

Powerful Inhaler Changes Lung Treatment in a Single Puff

In a world-first, a partnership between Australian researchers has developed a high-tech disposable inhaler that gives chronic lung disease sufferers all their medication in one easy puff.

The pocket-sized device, being developed in collaboration between the Woolcock Institute of Medical Research in Sydney and Australian pharmaceutical company, Pharmaxis Ltd, is the first of its kind to deliver a high dose of drugs in one hit, bypassing the current need for complicated and time-consuming capsule re-loading.

The device, known as Orbital[®], is still in the prototype stage but has the exciting potential to revolutionise the way Australians with lung infections and debilitating conditions like cystic fibrosis administer their treatment. Woolcock's head of respiratory technology, Dr Paul Young, led the research into a number of exciting uses of the Pharmaxis device which can deliver a range of medications with the press of a button.

"At the moment, young Australians with cystic fibrosis must spend long periods each day taking their therapies in multiple doses by repeatedly loading, priming, inhaling and emptying their devices," Dr Young said. "This is obviously difficult for patients, particularly children, who are trying to get on with living a normal life, and it's likely to discourage them from taking their medication at all."

Orbital reduces treatment times to just seconds, with patients simply clicking the button and taking several breaths in until the device is empty. The inhaler is discarded, so no cleaning or maintenance is required. In another bonus, the medication it delivers comes in dry powder form, reducing the reliance on liquid spray medications, Dr Young said.

The research, published in this month's edition of *Journal of Aerosol Medicine and Pulmonary Drug Delivery* (<http://online.liebertpub.com/toc/jamp/27/2>), tests the device with a range of medications including Bronchitol[®] developed by Australian pharmaceutical company Pharmaxis for the treatment of cystic fibrosis. It was found to successfully deliver a range of antibiotics and Bronchitol together in one 400mg dose.

Dr Young said once commercialised, the inhaler won't just change the way cystic fibrosis is treated. "Given its capacity to deliver a very high dose, it could actually be used to treat a range of other common lung diseases like tuberculosis and pneumonia," he said. "That makes this a very exciting development indeed."

The paper, published this week, was co-authored by Woolcock researcher Daniela Traini, together

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with colleagues at the University of Sydney and Pharmaxis.

Cystic Fibrosis in Australia

- Cystic fibrosis is Australia's most common inherited recessive genetic condition. One in 25 Australian carry the CF gene.
- It primarily affects children and young people, spreading mucous through the lungs and digestive system, making patients vulnerable to repeated lung infections.
- Current treatment uses a multi-use inhaler which delivers a range of medications through a treatment system that requires multiple handling steps.
- Pharmaxis Ltd and Woolcock researchers are developing ways for a novel single-use device to deliver all a patient's medication requirements in one easy puff.
- Given its speed of administration and high dose capability, the Orbital inhaler could also be used to treat people with pneumonia and tuberculosis.

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