

Using Implementation Science Methods to
Understand the Contribution of Communication
Failures to Diagnostic Errors and the
Impact on Racial Disparities in
Severe Maternal Morbidity

SUMR23' | Mirabelle Jean Louis



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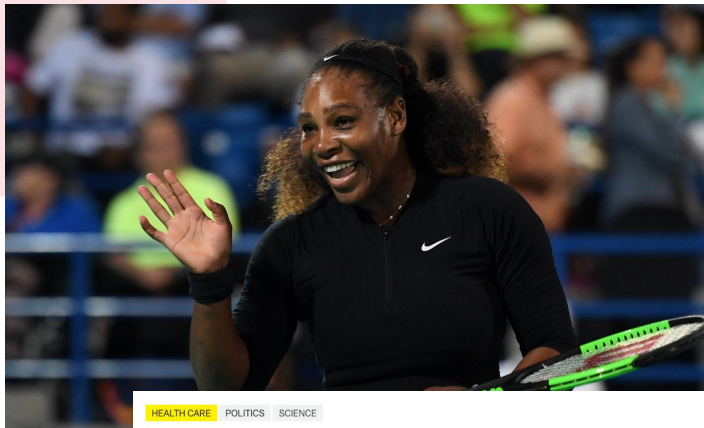
**1.
Background**

**2.
Aims**

**5.
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**3.
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**4.
Significance**



HEALTH CARE POLITICS SCIENCE

What Serena Williams's scary childbirth story says about medical treatment of black women

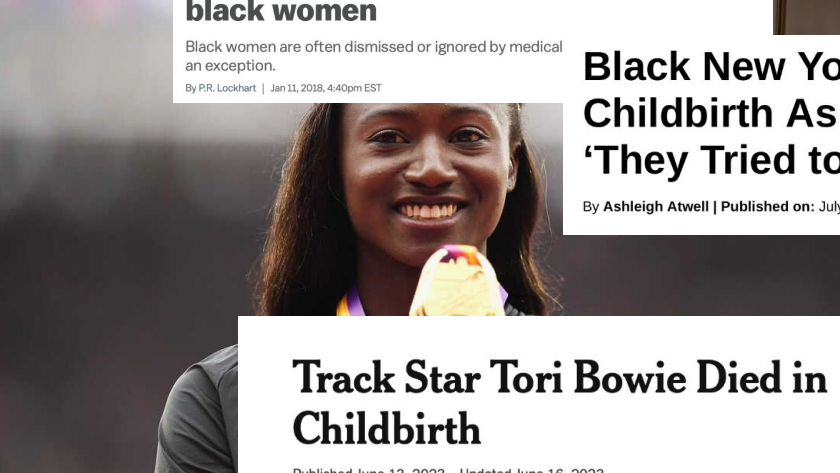
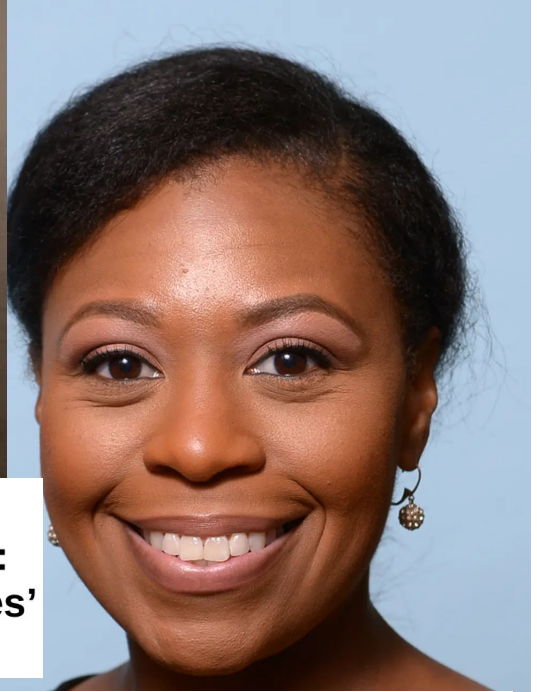
Black women are often dismissed or ignored by medical an exception.

By P.R. Lockhart | Jan 11, 2018, 4:40pm EST



Black New York Mother Dies During Childbirth As Deadly Trend Continues: 'They Tried to Revive Her Like 15 Times'

By Ashleigh Atwell | Published on: July 9, 2020 ● Comments (0)



Track Star Tori Bowie Died in Childbirth

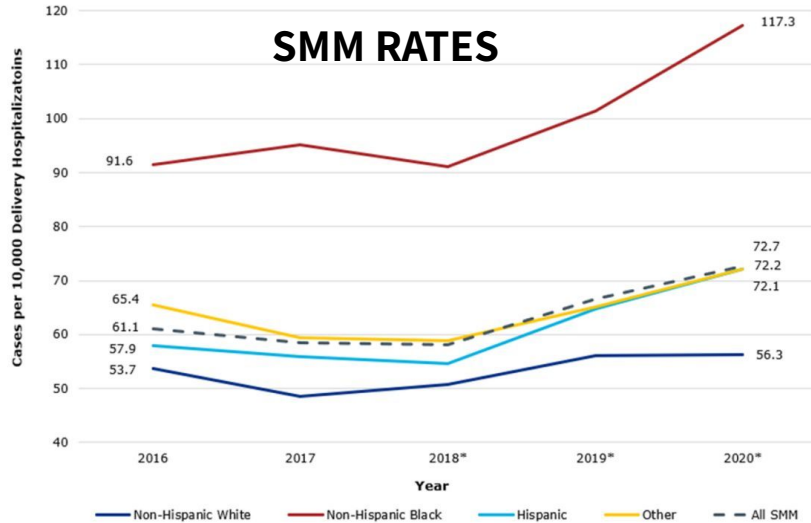
Published June 13, 2023 Updated June 16, 2023

Black Doctor Dies After Giving Birth, Underscoring Maternal Mortality Crisis

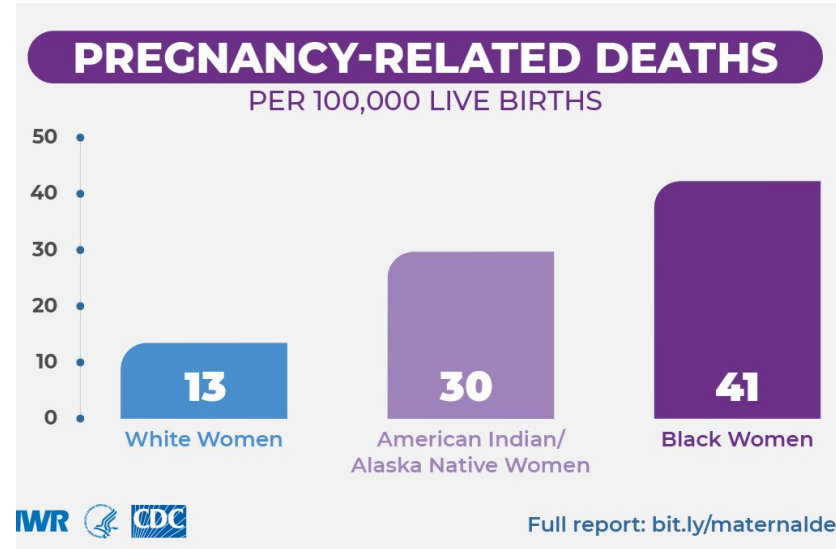
— Tragedy shows racial disparities in pregnancy outcomes aren't solely based on access to care

by [Amanda D'Ambrosio](#), Staff Writer, MedPage Today November 2, 2020

Figure G-1. Rate of Delivery Hospitalizations Involving Severe Maternal Morbidity (SMM) in Texas per 10,000 Delivery Hospitalizations by Race and Ethnicity, 2016-2020



IN THE US...



Women in majority Black communities have a **63%** higher rate of SMM than women in majority white communities.

*According to a report from Blue cross Blue shield-2021

Black women are **3X** times more likely to die in childbirth than White women.

