Long-term morbidities are common after neonatal lung failure and especially after ECMO therapy. Follow-up of these seriously ill neonates is an indispensable quality criterion for an ECMO centre, and beyond that follow-up data are important for counselling parents.

In order to analyze developmental abnormalities in this patient group, the gold standard is a detailed examination by standardized tests at a defined time point. Such developmental diagnostics are time-consuming. More significantly, ECMO centres often cover a large service area and follow-up is difficult due to long travel distances for parents.

One possible initial screening method that detects children at risk for developmental problems is the use of questionnaires.

In 2013 Nennstiel-Ratzel et al. developed and validated German parental questionnaires to screen for developmental problems in children previously identified and treated for congenital metabolic and endocrine disorders.

In our study, we evaluated the applicability of these questionnaires sent out to parents of neonates with severe lung failure at birth to perform a follow-up examination and developmental screening for long-term morbidities. In addition, medical reports and telephone interviews were analyzed using a systematic, partly computer-assisted approach.

Questionnaires were sent out to 28 families of 31 surviving children. Of those, 23 were returned (82 % response). Four children had conspicuous questionnaire results, i.e. they were below the 90th percentile of the age-related values and thus had a risk of developmental delay. Of these, three children were 2 years old and did not need ECMO at birth due to respiratory failure. Another child (6 years) who was on ECMO after birth had abnormal findings on the questionnaire.

These follow-up questionnaires were used for the first time in our study to detect abnormal development in children with severe neonatal lung failure.

Especially as a screening instrument, questionnaires are an effective and meaningful method from an economic perspective. The brevity of the questionnaire and easy-to-understand questions resulted in high acceptance.

This pilot trial shows that application of structured questionnaires seems feasible and should be further evaluated in a large cohort, controlled by established developmental tests.