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SYDNEY, Sept 22 AAP - Burns patients may no longer need to undergo painful skin grafts if trials of a new wound-healing technique developed in Australia prove a success.

The technique is much cheaper than similar treatments, giving it the potential to be used in third-world countries. Burns patients traditionally undergo multiple skin grafts which leave nasty scars and cause pain at the donor site.

A number of new treatments have sprung up in the past decade - including the spray-on skin used on the Bali bombing patients. However cost and varying success rates mean skin grafts remain the main option for many patients. The new two-stage technique developed by Royal Adelaide Hospital burns surgeon Dr John Greenwood involves a biodegradable synthetic seal being inserted into the wound while new skin is grown in a laboratory.

Unlike traditional skin grafts which require large strips of skin to be taken from unharmed areas of the body and placed over the wound, Dr Greenwood's technique requires only a 10cm square sample. The cells from the small patch are grown in the lab over about three weeks to create a composite skin.

In the meantime, the biodegradable seal lying inside the wound helps protect against infection and ensures the area remains open until the composite skin can be laid on top.

Dr Greenwood said the seal was cheaper than existing devices, which can cost about \$250,000 and are less resistant to infection and wound contraction. "This project is designed to remove the need for skin grafts altogether, but you need this two-phase strategy," he told AAP.

"If we can get the price low enough you can use it anywhere and that's what I want to leave behind, a legacy of treating burns patients in poor nations." Dr Greenwood is currently trialling the safety of the seal in pigs and hopes to start clinical trials in burns patients soon.

He will outline the results from the pig trials at the Ausbiotech conference in Adelaide in October.

Farmer David Mickan, who suffered third-degree burns to 55 per cent of his body in 2002, said anything which removed the need for skin grafts would be welcome.

"The skin grafts were probably one of the most painful things that anyone could put up with," said the 64-year-old, who was engulfed by flames during a burn-off on his South Australian farm.

"My grafted skin is still tight and itchy. It's not painful but is uncomfortable. This new skin Dr Greenwood is working on will be more like your old skin and able to sweat and breathe. "

Wound management expert Professor Stephen Prowse said there was huge potential for Dr Greenwood's technique to treat the hundreds of thousands of people with major open wounds such as leg ulcers.

"It's a hidden epidemic," said Prof Prowse, who heads the Wound Management Innovation Cooperative Research Centre.

"The big area in wound treatment is the treatment of complex wounds or chronic ulcers that come from complications with diabetes and vascular problems."