

Category

Best Startup

Product/Solution Name

NeoPrediX

Date of Approval

2021-11-26

Indications

Neonatal Jaundice, Hyperbilirubinemia

Therapeutic Categories

Clinical decision support platform with predictive analytics

Attached Files:

- FB20016_Whitepaper Prospective NeoPrediX Study 2022.pdf

Background information and need for solution/product

NeoPrediX was founded by Sven Wellman, a neonatologist and the Medical Director of the Department of Neonatology and Perinatology Center in Regensburg, Germany, and Marc Pfister, Professor of pharmacometrics and pharmacology at the University of Basel in Switzerland. Driven by a shared vision to improve patient outcomes in the maternal, neonatal, and perinatal care space, our founders bring keen insight, derived from their personal experiences and recognition of unmet needs in patient care, which led them to identify a distinct gap in the healthcare landscape. Drawing upon their firsthand encounters, they developed a solution that effectively addressed and closed a particular gap in care.

Due to the current state of healthcare in the United States which includes rushed discharge practices and significant resource limitations, newborn babies are being sent home prematurely putting them at risk for complications due to hyperbilirubinemia, more commonly known as neonatal jaundice. The responsibility for picking up this dangerous condition is placed on parents, and with vague symptoms like yellowing of the skin and eyes and lethargy, this is often missed at home. Furthermore, outpatient facilities like pediatrician offices lack the expensive equipment and lab services to identify the condition within acceptable timeframes. Untreated hyperbilirubinemia, even just briefly, can lead to poor health outcomes like hearing loss and a devastating condition called kernicterus, which causes permanent brain damage. If the condition is picked up post discharge, babies are then readmitted to the hospital placing further strain on resources and impacting the emotional well-being of families during this delicate time.

NeoPrediX B.I, is a novel, proprietary algorithm used to predict the risk of jaundice up to 60 hours in advance, giving providers a peak into the future which historically, was an impossibility. Through the forecasting of dynamic bilirubin progression, we offer predictive data points outside of the current standard, supporting more informed real-time care decisions. Current methods lack forecasting

abilities which leaves clinicians to perform guesswork based off personal experience and gut instincts. Clinical trials and active user feedback show that the B.1 predictive model is essential in executing patient specific pre and post discharge jaundice care plans. Determining appropriate length of stay, pinpointing follow up timelines, minimizing unnecessary treatment and testing, reducing the strain on resources and most importantly, improved patient outcomes are key areas which can be positively impacted with the implementation of our clinical decision support tool.

Attached Files:

- FB20014_NeoPrediX B1 Brochure _disclaimer 2.pdf

History of the development of the solution/product

NeoPrediX is a spin-off from the University of Basel in Switzerland, emerging from the department of pharmacometrics, where a team of scientists leveraged their experience and knowledge gained from the pharmaceutical industry to pioneer the accurate forecasting of dynamic disease parameters. Their initial breakthrough came with the development of an algorithm for predicting the dynamic weight progression of newborns. Building upon this success, they ventured into more clinically challenging parameters and formulated a foundational model for predicting bilirubin progression. To bring their innovative solutions to a broader market, NeoPrediX and its subsidiary, NeoPrediX USA, Inc., were established with the primary goal of developing and launching the first commercial product. In late 2022, this groundbreaking tool for neonatal clinical decision support was introduced to the US market as the initial component of a comprehensive platform.

Attached Files:

- FB20015_Whitepaper_Practice of Bilirubin Managment.pdf

Why this solution/product is innovative, the broad implications for future research, and/or how it will improve the human condition

The NeoPrediX B.1 bilirubin prediction algorithm represents a significant advancement in how precision medicine is being delivered in neonatal care by enabling clinicians to forecast the dynamic progression of bilirubin levels for up to 60 hours following the last bilirubin measurement. This critical capability empowers healthcare professionals to identify newborns who, at the time of discharge, are likely to require phototherapy within the next 60 hours to treat neonatal jaundice. By avoiding unnecessary readmissions, this predictive tool not only mitigates the negative impact on parental bonding and lactation but also eliminates the risk of missing cases that could lead to long-term conditions like permanent hearing loss and kernicterus—a condition considered a "never event," making hospitals and clinicians liable. The software can also help to identify which patients are appropriate for phototherapy at home, reducing the daily cost of care from \$2000 to \$200 a day.

This first proof of concept demonstrates the ability to accurately predict disease progression in newborns and other patient populations, simply by leveraging data in the electronic medical record that is already required. Looking ahead, the success of the pharmacometrics algorithm approach serves as the foundation for developing additional predictive algorithms, such as pre-eclampsia prediction and addressing other challenges encountered during the first 1,000 days of life—from conception through the second birthday. Pregnant women and newborns represent one of the most underserved patient populations, not just in the United States but globally. Aligned with the sustainable development goals of the World Health Organization, NeoPrediX envisions reducing newborn morbidity and mortality while ensuring that every newborn receives the best possible start in

life. The overarching goal that is behind everything NeoPrediX creates is to identify those patients today who will be critical tomorrow.

Please provide appropriate references (ie Pubmed links)

<https://www.frontiersin.org/articles/10.3389/fphar.2022.842548/full>