



## News Release

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# **CSD Labs Cites Impressive Pilot Study Results Using eMurmur, World's Most Accurate Heart Murmur Detector**

## **Study of Computer-Aided Auscultation (CAA) Differentiation of 'Innocent' Versus 'Pathologic' Pediatric Heart Murmurs**

### **Published in [\*Congenital Heart Disease\*](#)**

GRAZ, Austria, Nov. 14, 2016—**Computational Signal Detection (CSD) Laboratories LLC** cited today the publication of data in support of the clinical utility of its **eMurmur** computer-aided auscultation (CAA) platform for early and ongoing heart-health screening of children, up to 90% of whom will have a heart murmur at some point during their infancy or childhood. However, the majority of these heart murmurs detected in children will be clinically insignificant.

In this pilot study of 106 children at Children's Hospital of Eastern Ontario, **eMurmur** differentiated pathologic from innocent heart murmurs with high sensitivity (87%) and specificity (100%), a positive predictive value of 100%, a negative predictive value of 90%, and high accuracy (94%) when compared with echocardiography as the gold standard for diagnosing murmurs. (CSD Labs has also clinically validated eMurmur as a tool for early and ongoing heart-health screening of teens, adults, and elderly persons.) Click [here](#) for video interview with eMurmur pilot study principal investigator Lillian Lai, M.D., pediatric cardiologist, Children's Hospital of Eastern Ontario.

"We are providing a technology that elevates the current 200-year-old method of auscultation to a new, much-improved standard," said **Andreas Schriebl, Ph.D.**, CEO and Founder of CSD Labs. "eMurmur is rapid, objective, accurate and fully standardized in its ability to identify and classify heart murmurs. There is a dire clinical need for our eMurmur platform because the *status quo* of auscultation is prone to error and uncertainty, leading to stress for patients and medical professionals and waste in the system."

eMurmur is a software platform for the objective detection of heart murmurs that analyzes and classifies heart sounds acquired via an electronic stethoscope. The eMurmur platform is comprised of an app that runs on a mobile device and is powered by SADIE, a Machine Intelligence Signal Analysis/Diagnosis Engine. Via Bluetooth® or audio cable, the app pairs with any commercially available electronic stethoscope or other appropriate recording device, and receives and sends the acquired heart sounds to the HIPAA-compliant server for analysis. After a few seconds, the results are displayed to the health care professional on his/her mobile device where he/she can review, compare, consult, or add his/her own findings in an efficient and standardized way.

"This novel way of **standardized** documentation of auscultation findings can be utilized by medical professionals performing auscultation in their daily routine right at their patient's side," added Dr. Schriebl. "Moreover, eMurmur's web portal offers medical professionals the capacity to retrieve a PDF report containing all of the above results, and enables integration into electronic patient files and hospital information systems. Other unique benefits include e-consultation via the eMurmur web portal (i.e., remote case reviewing by medical experts); and heart sound-monitoring by comparing current with previous auscultation data, including recordings and all findings."

(more)

There is a significant unmet clinical need to **standardize** auscultation. Heart *auscultation* (Latin verb *auscultare* meaning “to listen”) with a stethoscope is the 200-year-old “standard” examination method worldwide for the screening of heart defects in patients of all ages for the purpose of identifying abnormal heart sounds (“murmurs”). *Auscultation* is often referred to as an art, since a correct diagnosis can be challenging for various reasons and is exclusively dependent on the medical professional’s qualifications. The “technology” has not changed since the stethoscope was invented in France in 1816. “Unfortunately, accurate interpretation of heart sounds by primary care providers is fraught with error, leading to missed diagnosis of disease and/or excessive costs associated with evaluation of normal variants. Thus, automated heart sound analysis, also known as computer-assisted auscultation (CAA), has the potential to become a cost-effective screening and diagnostic tool...” (Source: Aetna Inc., 2013 Clinical Policy Bulletin, “Acoustic Heart Sound Recording and Computer Analysis.”)

CSD Labs (Computational Signal Detection Laboratories) is a privately held medical technology company specializing in Machine Intelligence approaches for the analysis and classification of complex human data for innovative medical applications. CSD Labs offers clinically validated eMurmur for automating detection of heart defects by assisting physicians in performing auscultation.

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