Google image search for “science” and you will find beakers and test tubes, microscopes and kaleidoscopes, and carbon drawings of atoms and molecules. But these are the means to an end and that end affects our daily life and our future.

Here’s how notable scientific breakthroughs might apply to you or the people you love.

1. Rewriting DNA to treat diseases

The Human Genome project was a 13-year collaborative effort launched in 1990 to map the human genome, regarded as one of the most ambitious and impactful scientific projects to date. What does that mean for you? Mapping all three billion DNA letters in the human genome paved the way for precision medicine, an emerging approach to care that enables doctors to use genetic information to determine the best course of treatment for each patient.

Not only can we map the genome, we can edit it.

CRISPR/Cas9 is a revolutionary tool that allows scientists and researchers to alter DNA sequence, with unprecedented speed, accuracy, and affordability. This helps to open up a new world of treatment, genetic therapy, in which the repair of injured or diseased tissues can be sketched out on a computer and then performed in the body, rather than having to rely on a donor. Doctors already use stem cells in therapies to light some types of cancer and blood-related diseases. Celularity also has launched a preclinical product utilizing Natural Killer (NK) cells derived from postpartum human placenta. It is investigating Natural Killer (NK) cell therapy as a potential treatment for various hematological malignancies. It also has the first cell therapy with emergency authorization approval by the FDA for use as an investigational New Drug (IND) to treat COVID-19.

2. Beating cancer with immuno-therapy

For decades, chemotherapy was the mainstay of cancer treatment. While effective, this treatment causes significant side effects. Immune checkpoint inhibitors are a “radical new direction” for cancer treatment, explains Andrew Cournoyer, who also works at PRECISIONvalue as vice president and director of Access Experience Team at PRECISIONvalue.

The Human Genome project was a 15-year collaborative effort launched in 1990 to map the human genome. It is regarded as one of the most ambitious and impactful scientific projects to date.

3. The multiple applications of stem cell therapies

Stem cell therapy, also known as regenerative medicine, uses stem cells or their derivatives to promote the repair of injured or diseased tissues. Its potentially life-saving applications include facilitating the next chapter of organ transplantation, as scientists work to use stem cells to grow new organs outside of the body, rather than having to rely on a donor. The clinic has been using the method since 2004. It eliminates the need for injection, instead using oral medication to stimulate the ovaries to produce the maximum number of “quality” eggs in a single cycle and, in return, a woman’s best chance for a healthy pregnancy. Zhang says, “Any woman who goes through traditional IVF will tell you how hard it can be because of all the medications she has to take, but with mini IVF, it is different,” she explains. “The expression no pain, no gain should be rejected; all gain.”

Zhang notes an injection-free approach also allows women to do 50% of treatment at home. The clinic allows at-home IVF will become the norm in fertility care.

6. Better screening for mom and baby

Karen Madden, Ph.D., vice president of technology and innovation at PerkinElmer, a diagnostic, life sciences, and environmental testing instruments company in Waltham, Mass., believes that for many years, women’s health has not received the necessary attention and funding. This is beginning to change. “From technology that addresses a variety of women’s health issues, is on the rise. PerkinElmer’s Toronto non-invasive prenatal testing (NIPT) solutions helps expectant mothers for pregnancy-related health risks and fetal abnormalities. The test is designed to reduce the complexity and cost of invasive prenatal testing so that it maybe accessible to more women. The company also screens newborn babies for genetic mutations associated with the threatened disorders. Since 1985, almost 600 million babies have been screened with its products. Every day more than 75 babies around the world get a healthier start to life thanks to the early detection of serious disorders, says Madden.

2. Advancements in mental health

Dr. Neha Chaudhary, cofounder of Brainstorm, Stanford’s Lab for Mental Health Innovation and a psychiatrist at Massachusetts General Hospital and Harvard Medical School, believes new diagnostic measures and diagnostics for behavioral health are some of the most impactful scientific developments of the last two years. She notes mental health has been lagging behind the rest of medicine for decades, but it is seeing significant advancements lately in areas like voice analytics, digital therapeutics, and something we call digital phenotyping — the use of data from personal devices as a way to track someone’s mental health and potentially predict changes from baseline,” she explains. Despite advancements, Chaudhary believes mental health is still ripe for disruption. “especially when we consider moving beyond the wellness space to tackle serious mental illnesses, which is combined with neurological diseases has the highest cost of disease worldwide. “

Phenomic de...