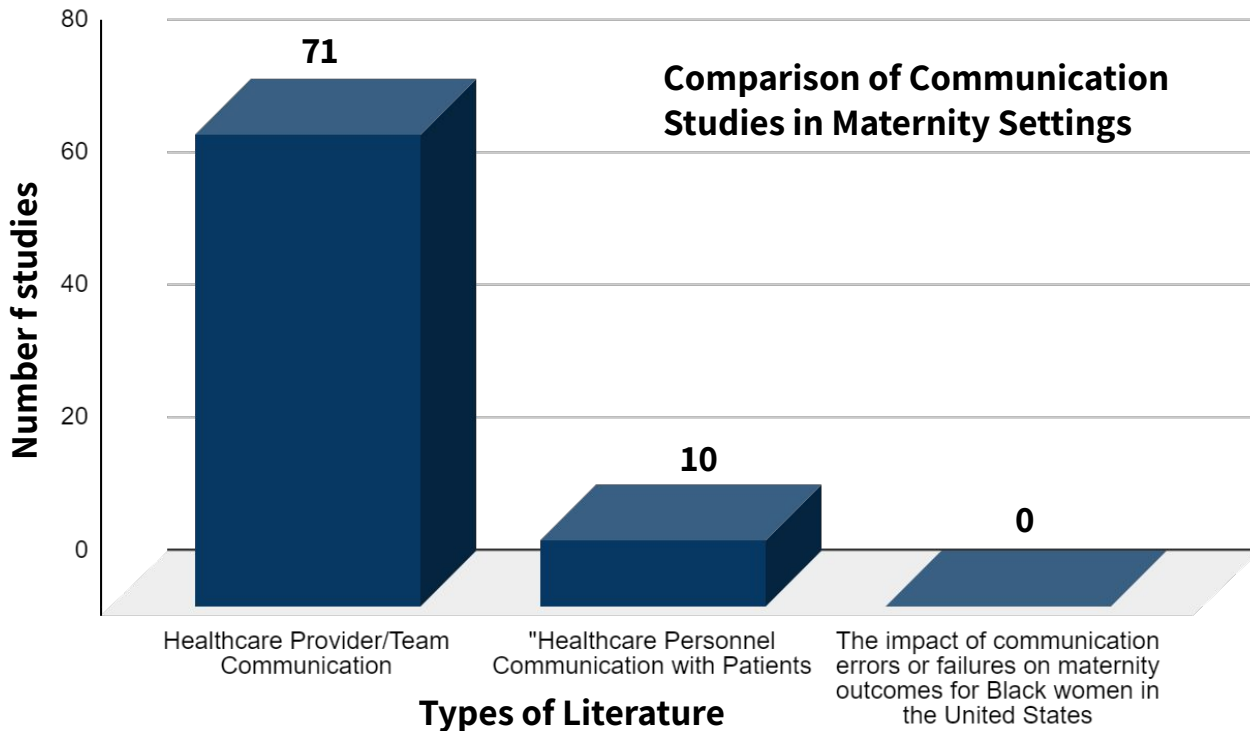
*According to the CDC-2022

According to a study carried out by the Maternal Mortality Review group, which investigated the reasons for maternal mortality...

84%

of deaths related to pregnancy could have been avoided. This conclusion is based on data collected from Maternal Mortality Review Committees between 2017 and 2019.

COMMUNICATION IS THE LEADING ROOT CAUSE OF PREVENTABLE MATERNAL MORTALITY AND MORBIDITY





Study

Aims:

Aim 1: To identify and describe types of communication failures and successes and describe their impact on SMM.

Aim 2: To examine whether there is variation in quantity and type of communication failures and successes by race.

Method

MEDICAL INCIDENT REPORT FORM

NAME: _____

DATE OF ACCIDENT: _____

LOCATION OF ACCIDENT: _____

DESCRIPTION

Report includes:

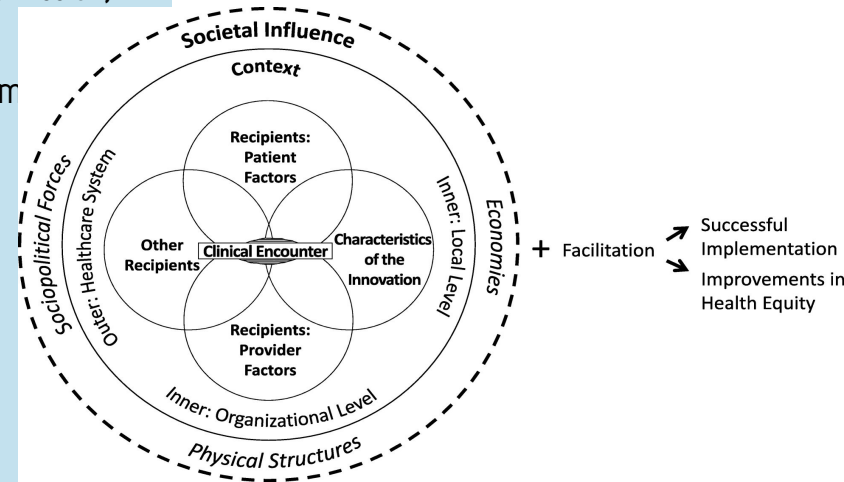
(1) general event type (for example, diagnosis/treatment); (2) building; (3) incident ID number; (4) entered date; (5) brief description; (6) suggest how to avoid, improve, or fix failed process; (7) actual contributing factors; (8) specific event type; and (9) current assessment of injury severity,

DESCRIPTION

- Retrieve hospital incident reports
 - maternity units antepartum, labor and birth, and postpartum units
- Quality Improvement Specialist connects incident reports to patients using medical record numbers.
 - patient's race, ethnicity, and morbidity outcomes to the incident report
- Data runs through Philter- deidentified data
- uploaded reports to a database for sample selection.
- Expected count: Around 3,000→ Only use 1/3
- Eligibility review
 - Two team members look through report to ensure that it was communication failure between healthcare team or with patient

Code for contextual failures, type of communication failure, and sociotechnical dimension for each incident report

- Code for Contextual failures- content errors, occasion, purpose, audience, omission, and inappropriate communication.
 - Can have multiple contextual failure types if multiple facets of communication were ineffective.
- Failure reports will be classified based types of communication problem
- Categorized Patient outcome: actual/potential physical harm, care delay, dissatisfaction, or no harm.
 - one incident may have multiple outcomes, like physical harm and dissatisfaction.
- Analyze overall distribution of communication failures and their correlation with patient race/ethnicity and harm score.
- Determine association between the two categories of failure types and patient outcomes using Fisher's exact test with an alpha of 0.05.
- This statistical method will help understand the link between communication failures, patient demographics, and harm severity.



Significance:

- Using a hospital's own data to understand the particular communication issues its team is experiencing in order to identify the best interventions
- Communication is complex: this allows us to understand what particular kinds of communication issues are most frequent; which communication issues vary (if any) related to race/ethnicities (disparities in communication)
- There are communication incidents, but the report itself is a communication that provides information about the team and how it's functioning (or not)
- Potentially helps people see if their communication varies across patients (e.g., penalizing communication with Black women)



My contribution & Lesson Learned

How to write a research protocol

Christopher C Rout^{1*} and Colleen Aldous²

¹*School of Clinical Medicine, University of KwaZulu-Natal, Durban, South Africa*

²*Department of Anaesthetics, Critical Care, Nelson R Mandela School of Clinical Medicine, Durban, South Africa*

A research protocol is best viewed as a key to open the gates between the researcher and his/her research objectives. Each gate is defended by a gatekeeper whose role is to protect the resources and principles of a domain: the ethics committee protects participants and the underlying tenets of good practice, the postgraduate office protects institutional academic standards, the health authority protects provincial resources etc. The protocol must explicitly address the issues likely to be raised by these gatekeepers, demonstrating evidence of a clear understanding of the issues involved and that all components of the research plan have been addressed. The purpose of this paper is to add flesh to the skeleton provided in step six ('write the protocol') of the Biccard and Rodseth paper of 2014, orientated towards the first-time researcher working towards the MMed degree. Although occasional reference will be made to qualitative approaches, it is likely that the majority of these studies will be quantitative designs and these form the focus of this paper.

Keywords: MMed, protocol, protocol design, research, research design

Introduction

The introduction of compulsory research for medical specialist registration with the HPCSA has challenged those institutions that historically used the Colleges of Medicine (CMSA) examinations as a route to specialisation. Without the resources of a fully developed MMed programme (a coursework Masters with a practical research component), some departments have battled to accommodate the increased workload, especially with an inadequate number of experienced research supervisors. Students are faced with the tasks of finding a research area of interest, identifying and developing a research topic, formulating a research question into a suitable protocol, conducting the study, analysing the results and writing the paper or dissertation, against the background of the demands of clinical training, service provision, and preparation for the rigorous examinations of the CMSA.

Biccard and Rodseth examined the research process from the point of view of the novice researcher and presented a nine-step process for taking a research idea to the protocol stage, and provided an invaluable guide to our students. One of the stumbling blocks in the process is the writing of a 'winning' protocol that passes through postgraduate and ethical review with minimum delay and successfully garners research funding. A well-written protocol ensures timely approval and smooth running of the research process, facilitates subsequent writing of the research report, and permits completion within the allotted time.

