embrace®
aspectimaging

# embrace®

## Neonatal MRI System

Transforming Neonatal Neuro Imaging
*Inside* the NICU

# Parent peace of mind

Moving a baby out of the environmentally sensitive NICU is stressful for parents. With the Embrace®:

- Babies remain in the safe and familiar NICU environment
- Parents can stay with baby during the scan
- Video display system allows continuous visual contact throughout scan
- No more worrying about associated risks of off-unit scanning


FDA 510(k) CE 2797

# Minimizing the risk and complexity of neonatal neuro imaging

When it comes to NICU babies, the only time they should be moved outside of the NICU is when they are discharged from the hospital. Moving vulnerable babies to off-unit radiology departments can increase infection risk exposure and patient safety issues associated with transport. Now more than ever, the need to keep babies safe inside the NICU until discharge is a necessity and should no longer be required to access MR imaging.

Prepping and transporting a baby for an MRI scan is time consuming, depletes staff resources and creates added stress for the baby, the parents, and the care team. Placing the Embrace®, a dedicated MRI system exclusively designed for neonatal neuro imaging inside the NICU, is a safer and more efficient solution that eliminates numerous risks associated with off-unit transport.

## Keeping NICU babies in their comfort zone

Designed for the critical needs of high-risk neonates, the Embrace® is equipped with unique features not found on adult MRI scanners:

- Thermally controlled patient bed with closed-loop air circulation system to maintain baby's temperature
- Quieter noise levels compared to traditional scanners
- Tubing management system accommodates IV lines, respiratory circuits and monitoring leads

## Keeping clinical teams in their comfort zone

The NICU is a highly customized environment designed, equipped and staffed for the special needs of critically ill babies. Moving MRI into the NICU helps to:

- Eliminate staff coverage requirements for off-unit transport
- Quick access to medication and additional resources when you need them
- Keep specialty support teams, such as respiratory therapy in the NICU to avoid understaffing issues

# A perfect fit

Compared to traditional MRIs, the Embrace® has a smaller footprint designed to fit inside the NICU. Additional features include:

- Unique self-shielded magnet can be placed near NICU equipment and does not require a zone 4 safety room
- Does not require a backup electric supply
- Non-cryogen technology does not require a cooling system



# It's quiet

Managing noise levels can be challenging in the NICU environment. The Embrace® with Whisper Scan technology reduces sound levels in both the MRI suite and within the system during the neuro scan.

- 67 dB average ambient sound levels in the MRI suite are more than 37% lower than conventional MRI scanners
- 85 dB patient exposure sound levels from the Embrace® are more than 32% lower than conventional MRI scanners


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## Embrace® some industry firsts

- The world's first FDA-approved, CE marked compact MRI system built for use inside the NICU
- Offers convenient scanning for HIE patients as they're being cooled

## A gentle design for your tiniest patients

The innovative Embrace® design delivers:

- Ready-to-scan technology at the point of care
- Whisper Scan sequences that reduce noise levels
- Minimized patient movement and disruption of care
- Thermally controlled patient bed

## Minimize scheduling roadblocks

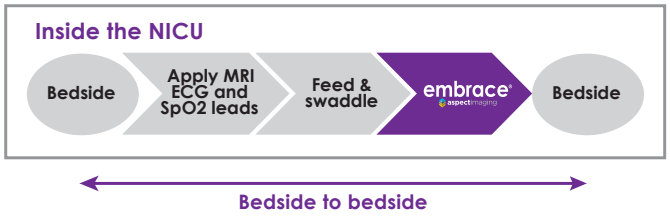
Timing is critical when scheduling an MRI scan for a sick baby. With Embrace® you can:

- Schedule scans within minutes of an order
- Minimize disruption to the adult radiology schedule
- Scan when the baby is stable
- Improve radiology department throughput and productivity

