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Newborns with hearing loss diagnosed too late in South Africa, say experts



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Despite the proven benefits of newborn hearing screening and early intervention, universal screening is not yet mandated in South Africa and is only available at a few public hospitals. This means thousands of babies are born every year with hearing loss – but most are often diagnosed only after the crucial early years for learning language, writes Hannah Abrahams for **Spotlight**.

Hearing loss is the most common sensory impairment in children and researchers estimate

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rehabilitation outcomes and that delays have a negative impact on language development and communication.

This is why detecting hearing loss in children as early as possible is key to them developing on par with their peers who have typical hearing.

"We actually start hearing before we are born," says Sarah Lange, Head of Audiology at the **Carel du Toit Centre** in Cape Town. "We have been hearing for a couple of months by the time we are born."

The Carel du Toit Centre is a specialised foundation phase learning institution on the grounds of **Tygerberg Hospital** where children with hearing impairments are taught spoken language.

Lange says our brain is wired to build neural pathways. In simple terms, these are the routes through which information travels so the brain can process information and control actions. The brain builds these neural pathways for communication easily up until about the age of three.

With intervention and hard work, Lange adds that the brain can build these pathways up until about the age of five or six. "A very young brain has very high plasticity, meaning it can learn, change and build neural connections easily... the older the brain gets, the harder it is to do."

If a child is only seeing things for the first three years of their life, and never hears anything, their brain is going to learn best through their visual cortex, Lange says. If intervention does not happen soon enough, the visual cortex takes over the auditory cortex in the brain – meaning if one sense is not being used or stimulated, it can be lost to other senses.

Early intervention is thus key to helping these children develop communication skills so they can connect with their families and peers. This is especially important because the **vast majority** of hearing-impaired children are born to parents who can hear.

Back in 2016, the Carel du Toit Centre partnered with Tygerberg Hospital to start screening all babies at high risk for hearing loss. Factors like maternal infection, low birth weight, prematurity, jaundice and newborns who spent time in intensive care, all indicate high risk.

In 2025, the screening programme was expanded to include all newborns (not just those at high risk), making Tygerberg one of the few public hospitals in the country that screens all babies as part of routine care.

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There are two common screening tests. The first is called Otoacoustic emissions (OAE) screening. Dr Jessica McGuire, an ENT specialist in Cape Town, explains that OAE screening is a non-invasive and painless test that involves placing a probe in the baby's ear.

"You put the probe in the ear, it sends a sound, the cochlea hears the sound, processes the sound, it causes an echo, and then the machine has a microphone that then picks up the distorted sound," says McGuire who runs the universal newborn hearing screening programme at **Mowbray Maternity Hospital** through her non-profit **HEAR-Hope**.

The OAE test does not measure the entire hearing pathway.

"You've got an outer ear, middle ear and an inner ear, and then you've got your brain and the pathway to the brain... You need the whole system to work for you to be able to hear," she says.

In medically high-risk babies, the problem often has to do with their nerves and the pathway to the brain.

"So (for these babies) the cochlea works fine, but after the cochlea, the sound isn't getting transmitted to the brain through the nerves," she adds. These newborns need a different type of test – an Automated Auditory Brainstem Response (AABR) test.

"We place a headphone and electrode on the child's ear and forehead," Lange says. "The headphone plays the sound into the ear and the electrodes measure the response of hearing from the brain... that will then tell us if the ear is hearing sound within normal limits."

The AABR is the only screening test used for newborns at Tygerberg Hospital, because it produces fewer false positives than the OAE test.

Currently, they have four machines for screening at Tygerberg Hospital, Lange says. By the end of December 2025, the programme had screened 31 500 babies since its inception.

As for Mowbray Maternity Hospital, McGuire says that between 9 000 and 10 000 babies are born there annually, and they have a 90% coverage rate with their newborn screening programme, and four screening technicians who conduct the screening tests.

Gold standard of newborn hearing screening

The **Joint Committee on Infant Hearing** (an American organisation of experts on audiology, paediatrics and speech-language pathology) has developed **international**

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The committee's guidelines suggest that newborn hearing screening should be based on the "1-3-6" principle. This means all infants should be screened within the first month of their life, hearing loss diagnosed by three months of age, and rehabilitation should begin ideally no later than at six months of age.

"You've got to diagnose the hearing loss within three months and if you intervene from a language perspective, by six months, those children have language, emotional and social development on par with their peers," says McGuire. "But if they don't, the children often have behavioural problems and social development is severely compromised because language is related to reading other people, which is so important."

In South Africa, the **Health Professionals Council of South Africa** (HPCSA) issued a position statement on early hearing detection and intervention in 2007, and published **guidelines in 2018**. These guidelines adapt the international 1-3-6 principle for the South African context, taking into consideration the high burden on the public healthcare system.

According to the HPCSA guidelines, babies should be screened by six weeks, diagnosed with hearing loss by four months and intervention should begin by eight months of age.

Ideally, all children must be screened before discharge at the hospital of their birth, as it is the ideal setting to ensure compliance. However, this isn't always possible since some babies who need special care might be transferred to other hospitals.

Despite these guidelines, hearing loss is often still diagnosed very late in South Africa. A study reporting on the **the age of identification** of hearing loss present at birth found that on average children were diagnosed with hearing loss at about 30 months.

Implementation challenges

There are various challenges to the successful implementation of universal newborn hearing screening in South Africa. Studies have shown that there is limited and often uneven distribution of resources.

First, there is the issue of expensive equipment. The machines used to conduct screening costs between R100 000 and R250 000, says McGuire.

A second obstacle has been the high loss to follow-up rate. McGuire says that while their programme screens about 90% of babies born at Mowbray Maternity Hospital and only 0.7% are referred for further diagnostic testing, their loss to follow-up is very high.

This means that parents are not following up after their baby has been referred for

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"And we think that's a major barrier to them following up because it might be the difference between having food that night or not."

Another part of the problem, in Lange's view, is that the referral pathway isn't working as well as it might.

She says that babies are often born in hospitals far away from the areas where they live and they might live in places where diagnostic testing is not available.

Lange says that screening babies and telling parents there may be a problem means little if there is no way to follow up. She adds that once hearing loss has been diagnosed and hearing technology provided, rehabilitation services are vital.

"Technology alone is not a solution," she notes. "These children will need rehabilitation and therapeutic services... Can you provide the rehab services that are required to get a deaf child to learn to listen and speak or communicate via sign language? Do you have enough sign language schools, proficient sign language users or therapists to assist that family? There's a knock-on effect throughout."

Ultimately, Lange says that addressing the challenges to universal hearing screening in South Africa must begin with greater awareness among patients, their families and healthcare professionals about the importance of early hearing detection and intervention.

New guidelines being developed

For its part, the **National Department of Health** says it recognises the importance of early identification of hearing impairment as part of comprehensive maternal, neonatal and child health services. "Early detection is critical to support language development, learning and long-term developmental outcomes," departmental spokesperson Foster Mohale tells Spotlight.

He says universal newborn hearing screening, defined as screening of all newborns before discharge, is available in some facilities, and coverage varies depending on available resources, equipment and trained personnel.

"In line with WHO guidance, countries are encouraged to progressively expand coverage based on capacity," he adds, "and the department is therefore working towards strengthening early hearing detection services."

The department is in the process of finalising national Early Hearing Screening Guidelines in collaboration with partners. "These guidelines will contribute to the development of a

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