This paper assumes that the student has a clear idea of what interests him/her, where the knowledge gap lies (from literature review) and has framed either a research question or hypothesis, even if not fully developed (steps 1-4, Biccard and Rodseth¹). Although requirements for protocol format vary between academic centres, we have kept largely to the structure recommended by Biccard and Rodseth, with slight modification (Table 1).

Introduction and statement of purpose

The introduction is a very brief summary of the literature review consisting of a short paragraph identifying the clinical problem, outlining the areas of equipoise and previous research approaches to them. For example:

'Pulmonary aspiration of acid gastric contents has been shown to be an important cause of mortality with general anaesthesia for caesarean section. Efforts to decrease the volume and acidity of gastric contents have included reduced oral intake, active pre-operative gastric emptying and the use of neutralising antacids, with varying degrees of success. One possible method of reducing the incidence of acid aspiration might be the preoperative administration of a histamine H₂ receptor antagonist to reduce gastric acid secretion.'

The statement of purpose then outlines exactly *what is to be studied in the proposed study, how it is to be studied, in whom, where and when*. Although this normally develops from the subsequent background and literature review, it is a useful initial declarative statement that crystallises the nature of the study in both the reviewer's and student's mind and directs the review to relevant questions that are best addressed by the student beforehand.

For a quantitative study the format (adapted from Cresswell²) would be:

'The purpose of this ... (*observational/descriptive, comparative, correlational, survival, analytical etc.*) study is to ... (*explore, describe, compare etc.*) the ... (*central focus, i.e. what you are actually measuring*) for/ol/in ... (*population sampled*) at/in/presenting to ... (*location*) from/ over/ for the period ... (*Dates, time period*).

Journal of Midwifery & Women's Health



The Official Journal of the American College of Nurse-Midwives

SPECIAL CONTINUING EDUCATION ISSUE

Innovative Midwifery-Led Care Models

Birth equity on the front lines: Impact of a community-based doula program in Brooklyn, NY

Short-interval pregnancy in the Illinois Medicaid population following delivery in Catholic vs non-Catholic hospitals

Characteristics of High-Performing Hospitals Where Black Women Experience Optimal Birth Outcomes

Rebecca R. S. Clark, Mary Regina Boland

Introduction

- Black women have the lowest SVB rate of any racial or ethnic group and tend to give birth in hospitals
- Examining hospitals where black women have better birth outcome is an opportunity to identify variations in organizational factors that would suggest targets for intervention in low-performing hospitals.

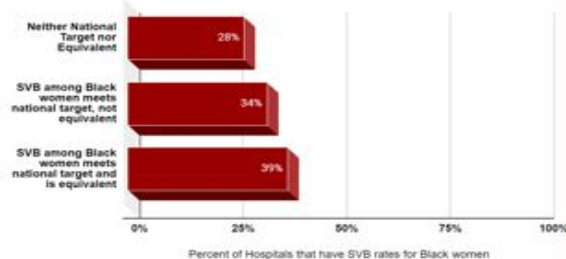
Methods

- Cross-sectional analysis of nurse survey, hospital discharge abstracts, and American Hospital Association data from 2015/2016
- Hospitals were included if they had at least 100 births/year and Black women giving birth.
- Hospitals were categorized based on spontaneous vaginal birth rates for low-risk cesarean birth in Black women and by comparing SVB rates between Black and White women.
- Hospitals broken into three categories: below target, target, and above target. Above target met the HealthyPeople 2030 target and had equivalent rates for Black and White women.

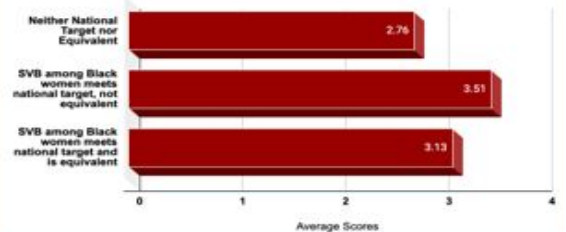
Results

- Sample: 257 hospitals across categories; these vary across states; structural characteristics not significantly different

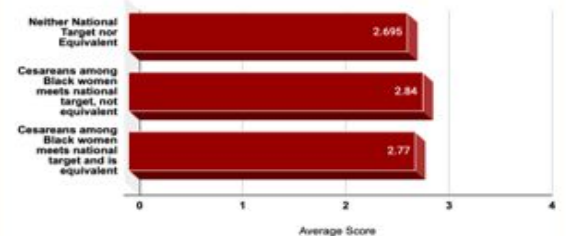
Percent of Hospitals in Different Categories



Average Number of Nurse Practitioners in Maternity Units Across Hospital Categories



Average Scores of the Nurse Work Environment Across Hospital Categories



- High-performing hospitals were located varied significantly across the four states in the sample, being less frequent in CA and more frequent in PA and FL
- Staffing improved across hospital categories, with the patient-to-nurse ratio decreasing from 1.2 in the low performing hospitals to 1.06 in hospitals that met the target resulting in a 22.2% decrease in patients per nurse.

Discussion

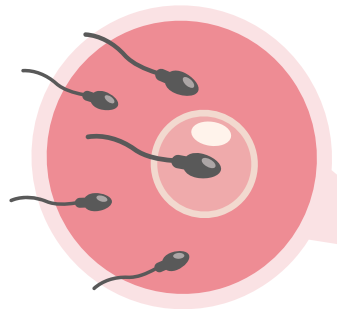
- The nursing work environment, and collegial nurse-physician relationships, were significantly better in hospitals that met the national target and had equivalent rates for SVB between Black and White women at low-risk for cesarean birth
- Hospitals exist where Black women experience SVB rates that meet the national target and are equivalent to the rates experience by White women also birthing there
- High-performing hospitals had better nurse work environments, including better nurse-physician relationships, suggesting a potential target for intervention in hospitals that are not yet achieving equity in terms of performance

Funding: Office of Nursing Research Pilot Grant (Clark, PI); NINR LRP (Clark, PI)/ NINR R01NR014855 (Aiken, PI)

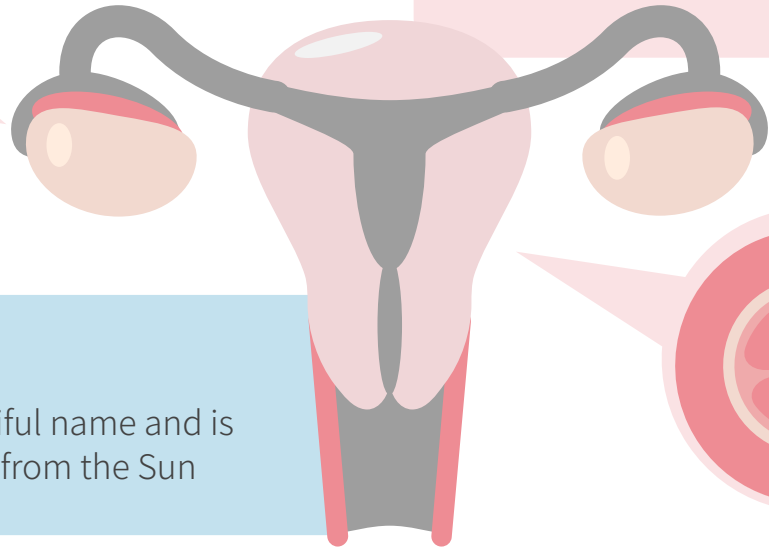


Thank You

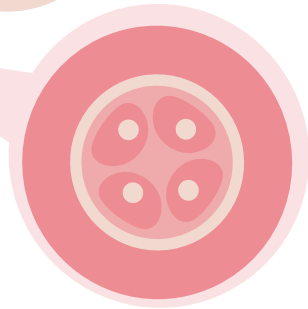
PREGNANCY BREAKTHROUGH INFOGRAPHICS



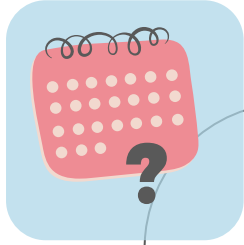
CONCEPTION
Venus has a beautiful name and is the second planet from the Sun



