

## Russian healthcare system

### Improving but in need of investments

According to a new Espicom market research report, Understanding Russia's Regional Health Markets, the progress in improvement in Russia's health system is slow. Urban areas, particularly Moscow are of a high quality, but provision in rural areas remains poor.



Russia is the largest country in the world, with a land area of over 17 million square kilometres, encompassing eleven time zones. It has an estimated population of 142.9 million. Delivering universal high quality health services is a challenge.

Funding is at the heart of Russia's health improvement plans, and at the beginning of 2011 obligatory medical

insurance contributions increased from 3.1 % to 5.1 %, deductible from salaries. This will raise an additional R460 billion (US\$15.1 billion) over two years and will help cover the costs of overhauling, and equipping hospitals and polyclinics. The extra funds will also help to provide a wider range of free-of-charge medical services. With measures to increase income, however, has come the challenge of distribution and the recognition that, in common with countries such as India and China, there is a yawning gap between well provided for cities and the more remote regions.

In 2010, the government introduced the idea of a regional healthcare services modernisation scheme that aims to improve quality and availability of medical services and raise the profile of the medical profession. The decision to implement the required changes was difficult, particularly during a period of economic pressure. Healthcare modernisation is well overdue. To put this into context, over 30 % of hospitals lack a hot water supply, 8 % do not have a drinking water pipeline and 9% lack drainage.

For further information on the report please visit [www.espicom.com/rmpr](http://www.espicom.com/rmpr).

## Tomorrow's dentures

### Resemble Shark teeth

Researchers at the German University of Duisburg-Essen and the Max Planck Institute for Iron Research in Düsseldorf examined the teeth of two different sharks, the shortfin mako and the tiger shark, in terms of their structure, composition and mechanical properties. The teeth of both sharks were found to have a similar crystalline composition. According to the researchers, the interior of shark teeth contains dentine, a softer material also found in human teeth, while the enamel exterior is highly mineralised. Shark teeth contain fluorapatite, a very hard mineral, which could lead to the conclusion that they are harder than human teeth, which contain hydroxylapatite, a softer mineral, according to Dr Matthias Epple, Professor of Inorganic Chemistry at the university.

However, comparative analyses revealed that the hardness of shark teeth and human teeth was comparable, both for dentine and enamel. "This is mainly due



to the micro- and nano-structures of our teeth, in which crystals are highly ordered in a special topological orientation," said Epple. The scientists are now continuing their research on other shark species. They are hoping to recreate their dental structures for the production of dentures in the future. The study was published in the June issue of the Journal of Structural Biology.

## Healing after implant placement

### Stimulated by Biomaterials

Italian Researchers have found that blood platelet biomaterial significantly improves the healing process after placement of dental implants. In a case study, they observed beneficial short- and long-term results after the replacement of a fractured central incisor. In the article, they present a new approach to improving the outcome of anterior implants by using blood platelet concentrates. The paper reports on a case study of a 45-year-old female patient who had fractured an incisor in a sport-related accident. In an Italian private practice, the broken tooth was extracted and an implant inserted. In addition, a biomaterial of leukocyte- and platelet-rich fibrin (L-PRF) was used.



The scientists observed positive healing of the tissue two days after surgery. They found that the material acts as a bio-membrane that protects the implant from the oral environment. It appears to stimulate the growth of cells and to accelerate gingival healing and maturation. After seven days, they found that the gingival aesthetic profile was well defined. At six months, they reported a satisfactory final result that was still stable and aesthetic after two years. According to the researchers, L-PRF is simple, inexpensive and easy to prepare in only 15 minutes. Thus, it suits the practical needs of daily implant dentistry, in particular. Moreover, it is free of additives, such as anticoagulant, a substance that prevents the clotting of blood, or chemicals for activation, they said.

The project was conducted by researchers at the University of Geneva's School of Dental Medicine, the State University of New York at Buffalo's Department of Restorative Dentistry and the Chonnam National University's School of Dentistry in Gwangju, South Korea, in collaboration with two practitioners in Italy and Israel. The study was published in the April issue of the Journal of Oral Implantology.

