

Bisphenol-a structural analogues may be less likely than BPA to disrupt heart rhythm

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Some chemical alternatives to plastic bisphenol-a (BPA), which is still commonly used in medical settings such as operating rooms and intensive care units, may be less disruptive to heart electrical function than BPA. Credit: Children's National Hospital

Some chemical alternatives to plastic bisphenol-a (BPA), which is still commonly used in medical settings such as operating rooms and intensive care units, may be less disruptive to heart electrical function than BPA, according to a pre-clinical study that explored how the structural analogues bisphenol-s (BPS) and bisphenol-f (BPF) interact with the chemical and electrical functions of heart cells.

The findings suggest that in terms of toxicity for heart function, these chemicals that are similar in structure to BPA may actually be safer for medically fragile heart cells, such as those in children with congenital heart disease. Previous research has found a high likelihood that BPA exposure may impact the heart's electrical conductivity and disrupt heart rhythm, and patients are often exposed to the plastic via clinical

equipment found in intensive care and in the operating room.

"There are still many questions that need to be answered about the safety and efficacy of using chemicals that look and act like BPA in [medical settings](#), especially in terms of their potential contribution to [endocrine disruption](#)," says Nikki Gillum Posnack, Ph.D., the poster's senior author and a principal investigator in the Sheikh Zayed Institute for Pediatric Surgical Innovation at Children's National Hospital. "What we can say is that, in this initial pre-[clinical investigation](#), it appears that these structural analogues have less of an impact on the electrical activity within the heart and therefore, may be less likely to contribute to dysrhythmias."

Future studies will seek to quantify the risk that these alternative chemicals pose in vulnerable populations, including pediatric cardiology and cardiac surgery patients. Since pediatric patients' hearts are still growing and developing, the interactions may be different than what was seen in this pilot study.

Provided by Children's National Hospital

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