IMPLANTATION
Mercury is the closest planet to the Sun and is the smallest one



PREGNANCY BREAKTHROUGH INFOGRAPHICS



MISSED PERIOD

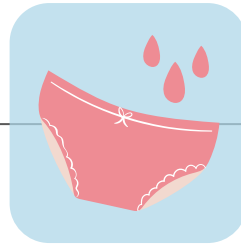


BREAST PAIN

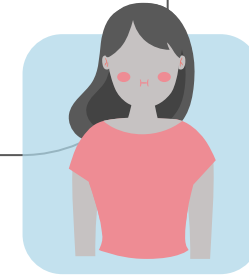
PREGNANCY FIRST
SIGNS AND SYMPTOMS



FREQUENT URINATION

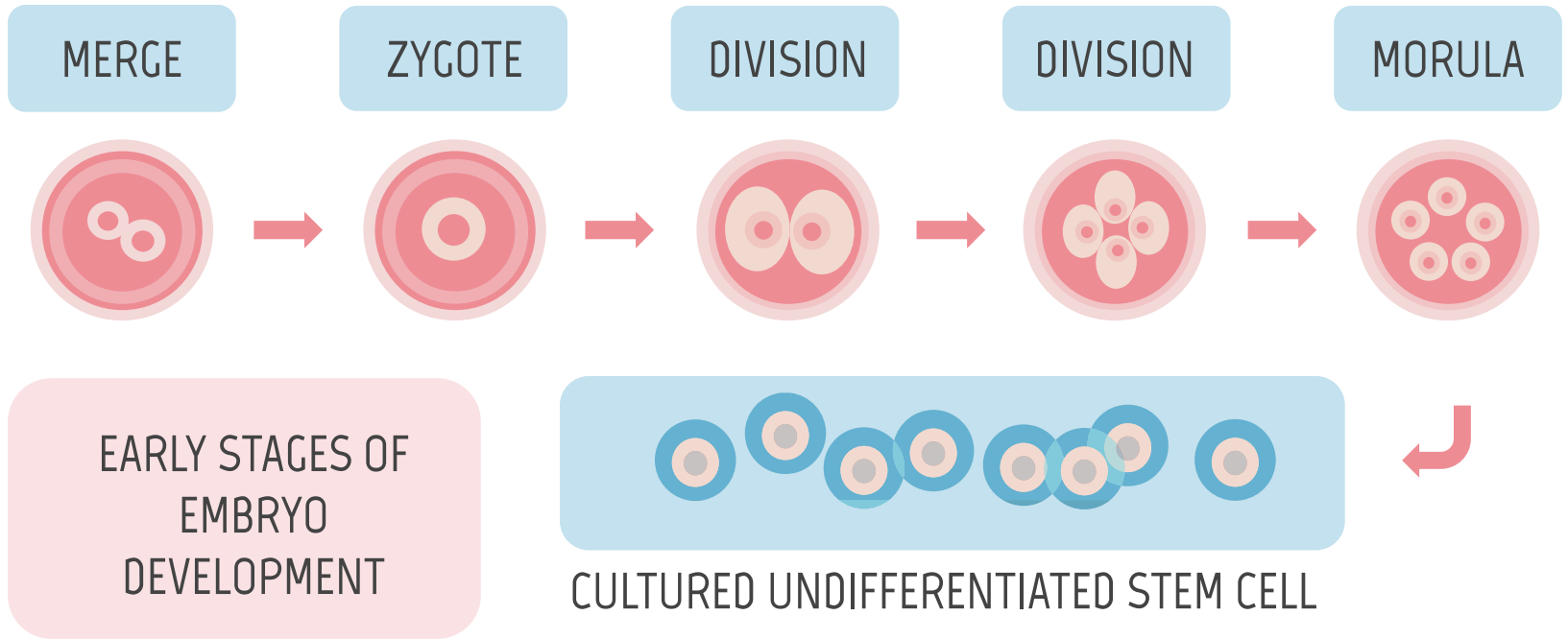


IMPLANTATION BLEEDING



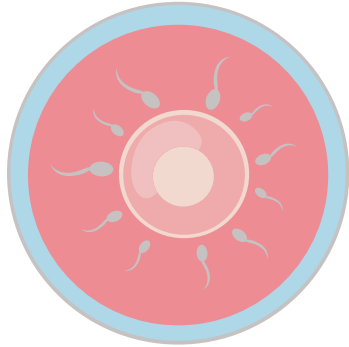
NAUSEA

PREGNANCY BREAKTHROUGH INFOGRAPHICS



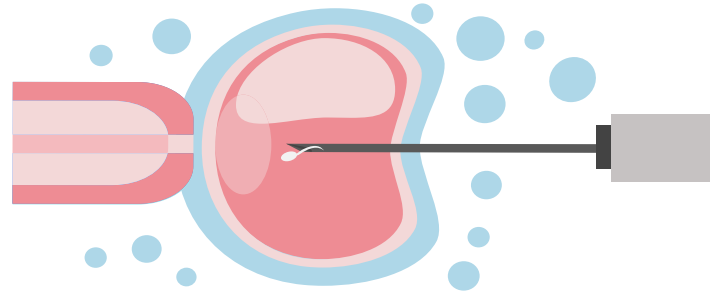
PREGNANCY BREAKTHROUGH INFOGRAPHICS

TYPES OF IN VITRO FERTILIZATION



CONVENTIONAL IVF

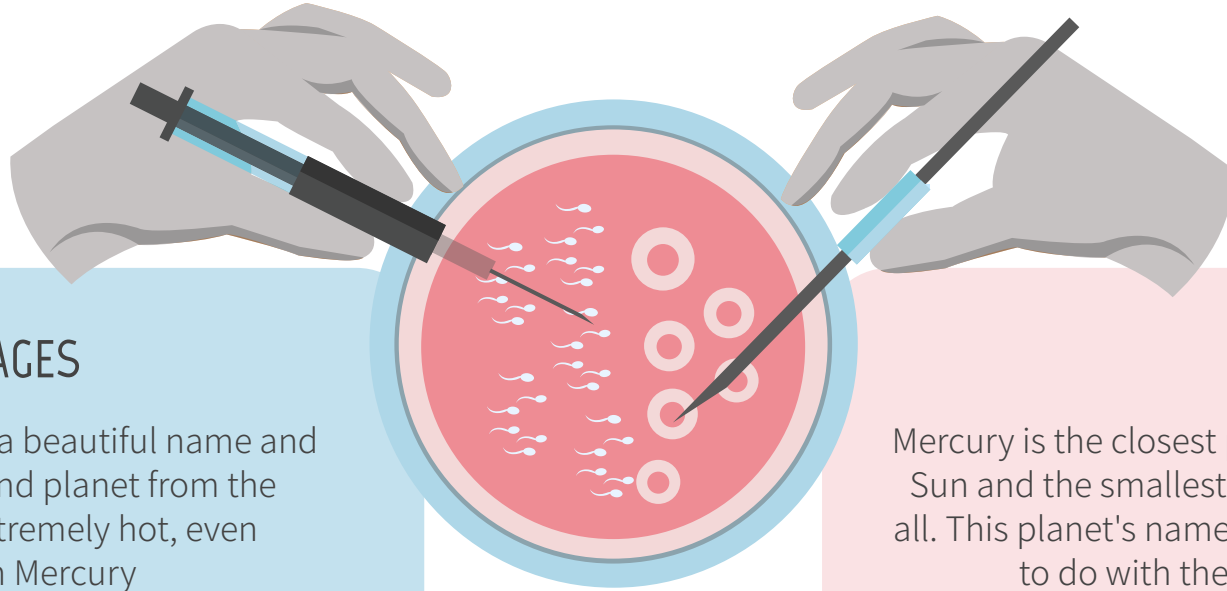
Mercury is the closest planet to the Sun and is the smallest one



IVF ICSI

Venus has a beautiful name and is the second planet from the Sun

PREGNANCY BREAKTHROUGH INFOGRAPHICS



ADVANTAGES

Venus has a beautiful name and is the second planet from the Sun. It's extremely hot, even hotter than Mercury

