

Stethoscope 'still useful' in detecting child heart problems

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Scientists say that stethoscopes remain valuable in detecting childhood heart ailments. Credit: Bruno, from Pixabay (<https://pixabay.com/photos/1584223/>)

A traditional stethoscope and physical examination is 95% accurate in detecting heart ailments in children and remains a valuable diagnostic tool in an era of increasing reliance on costlier echocardiography, a study suggests.

Published in *BMJ Paediatrics Open*, the study says that the high accuracy of [physical examination](#) in differentiating the normal [heart](#) from the abnormal means the use of echocardiograms and associated expenses could be reduced.

Echocardiography—which uses ultrasound technology to image the [beating heart](#)—is a standard tool that helps physicians visualize the size and shape of the heart, detect damage or abnormality to the valves and tissues and also determine the organ's capacity to pump blood.

In contrast, stethoscopes allow the doctor to hear sounds such as leaks, murmurs and irregular rhythms that indicate abnormalities in the heart, lungs and other organs. In existence for nearly 200 years, the stethoscope has come to symbolize the doctor's profession and learning to use one is compulsory in medical schools.

"Our paper compares the good old [clinical examination](#) of the child's heart against the gold standard of [echocardiography](#)," says Manu Raj, corresponding author and professor of pediatrics and consultant in public health research at Amrita Institute of Medical Sciences and Research Center in Kerala, India.

Raj describes the study—conducted at the pediatric cardiology clinic of a tertiary referral hospital in South India—as a "different way of looking at clinical skills in the current era of machine-based diagnosis."

"The evidence generated suggests that writing the obituary of the stethoscope is perhaps not justified as yet," he told SciDev.Net.

Groups of children, totaling 545, with five common cardiac conditions were physically examined by pediatric cardiology fellows and consultants. The accuracy of physical examination by fellows and consultants was determined by comparing the findings with those using

echocardiography.

Physical examination could differentiate normal hearts from abnormal ones with an accuracy of 95% for fellows and 96% for consultants. For all abnormal hearts, the results showed the consultants doing better than fellows on sensitivity, specificity and accuracy.

"The results of the study indicate that doctors are really good if trained well in physical examination of the little hearts for a cardiac diagnosis and also have the attitude to do it systematically," Manu Raj said.

Leading pediatricians were in general agreement with the findings of the study but emphasized the value of echocardiography in addition to physical examination of the child, including the use of a stethoscope to listen to sounds from the heart, lungs and intestines which may reveal abnormalities.

"While physical examination remains the most important screening check, anything suspicious should be checked with echocardiography," says Sujit Chowdhary, a pediatric surgeon at the Apollo Hospitals, New Delhi. "In my work, I use echocardiography to complete diagnosis to determine the risk profile, for making a detailed pre-operative evaluation and assessing post-operative outcomes—I consider that to be essential."

Dinesh Raj, pediatric consultant at the Holy Family Hospital, New Delhi, says: "It is true that clinical examination and diagnosis have taken a back seat because of the easy availability of confirmatory diagnostic tests. Given the huge patient burden, clinicians often resort to lab tests instead of relying on basic history and clinical examination on which the entire medical training is based.

"Diagnosis of heart diseases in children is one situation in which a good

history and clinical exam can lead to a correct diagnosis. The advent of echocardiography has certainly reduced reliance on clinical examination for childhood [heart ailments](#),"

He said one reason why doctors resort to echocardiography is the fear of litigation. "Doctors, these days, err on the side of over investigation, just for the sake of documentation so that they cannot be questioned later on if a heart lesion is missed," says Raj. "Patients also feel satisfied when a laboratory test is performed to confirm a suspicious heart issue."

He also questioned the usefulness of a study conducted in just one institution, noting the wide-ranging quality of medical training around the world. "The physical examination and echocardiography were conducted by fellows and consultants trained in pediatric cardiology rather than by pediatricians and family physicians who typically have limited skills in the field," he added.

The authors of the paper admit that additional studies are needed to test the skills of general pediatricians in cardiac examination and to assess the impact of targeted training in the field. But they add that the results of the study suggest there is value in acquiring physical examination skills to diagnose cardiovascular issues.

More information: Sujata S Alawani et al, Accuracy of physical examination of cardiovascular system in the diagnosis of common congenital heart diseases in children, *BMJ Paediatrics Open* (2022). [DOI: 10.1136/bmjpo-2022-001595](https://doi.org/10.1136/bmjpo-2022-001595)

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