

# Implant innovation

**Dr Marte Bratlie** explains how her background as a clinician, researcher and educator has aided the development of a novel form of contraceptive technology, as well as the challenges she has tackled



are continually working to assess the needs of the market, and to align our strategies with those requirements. I believe we firstly have to demonstrate that what we want to accomplish is achievable. Through scientific success we will hopefully attract attention from others that stand to gain from the technology, and we will seek out potential synergistic partners who may benefit from this innovation becoming reality. Within our current work, we are making progress to ensure we are showing evidence that is practically applicable rather than scientifically interesting. We will aim toward keeping costs low and show the pragmatic advantages of our product in order to facilitate its attractiveness as a commercial product.

**Could you briefly outline the primary objectives of your current research endeavours?**

The use of contraceptive implants as a method of family planning is expanding rapidly worldwide, due to their safety, effectiveness and reversibility. The RemovAid project aims to standardise and simplify the removal procedure of such implants in order to train staff skilled in insertion services to be equally qualified and capable of undertaking removal services.

**What triggered your interest in studying the improvement of contraceptive access and methods, particularly the insertion and removal of contraceptive implants?**

As a young medical physician, I spent time working in a sexual health clinic for adolescents in Oslo, Norway. We observed that several women were not able to access removal services at the clinics where the implants had originally been fitted. In performing the insertion and removal procedures, respectively, it was evident to me that there is a significant difference between the level of complexity and time consumption between the two. This led me to research how and whether others have addressed this mismatch. It yielded a vast number of articles underscoring the effectiveness of the method and the ease of which implants may be inserted, however, very little focus was placed upon their removal.

**How are you working to translate your innovative research into a successful commercial enterprise?**

This transition is indeed one of the most challenging aspects to our overall project. We

**Have you encountered any challenges over the course of the RemovAid project? If so, how have you overcome them?**

There have been several challenges since the start of RemovAid; the biggest obstacle initially was to gain sufficient funding. Through hard work and determination we have been able to obtain financial support, though within a limited budget and timeframe. The reality of innovation is that it is very difficult to determine the exact time and cost required to reach specific targets. It presents the continual challenge of assessing whether we are progressing sufficiently and determining courses of action to take when progress does not go exactly according to plan. We have not yet been required to change the scientific contents of our overall direction; however, there may be challenges ahead that will necessitate more substantial revisions to the plan.

**To what extent have national and international partnerships facilitated this journey?**

I believe that the involvement of funders and investigators in this project gives us legitimacy as a serious actor in a highly competitive industry, which may be of significant importance when we are market-ready. It also shows that the problem we are attempting to address is of relevance to many stakeholders, and the contact networks of our partners may prove important for reaching the right segments once trials are completed – hopefully, with positive results.

# Quality control

Researchers involved in **RemovAid's** ACCESS-CI project in Norway are developing an easy-to-use method of contraception removal to address the current mismatch between the availability of subdermal implant insertion and removal procedures in developing countries

**INCREASING THE AVAILABILITY** of effective contraception is a priority area for action worldwide and, in developing countries in particular, to improve reproductive and maternal healthcare and meet international targets. Access to modern contraception not only prevents unwanted pregnancies and potentially traumatic abortions, but also enables women to decide if and when they want to reproduce. As there is an estimated 200 million women across the globe with an unmet need for modern contraception services, healthcare organisations are working toward providing effective preventive care.

The subdermal contraceptive implant has become an increasingly popular form of female contraception. Long-acting and reversible, it has been shown to be more effective in preventing pregnancies than other methods, such as contraceptive pills or patches. As such, international agencies in developing countries are promoting the use of long-lasting and easily administrable implants in order to help tackle high birth rates, as well as maternal and infant mortality. To date, healthcare workers have been extensively trained in the provision and insertion of the implant. However, its removal can only be undertaken by highly skilled professionals, who are more sparsely available in developing countries.

In response to this dearth in knowledge and training, Dr Marte Bratlie, Founder and CEO of RemovAid, is working with colleagues to develop a novel tool for easier implant removal. This entrepreneurial endeavour seeks to promote responsiveness and competence in healthcare professionals through the development of a high-quality, clinically validated medical technology solution.