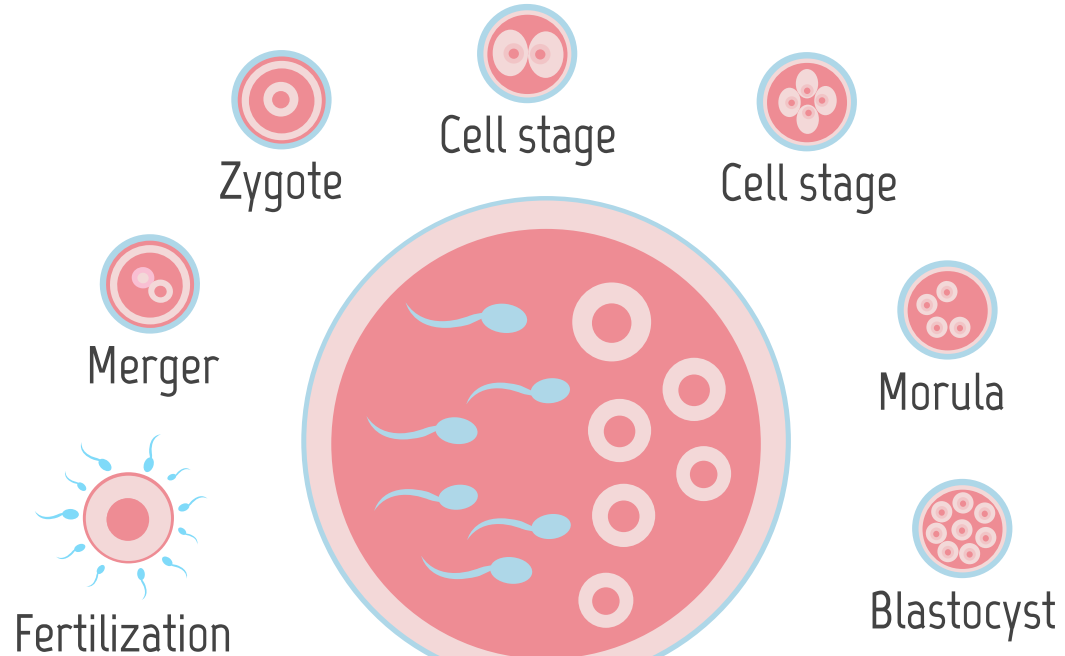
RISKS

Mercury is the closest planet to the Sun and the smallest one of them all. This planet's name has nothing to do with the liquid metal

PREGNANCY BREAKTHROUGH INFOGRAPHICS

EMBRYO DEVELOPMENT

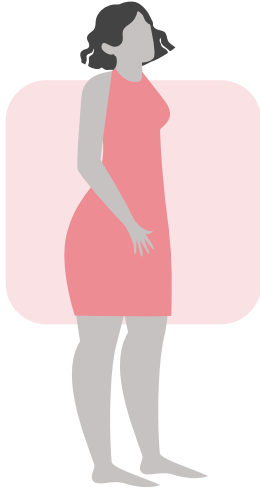
Venus has a beautiful name and is the second planet from the Sun



EGG FERTILIZATION

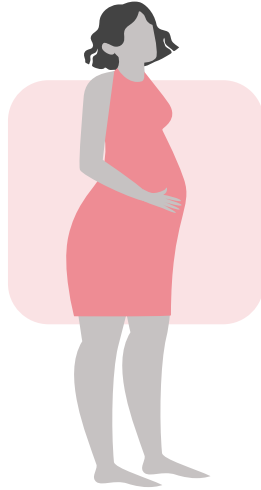
PREGNANCY BREAKTHROUGH INFOGRAPHICS

PREGNANCY STAGES



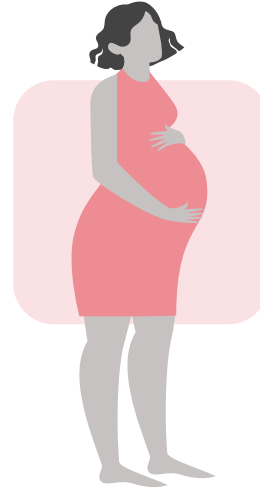
WEEK 10

Venus has a beautiful name



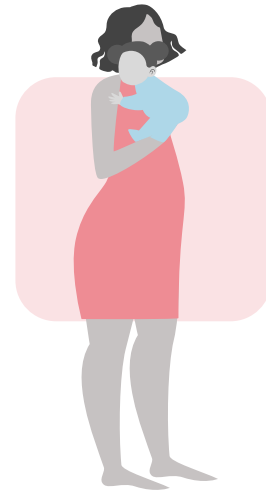
WEEK 20

Mars is actually a very cold place



WEEK 30

Neptune is far away from Earth



WEEK 40

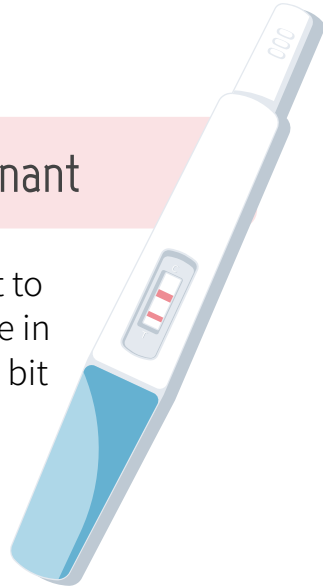
Jupiter is the biggest planet

PREGNANCY BREAKTHROUGH INFOGRAPHICS



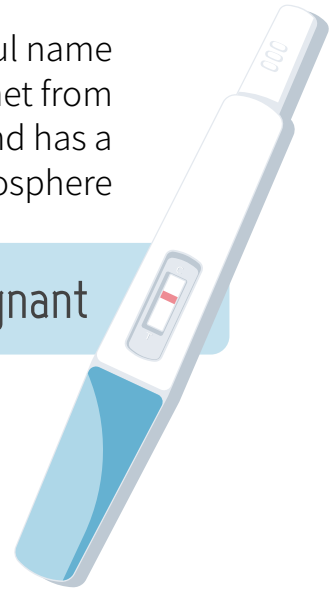
Pregnant

Mercury is the closest planet to the Sun and the smallest one in the Solar System—it's only a bit larger than the Moon



Not pregnant

Venus has a beautiful name and is the second planet from the Sun. It's hot and has a poisonous atmosphere



PREGNANCY BREAKTHROUGH INFOGRAPHICS

MONTH

1

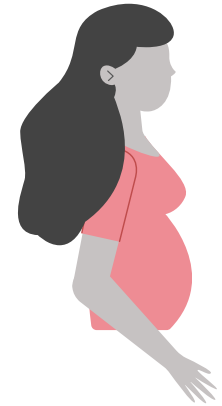
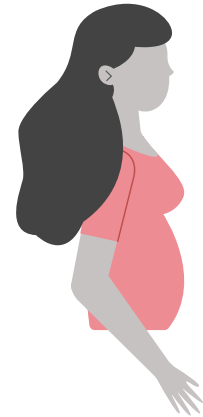
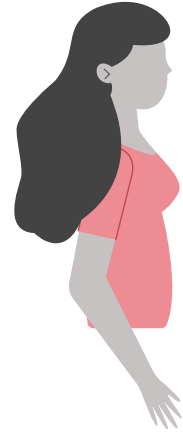
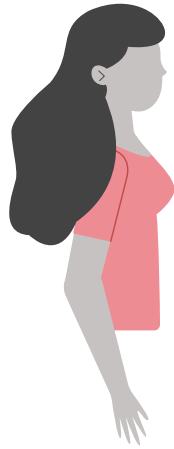
2

3

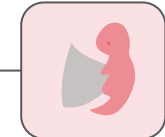
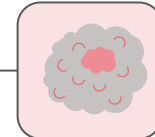
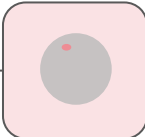
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PREGNANCY STAGES

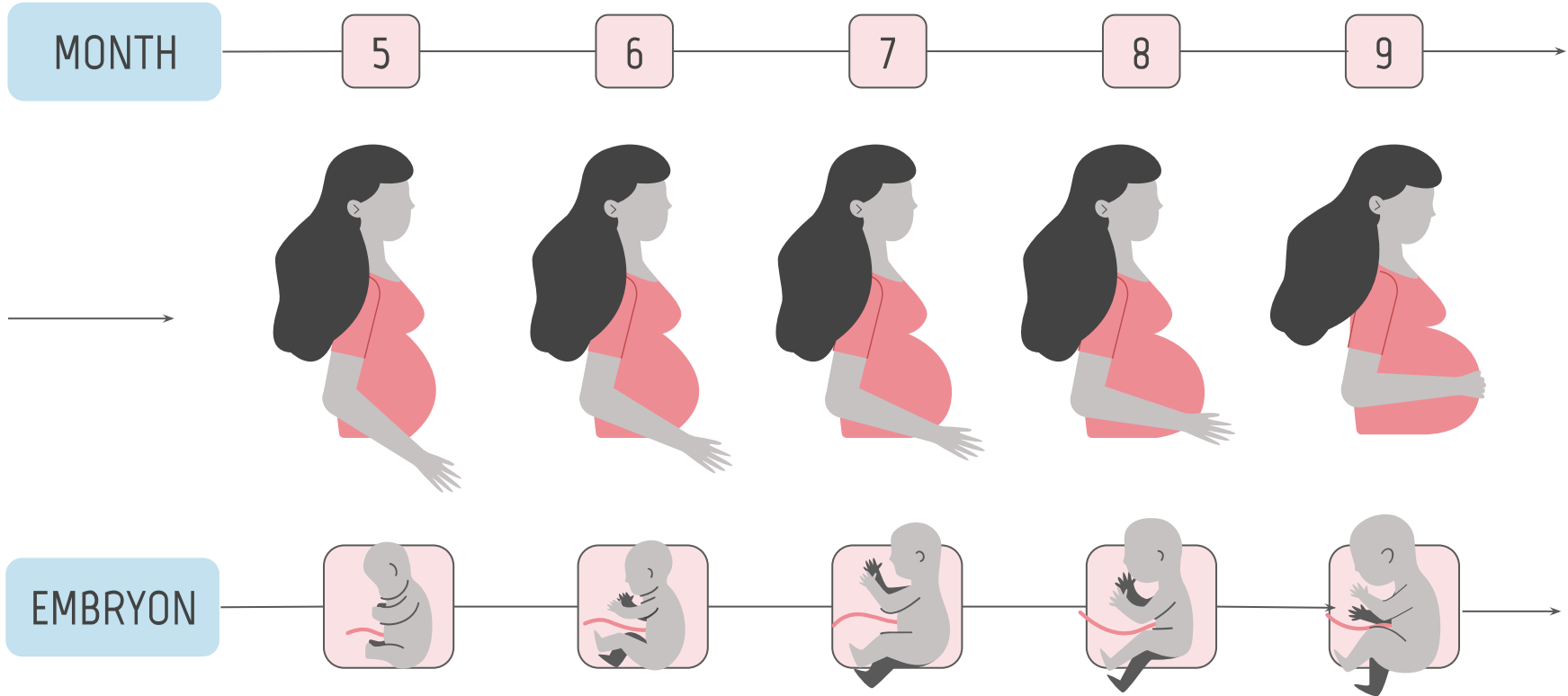
Venus is the second planet from the Sun. It's really hot there