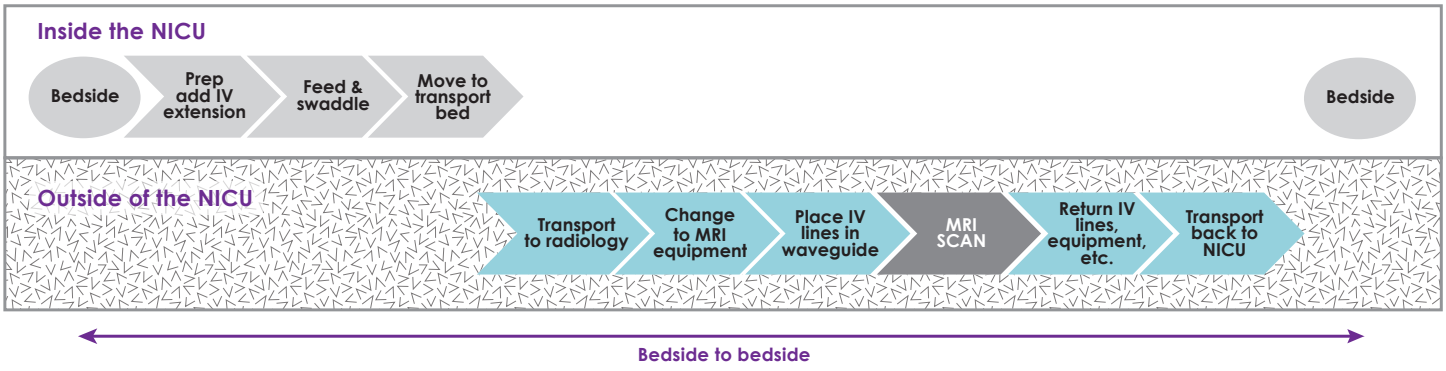
# Save time and simplify your workflow

On average, it can take several hours to prep, transport, scan and return a baby to the NICU. MRI scanning inside the NICU accelerates workflows up to seven times faster* compared to off-unit scanning.

**In-unit MRI keeps the workflow *inside* the NICU.**




**Off-unit MRI extends the clinical workflow and requires moving the baby out of the NICU.**




## Removing workflow inefficiencies results in bedside to bedside scans in under an hour.

*Bin-Nun, A (2019, Feb). Global Brain Injury scores in Preterm Infants: Validation of a novel 1T Neonatal MRI vs Conventional 1.5T MRI. Podium Presentation at the 10th Annual Neonatal Brain Monitoring & Neuroprotection Conference, Tampa, FL.

# Embrace®: A Patient-Centric Approach

## Magnet:

- Fixed permanent magnet
- Field strength 1.0T
- Weight: 5,500 kg
- Patient accessible bore size 184 mm W x 260 mm H
- Iron-based magnetic shielding
- Passive and active shimming
- 0 external magnetic field
- 5 Gauss Line confined within system cover
- H: 71 in (181 cm)
- W: 57 in (145 cm)
- L: 67 in (171 cm)

## Gradient System:

- 150m T/m peak gradient strength
- Slew rate 500 T/m/Sec
- Fastest rise time 0.3 mSec

## Pulse Sequences:

- 2D SE: T1
- 2D FSE: T2
- 2D ADC Map SPLICE (Diffusion)
- 2D ADC Map SE (Diffusion)
- 2D IRsnap (T1 map)
- 2D/3D GRE (T1)
- 3D GRE SWI
- 3D MPRAGE (T1)

## Imaging:

- Field of view is an ellipsoid –120 mm (horizontal) x 130 mm (vertical) x 130 mm (depth)
- Minimum achievable slice thickness 2D: 1.5 mm
- In-plane sampling resolution 2D, 3D: 16-512 px
- Minimal imaging voxel size 0.3 x 0.3 x 0.3 $mm^3$

## Connectivity:

- PACS/HIS/RIS connectivity with DICOM compatibility
- MR workstation supports Modality Work List and multiple PACS systems

## RF Head Coil:

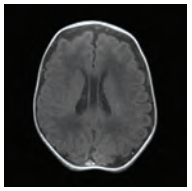
- Maximum head circumference: 38 cm
- Transmit-receive head coil with integrated connector designed specifically for infants
- Solenoid design for optimal signal-to-noise with the magnet's horizontal static magnetic field
- RF coil inner diameter is 143 mm

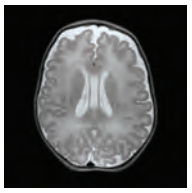
## Patient Specifications:

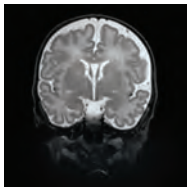
- Accommodates babies weighing 1 to 4.5 kg
- Maximum head circumference: 38 cm
- Designed for both intubated and non-intubated patients

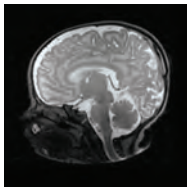
## Acoustic Noise:

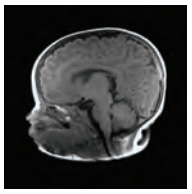
- Patient acoustic output (in magnet): Average 85 dB(A), peak 87 dB(A)
- System acoustic output (in room): Average 69 dB(A), peak 71 dB(A)

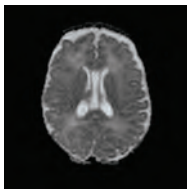

AX T1 SE

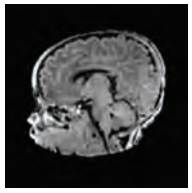

AX T2 FSE


COR T2 FSE


SAG T2 FSE


SAG T1 SE


ADC Map


3D GRE

## Become a part of the transformation.

Discover more at **embracemri.com**

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Embrace® is a registered trademark of Aspect Imaging, Ltd. Aspect Imaging is a global leader in the design and development of compact, high-quality MR imaging solutions, designed for use in pre-clinical research and medical applications.

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