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**DR MARTIN STOCKER**

*Head of Children's Hospital and Chief Physician  
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Newborns from all over central Switzerland and from other hospitals are transferred to the perinatal center at LUKS for medical care.

Annually, approximately 100 neonates are born below 32 weeks of gestational age at the Luzerner Kantonspital.

Neo100 is used after delivery within the first minutes after birth, mostly in the preterm population, to potentially avoid overinflation of the fragile lungs.



## MARTIN STOCKER

*Head of Children's Hospital and Chief Physician for Neonatology and Pediatric Intensive Care Medicine at Luzerner Kantonsspital (LUKS).*

Dr Martin Stocker is Head of Children's Hospital and Chief Physician for Neonatal and Pediatric Intensive Care Medicine at Luzerner Kantonsspital (Lucerne Cantonal Hospital).

As one of nine level 3 NICUs in Switzerland, the LUKS perinatal center provides intensive medical treatment for premature babies and newborns and the care of expectant mothers during high-risk pregnancies and births.

### Clinical Set-up - For Flexibility

Approximately 8000 babies are born each year in the Luzern region. Of these 8000, about 2000 are born at the LUKS and the rest are born in regional hospitals and clinics. Annually, approximately 100 babies are born below 32 weeks of gestational age at the Luzerner Kantonsspital where experienced specialists can offer optimal care for extremely premature babies as early as around the 24th week of pregnancy.

During the summer of 2022, the hospital invested in two Neo100 systems to be used in the delivery room (DR) where there are 4 resuscitation tables for newborns each equipped with mounting bracket to enable the Neo100 to be easily moved and secured wherever the system is needed.

In addition, Neo100 is also used when intubation is required before placing the newborn on ventilator, i.e., while manually ventilating the baby with a T-piece and ensuring the ET tube is in place.

*"My intention and hope was to improve the documentation and understanding of what we are doing in this first minute of life. That was one of the reasons for investing in Neo100."*

### "Black Box" of Delivery Room Management

Dr Stocker explains that the reason why they chose to use it in the delivery room and not in the NICU, is that the delivery room setting is the biggest "black box" regarding documentation and knowledge of what we are doing.

In the delivery room we start bagging the baby, oxygenate and ventilate, but we don't have the same technical equipment as in the NICU. In the NICU, respiratory function monitoring via mechanical ventilators is commonly used as a feedback tool. However, in the delivery room it is not routinely used. We don't really know if we are successful or not with our

attempts, says Dr Stocker.

"My intention and hope was to improve the documentation and understanding of what we are doing in these first minutes of life. That was one of the reasons for investing in Neo100. The other reason was knowing about the studies with preterm infants and risks associated with giving high or too high tidal volume and the increased rate of intraventricular hemorrhage (IVH).

I wanted to have something to tell people: "Oh, be careful now – we are giving too much tidal volumes to this baby". That was the background to why I was so interested in Monivent Neo100 and why we are using it here in Luzerner Kantonsspital", Dr Stocker explains.

*"Currently, there is no other easy alternative to measure tidal volumes and Monivent Neo100 really fills a gap in the treatment of newborns"*

### Neo100 - A Standard of Care in the Delivery Room

"My goal is to implement Neo100 as the standard of care for premature deliveries at Luzerner Kantonsspital. That is really my aim with the system. Neo100 is used in the delivery room to prevent overinflation of the lungs when ventilating newborns, and especially in premature babies, which is our most vulnerable patient group. Currently, there is no other easy alternative to measure tidal volumes and Monivent Neo100 really fills a gap in the treatment of newborns", Dr Stocker continues.



As of today, approximately 15 consultants have been trained and they are using the system for preterm and early preterm deliveries. Dr Stocker is planning to introduce the Neo100 for the junior doctors at LUKS as a next step because he considers the system to be important for inexperienced users, i.e., the numbers on the Neo100 monitor provides useful guidance and feedback on ventilation parameters and leakage during ventilation.

## Overcoming the Challenges of Change

Introducing new technology or equipment in a clinical setting can sometimes be challenging - that is the nature of change. Initially, there were some concerns related to trusting volumes because we have been used to pressures and not volumes.

For the the last 10 years or longer, we have been focusing on the manometer to see the pressures we are giving. Overcoming that change needed some time but now the system is used.

Overall, I am really happy with the system and from what I have heard from colleagues they appreciate to use Neo100 because of the additional information it provides during resuscitation, Dr Stocker continues.

*“One of the best things with Neo100 is that it is so easy to use. You also have the guiding LED light on the Sensor Module and corresponding color on the cylinder to indicate how you are performing. I really appreciate it. That’s brilliant.”*

## With Feedback - Adjusting Your Actions

I think that what we are doing without feedback, is probably overinflating the lungs. Neo100 helps us to adjust our actions. Sometimes it is surprising to see how low pressures you actually need to achieve target volumes. Usually what follows reading the numbers or values on Neo100 is to adapt your action. Most often this is reducing the pressure. Hopefully with that we can prevent lung damage and perhaps prevent intraventricular bleeding.

## Key Benefits of Neo100

Dr Stocker considers the ease of use to be one of the key benefits of the Neo100. It provides an easy way to know how much tidal volume is applied to a preterm baby. This is the most important thing. In addition the guiding LED light on the Sensor Module, which provides feedback and corresponding color displayed on the monitor, is helpful to indicate how you are performing.

First, I was a bit worried that we would only look at the monitor and not on the baby, but with the guiding light on the Sensor Module and the cylinder it is showing us how we are doing.

As a caregiver you can focus on the chest rise of the baby, see if the ventilation is within volume target range, get indication on how much mask leakage is occurring and what the ventilation rate is, Dr Stocker concludes.

## About Luzerner Kantonsspital (LUKS)

As a central hospital, the Luzerner Kantonsspital ensures comprehensive medical care for the population of Central Switzerland. Neonatology department care for premature babies who are born before the 37th week of pregnancy, as well as term babies who need medical support after birth.

The neonatology department is part of the perinatal center of the children’s hospital and women’s hospital. It is located in the women’s clinic and in the immediate vicinity of the ward.

As a 3rd level NICU for central Switzerland it caters for approximately 8000 births per year in the region. Out of these 8000, about 2000 are in-born and rest out-born from regional hospitals and clinics.



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