EMBRYON

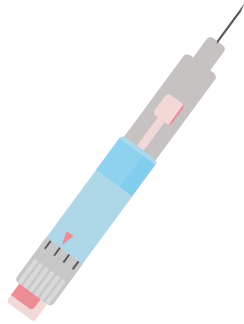


PREGNANCY BREAKTHROUGH INFOGRAPHICS



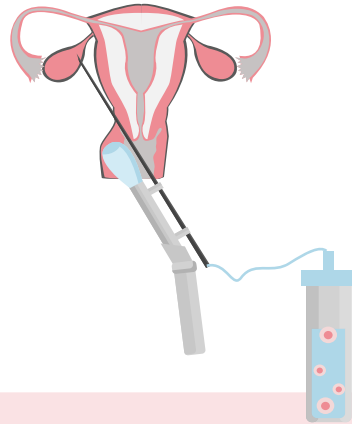
PREGNANCY BREAKTHROUGH INFOGRAPHICS

IN VITRO FERTILIZATION - PART I



PHASE 1

Ovarian stimulation
hormone therapy



PHASE 2

Egg pick up

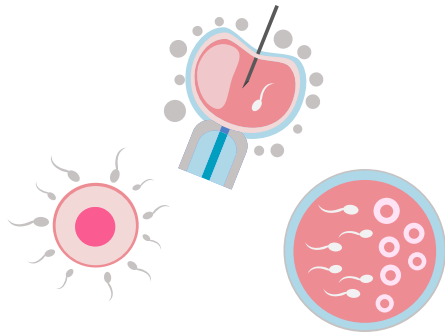


PHASE 3

Sperm preparation

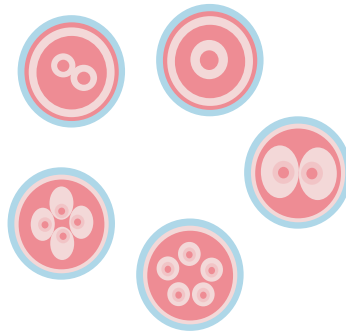
PREGNANCY BREAKTHROUGH INFOGRAPHICS

IN VITRO FERTILIZATION - PART II



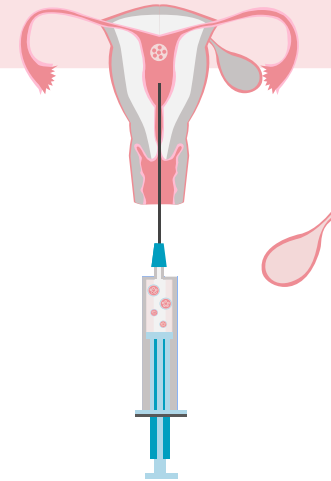
PHASE 4

Egg fertilization



PHASE 5

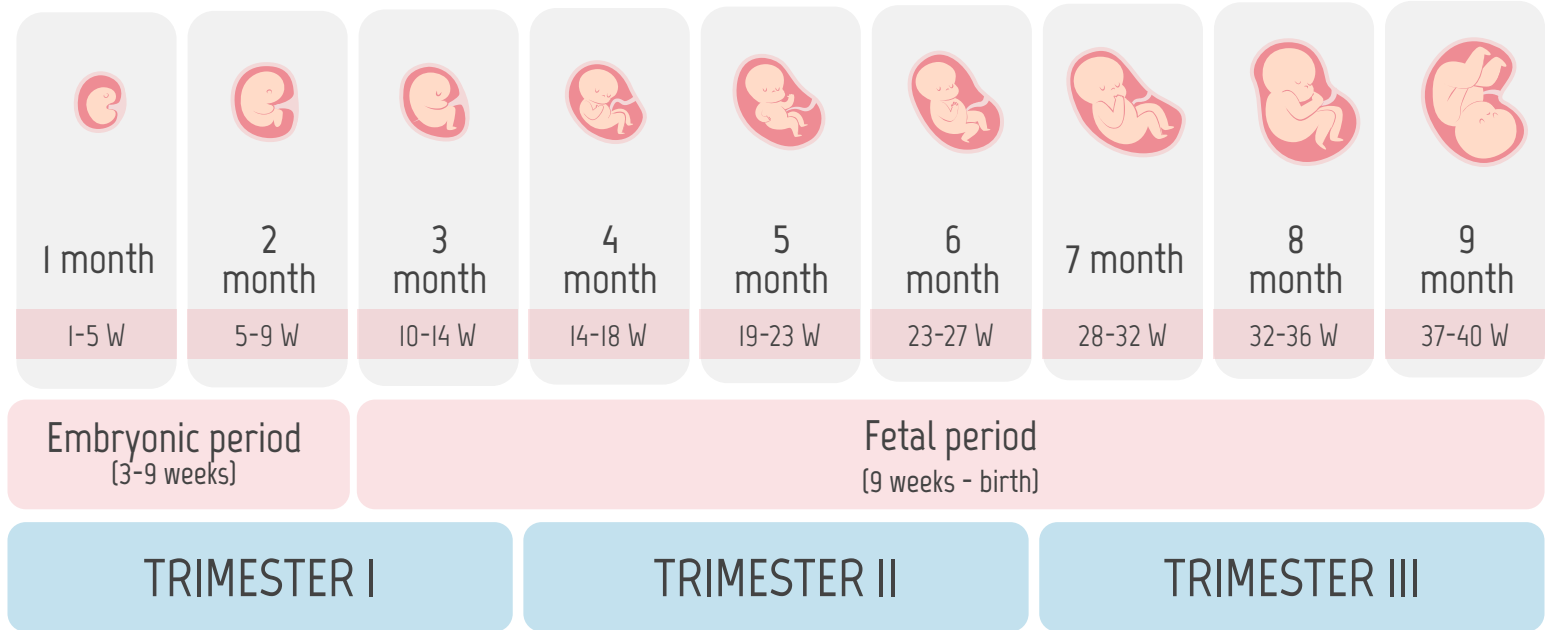
Embryo development



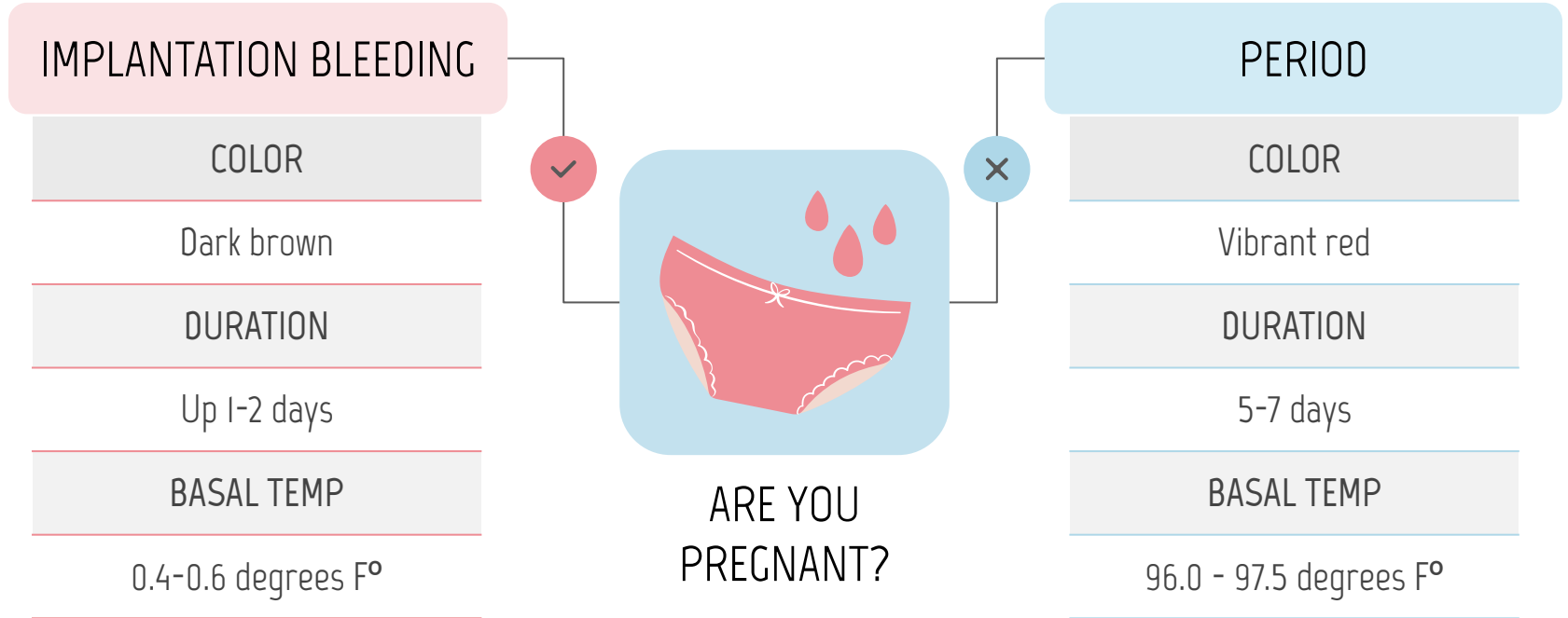
PHASE 6

Embryo transfer

PREGNANCY BREAKTHROUGH INFOGRAPHICS

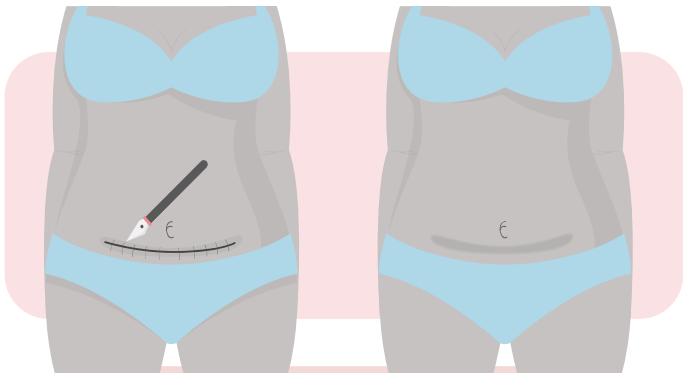


PREGNANCY BREAKTHROUGH INFOGRAPHICS



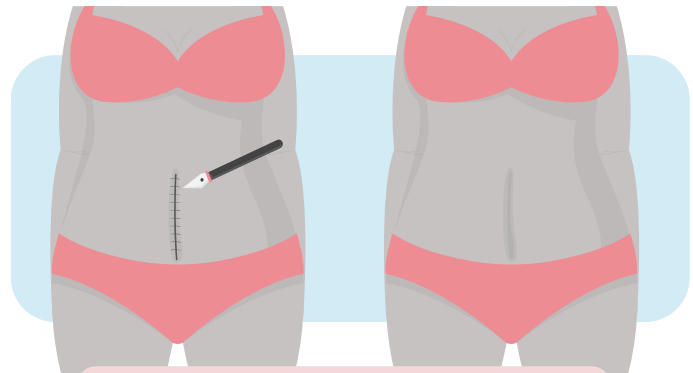
PREGNANCY BREAKTHROUGH INFOGRAPHICS