## THE IMPLANT EXPLAINED

There are numerous types of implants available that provide effective contraception for three to five years. The subdermal implant is a small flexible plastic tube about the length of a matchstick, which is inserted by a trained practitioner just under the skin in the inner area of the upper arm. The implant prevents pregnancy in a similar way to the processes that

occur naturally during menstruation; it releases a continuous stream of the hormone progestogen into the bloodstream, mimicking the function of the ovaries. By causing a thickening of the cervical mucus and a thinning of the uterus wall, progestogen makes it both difficult for sperm to pass through the womb to fertilise an egg, and prevents a fertilised egg from attaching to the lining of the womb.

## MISMATCHED PRIORITIES

Apart from the cost, an important obstacle in implementing this contraceptive method in developing countries is the required training necessary for insertions and removals. "Removal of the implant is considered a more cumbersome and complex task, and represents a limiting factor in the upscaling of implants," Bratlie elucidates.

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Considering the speed at which the use of contraceptive implants is expanding across the globe, the lack of training in their removal presents a growing concern. In sub-Saharan Africa alone, for instance, efforts to improve the accessibility of modern contraceptive technology led to an estimated 15-fold increase in the availability and popularity of the contraceptive implant between 2005 and 2010. Therefore, the continual development of implant provisions requires either a corresponding increase in the accessibility of removal services and skilled healthcare workers, or an alternative method for implant removal. "It is important

## INTELLIGENCE

# REMOVAID

### AVOIDING CONTRACEPTIVE CONTROVERSY: ENSURING TASK SHIFTING THROUGH STANDARDIZATION OF CONTRACEPTIVE IMPLANT REMOVALS

#### OBJECTIVE

To provide effective subdermal contraceptive implant removal training to healthcare professionals in developing countries, in order to address inconsistencies in service availability between insertion and removal procedures.

#### KEY PARTNERS

##### FHI300

Marie Stopes International

Karolinska Institutet

#### FUNDING

Research Council of Norway

Bill & Melinda Gates Foundation

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**MARTE BRATLIE, MD**, is the founder and CEO of RemovAid. She is working to develop a tool for the safe and effective removal of contraceptive implants. Bratlie's interest in contraceptives began while she worked at a sexual health clinic for adolescents in Oslo, Norway, discovering an unmet need for specifically addressing removal services. She has since gained interest and insight in global contraceptive challenges, and is currently leading an international collaboration of researchers and service providers to address the growing demand for implant removal services in developing countries. Bratlie's main motivation is to promote reproductive autonomy for women worldwide.

In late 2012, RemovAid became an Oslo MedTech member, which represents a Norwegian cluster of companies, hospitals, finance, knowledge and research institutions dedicated to the development of health technology products and services

RemovAid is striving to provide a solution to the inadequate resources currently available in developing countries to contend with the safe and effective removal of subdermal contraceptive implants

In 2013, **7.3 million** implants were distributed in the world's poorest countries – a **50% increase** from 2012

to ensure that women are able to decide their own fertility and avoid any potential controversy related to limited access to removal services and restoration of fertility," Bratlie points out.

#### STANDARDISATION OF PRACTICES

Over the past two years, Bratlie and her fellow researchers have been working on developing the RemovAid tool into a safe and effective technology for developing countries. After undergoing stringent testing and analysis with regard to the product's safety, the team is working on ensuring that healthcare providers can begin adopting this approach.

Once the product has been pre-clinically validated, Bratlie will conduct tests with experienced staff in Stockholm, Sweden, and subsequently with skilled practitioners in Ethiopia. "We will progress to testing the appropriateness of use among staff that are currently restricted from providing removal services, namely healthcare extension workers in Ethiopia," she explains. Working in collaboration with FHI360, an independent, non-profit organisation with a priority for improved family planning and reproductive health, Bratlie and her team will design additional trials to further ascertain the safety and usability of the product.

#### THE NEXT STEP

With an international patent application pending and initial clinical testing expected in 2015, RemovAid is on course for innovation success. By providing alternative implant-removal technology, Bratlie is working towards bridging the gap between the availability of contraceptive implant insertion and removal services in the world's poorest countries. Through the development of RemovAID, Bratlie hopes to promote the implant as an effective contraceptive method and avoid damaging its reputation as a promising solution to improving global reproductive health.



# RemovAid