Anaesthesia varies in

## Orthognathic surgery and recovery

Orthognathic surgery, affecting the jaws and face, requires a balancing act in anaesthetic technique. Limiting blood loss, avoiding respiratory depression, and averting postoperative nausea and vomiting lead to optimum patient outcomes. The use of the drugs propofol and remifentanyl are increasing because they can meet these needs; however, patients may subsequently experience more postoperative pain.

The journal *Anesthesia Progress* presents a retrospective study of 51 patients in a single medical centre. The 21 orthognathic maxillofacial surgery patients in the group receiving intravenous propofol and remifentanyl experienced significantly higher pain scores. Anaesthesia for the 30 patients in the comparison group was maintained with inhalational agents and longer-acting opioids.

The drug remifentanyl is seeing increased use in orthognathic surgery because its short half-life can fa-

cilitate stable operating conditions while avoiding the undesirable postoperative consequences of morphine and other such agents. There is still a need for pain control in the postoperative period using longer-acting opioids that carry a greater potential for adverse effects.

The study was undertaken to ensure that achieving better intraoperative conditions did not come at the expense of patients' recovery. Variables of comparison included recovery time, occurrence of nausea and vomiting, pain scores, heart rate, and opioid dose administered in the four hours following surgery.

There was a trend toward shorter recovery times in the group receiving propofol and remifentanyl. The median recovery time was 65 minutes for this group and 93 minutes for the inhalation group. However, the



first group reported higher pain scores in the first four hours following surgery. No differences were found in early postoperative opioid use, heart rate, or nausea and vomiting.

With maxillofacial surgery, postoperative respiratory and gastrointestinal complications can be dangerous. While turning to drugs that can reduce these risks leads to better surgical experiences, it may also mean increased postoperative pain for patients. This study takes a first look at this occurrence and may be the stimulus for future controlled studies.

Full text of "The Effect of Anesthetic Technique on Recovery After Orthognathic Surgery: A Retrospective Audit," and other articles, *Anesthesia Progress*, Vol. 59, No. 2, 2012, are available at <http://www.anesthesiaprogress.org/toc/anpr/59/2>

Conical internal connections

## Fuel growth in dental implant market

The dental implant and bone graft substitute market is the most rapidly advancing segment of dental technology, and leading competitors in this market must consistently develop new products supported by research from scientific and academic organizations to remain competitive. Recent cases have demonstrated that when companies lose a segment of support from the scientific community, their market shares tend to suffer significantly.

The European dental implant and bone graft substitute market has been further challenged by recent economic instability and the

Eurozone crisis, which has created a consistent demand for lower-cost dental implant products. As a result, many lower-priced competitors have begun to seize larger market shares in almost every European market. In many segments, these competitors are either regional or sourced from overseas markets such as Brazil, Korea and Israel.

Regenerative products and barrier membranes have been particularly affected by consumer austerity, as these products are discretionary in many cases.

However, a growing number of consumers continue to demand high-quality products, guarantees of service and scientific improvements, which only premium manufacturers are equipped to offer. Conical internal connections is one such recent innovation, and currently constitute the fastest-growing connection type in the dental implant industry.

Many dental implant and bone graft substitute companies have looked to expand their product portfolio or create new markets while they create package deals to offset competition from rapidly emerging lower-priced competitors. Significantly, many European and US companies involved in this market have begun to invest in rapidly emerging periphery markets such as Turkey. For more information and a free synopsis of the report, please contact iData Research at [dental@idata-research.net](mailto:dental@idata-research.net).

Back pain

## Stopped by Basel Cap for Dentists



A German company has developed a baseball cap aimed at helping dentists prevent back pain. Dentists usually work in a bent position, which affects the back negatively. The cap, inspired by the African tradition of carrying weight on the head (tallabé), has an integrated ergonomic weight inlay and can be worn standing up or sitting down.

According to the manufacturer, the effect of the tallabé is immediately evident. The muscles of the body begin to coordinate, and the body is encouraged to adopt an upright and relaxed posture.