CESAREAN SECTION



LOW TRANSVERSE

Mercury is the closest planet to the Sun and the smallest one in the Solar System



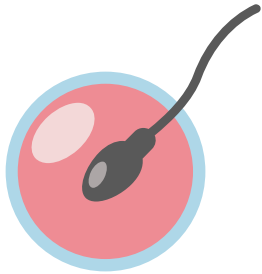
CLASSICAL

Venus has a beautiful name and is the second planet from the Sun

PREGNANCY BREAKTHROUGH INFOGRAPHICS

IN VITRO AND AGE

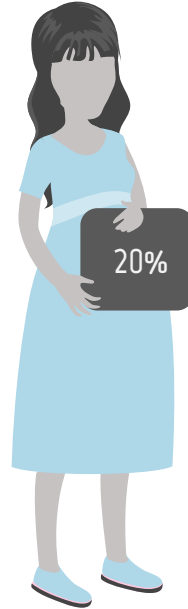
Mercury is the closest planet to the Sun and the smallest one in the Solar System



FERTILIZATION



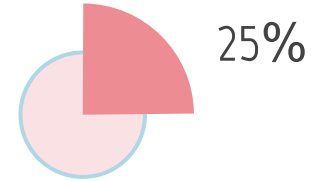
30 YEARS



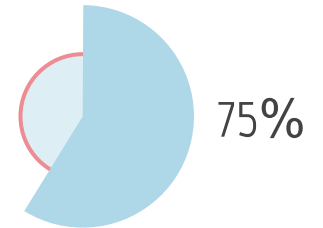
35 YEARS



40 YEARS



IN VITRO



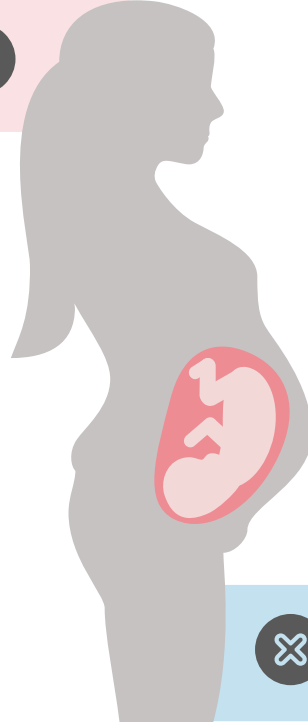
NATURAL

PREGNANCY BREAKTHROUGH INFOGRAPHICS

Trimester 3- MUST DO



- Mercury is the smallest planet of them all
- Jupiter is the biggest planet of them all
- Venus is the second planet from the Sun
- Saturn is composed of hydrogen and helium



