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## Non-invasive brain surgery proves successful

Not many patients can imagine having a glass of champagne with their surgeons straight after brain surgery but that is exactly what is happening at a Zurich hospital.

Swiss doctors have successfully carried out the world's first non-invasive brain surgery with use of high-intensity focused ultrasound (HIFU).

Ten adult patients, who were awake during the revolutionary painless procedure, have been treated at University Children's Hospital Zurich.

Martin and Jeanmonod have been working on patients with neuropathic pain due to functional brain disorders. Specifically, they are people who experience pain in amputated or paralysed parts of the body.

"The origin of the pain does not exist anymore but the brain projects the pain so that is why we operate on the brain," Martin explained. The patients have all remained pain-free since their operations. HIFU has been used for some years in the treatment of uterine fibroids and tumours of the prostate gland. The ultrasound beams heat up the problem area, creating a lesion and rendering it inactive. This is the first time that the technique has been applied to the brain through the intact skull for non-invasive neurosurgery.

A major breakthrough was the MR guidance - that is image guidance of the operative process by magnetic resonance imaging and also magnetic resonance thermometry, where thermo maps monitor the temperature development at the spot where the operation takes place.

Ultrasound does not go through the skull because bone absorbs the waves. But Martin, Jeanmonod and their team managed to overcome this obstacle by creating a helmet-like hemisphere with 1,024 transducers, which can each be individually set, beaming separately into the skull.

The benefits are enormous. "We avoid the risk of bleeding, we do not harm anything on the brain, there is no intervention on the brain other than the focal spot and we have no risk of infection."

Each beaming session lasts ten to 20 seconds with breaks of several minutes in between, building up the temperature step by step. Towards the end some patients experienced vertigo, lightheadedness or stinging sensations but only during the beaming sessions. The whole procedure lasts several hours and the patient is awake and fully conscious throughout.

The Zurich breakthrough opens up a wide field of potential applications for HIFU brain surgery. Various groups, mainly in North America, are close to beginning other HIFU surgery clinical trials on humans for a range of diseases and conditions, including brain tumours, stroke and neurodegenerative diseases such as Alzheimers.

Meanwhile the Zurich team will carry on with clinical trials on pain disorders, but also move on in the coming months to movement disorders, including tremor and Parkinson's as well as epilepsy.

*from swissinfo*

## Obwalden votes against rich "ghetto zone"

Voters in Obwalden have rejected controversial plans by the canton to reserve sections of its land for its wealthier inhabitants to build homes.

The canton has already introduced a flat-tax system to attract rich people to the area, which has enjoyed public support. But observers say the widely criticized move over land went too far. The ballot result stood at 8,881 no votes to 5,365 yes votes.

Obwalden's plans caused quite an uproar in Switzerland with Swiss Environment Minister Moritz Leuenberger calling them a form of "apartheid". The Obwalden authorities hit back, maintaining that the areas, officially designated "high quality standard of life zones of cantonal interest", were needed. They were to form part of the canton's strategy of increasing its tax attractiveness compared with other cantons. Officials said that local communities would always have been consulted.

Voters appeared to be more convinced by the arguments of the Green Party, which said that the zones would result in the population being divided into the haves and have nots. It added that it would mean more building in the countryside.

Obwalden raised the bar in 2006 by voting for a regressive income tax that obliged low earners to pay a higher rate of tax than those who brought home big salaries. This system was outlawed by the Swiss Federal Court 18 months later as being unconstitutional and was replaced with a flat-rate tax model.

*from swissinfo*

## Harsh winter takes its toll on wildlife

The long and harsh winter of 2008/2009 caused the highest number of deaths in wild animal populations seen in Switzerland for decades.

Because the ground was covered in snow for a longer period than normal, the animals could not forage for food and their fat reserves were insufficient to make up for the deficiency.

More than 23,000 roe, red and sika deer, chamois and ibex were found dead. In certain mountainous cantons the number of dead animals found was three times that of the previous year.

Wild boar find it easier to forage for food in their lower lying habitat.

*from swissinfo*