

Donor organs to get longer lease of life in freezer

By Sarah Knapton

HUMAN organs can now be stored for three times as long, scientists have shown, in a major breakthrough offering hope for thousands of people awaiting transplants in Britain.

Currently, livers for transplant can only be kept outside of the body for nine hours before irreparable damage is done, and the organ must be discarded.

Previous efforts to freeze organs and keep them healthier for longer have failed because deep frostbite sets in, harming the tissue.

Now scientists at Harvard University and Massachusetts General Hospital (MGH) have developed a method to preserve livers for 27 hours, using a super-cooling technique which "freezes" the organ at -4C (24.8F) but prevents damaging ice crystals from forming.

The new procedure, which was hailed as "awesome", could allow the worldwide allocation of hearts, livers, corneas, skin and kidneys from as far away as Australia, potentially saving thousands of lives a year.

The absence of technology to preserve organs for more than a few hours is one of the fundamental causes of

the donor organ shortage crisis. There are around 6,000 people on the UK Transplant Waiting List and more than 400 people died last year while waiting for a transplant.

Dr Shannon Tessier of MGH and Harvard Medical School, said: "A lot of times when an organ becomes available there may not be a good match nearby, [so] when you add that extra amount of time [you] can search a wider distance, which means you have a better chance of not only finding a good match, but an excellent match.

"And that means that you have less organ discard, get more organs to recipients, and those organs are better matched to the recipients, so that organ can have a longer life within the recipient."

The technique works by pumping a preservative cocktail of anti-freeze and glucose into the livers before cooling them to below freezing temperatures so they can be transported in a state of suspended animation.

Once at the transplant centre they are then carefully warmed to bring them out of their torpor.

The research was published in the journal *Nature Biotechnology*.

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