallows the capsule, it passes along the gastrointestinal tract taking a number of images per second which are transmitted wirelessly to an array of receivers connected to a portable recording device carried by the patient. The primary use of capsule endoscopy is to examine areas of the small intestine that cannot be seen by other types of endoscopy such as colonoscopy or esophagogastroduodenoscopy.



## Conclusion

This are the technologies which makes easy work for the Pediatrics nurse practitioners as well as for the children that they can be treated with the better advancement. Still it is not adopted in India as it is practiced in United state as if they are getting better results with such technology effect on child soon it will be get adopted in other countries.

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