Despite being red, Mars is actually a cold place

Neptune is the farthest planet from the Sun

Earth is the third planet from the Sun

Ceres is located in the main asteroid belt



Trimester 3- MUSTN'T DO

PREGNANCY BREAKTHROUGH INFOGRAPHICS

YOGA



1 VENUS

Venus is the second planet from the Sun

2 JUPITER

Jupiter is the biggest planet of them all



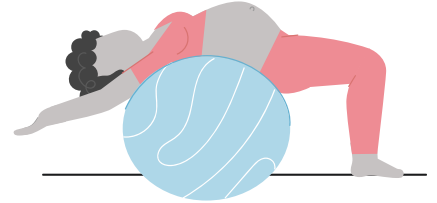
4 MARS

Mars is actually a very cold place



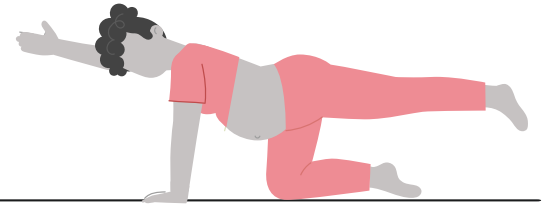
3 SATURN

It's composed of hydrogen and helium



5 NEPTUNE

It's the farthest planet from the Sun



PREGNANCY BREAKTHROUGH INFOGRAPHICS

JUPITER

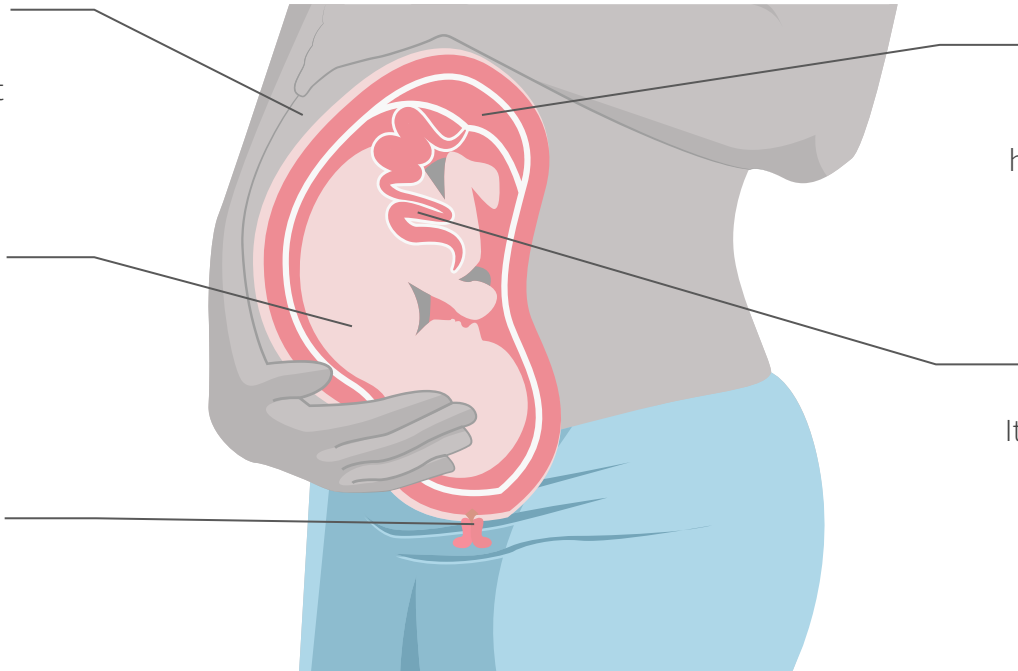
Jupiter is the biggest planet of them all

MARS

Mars is actually a very cold place

VENUS

Venus is the second planet from the Sun



SATURN

It's composed of hydrogen and helium

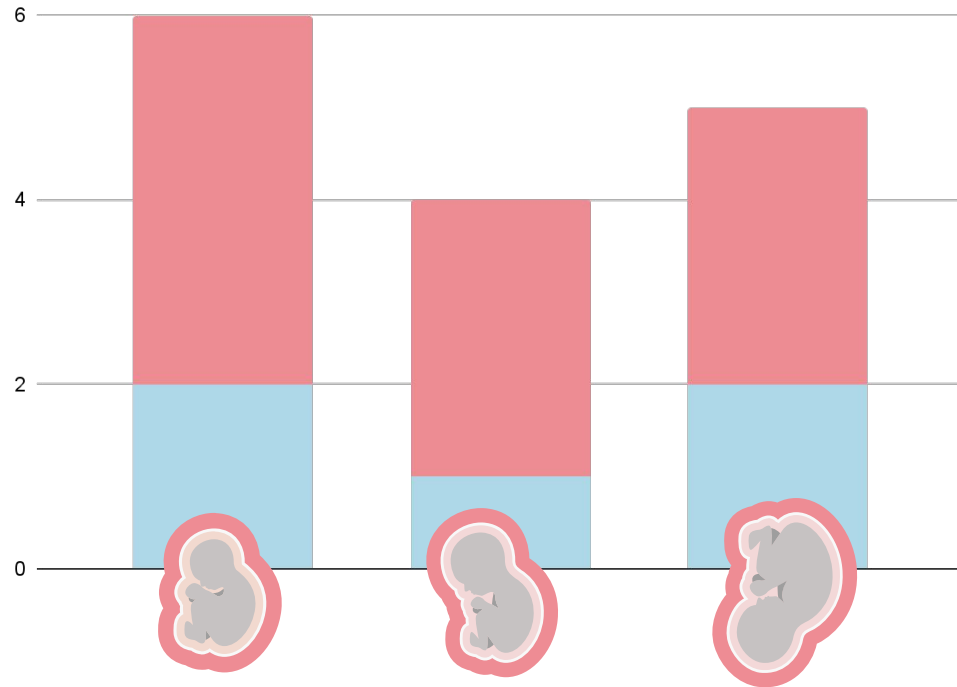
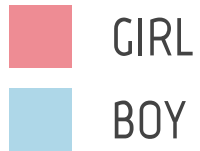
NEPTUNE

It's the farthest planet from the Sun

PREGNANCY BREAKTHROUGH INFOGRAPHICS

BIRTH RATE

Mercury is the smallest planet



Follow the link in the graph to modify its data and then paste the new one here. **For more info, click here**

PREGNANCY BREAKTHROUGH INFOGRAPHICS

BIRTH RATE

MERCURY

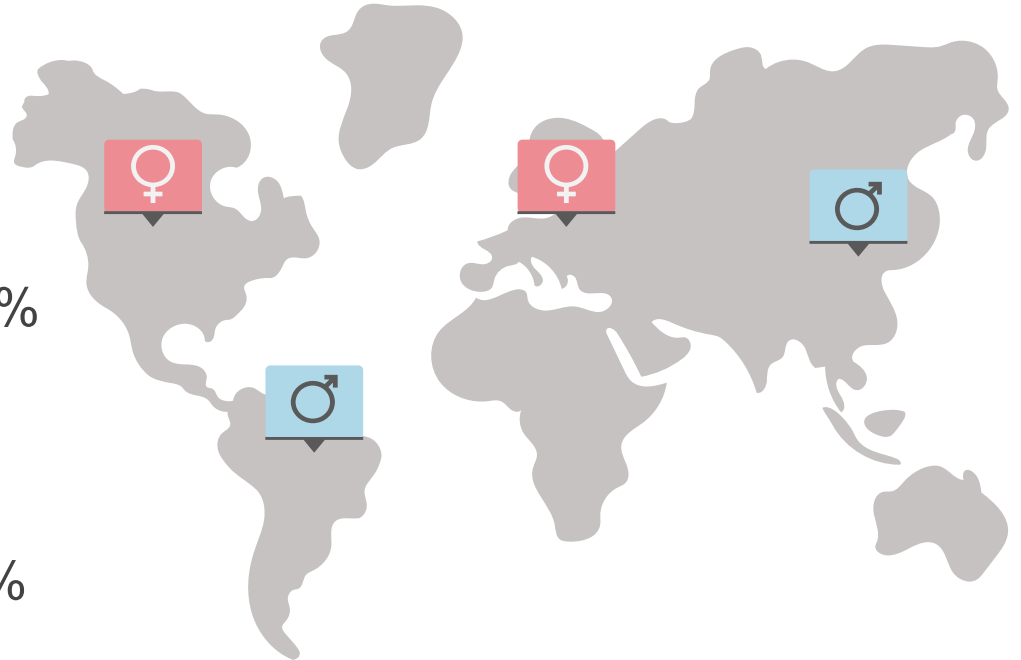


Mercury is the closest planet to the Sun and the smallest one

VENUS



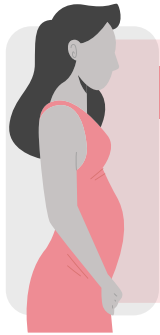
Venus has a beautiful name and is the second planet from the Sun



PREGNANCY BREAKTHROUGH INFOGRAPHICS

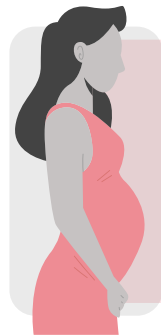
CALCULATE PREGNANCY IN WEEKS, MONTHS AND TRIMESTERS

TRIMESTER 1



MONTH	WEEKS
1	1-4
2	5-8
3	9-13

TRIMESTER 2



MONTH	WEEKS
4	14-17
5	18-21
6	22-26

TRIMESTER 3



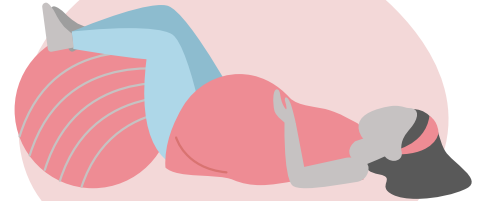
MONTH	WEEKS
7	27-30
8	31-35
9	36-40

PREGNANCY BREAKTHROUGH INFOGRAPHICS



BIRTH OPTION # 1

Despite being red, Mars is actually a cold place



BIRTH OPTION # 3

Mercury is the smallest planet of them all

BIRTH OPTION # 2

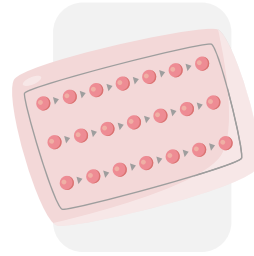
Venus is the second planet from the Sun



PREGNANCY BREAKTHROUGH INFOGRAPHICS

CONTRACEPTION METHODS

Venus has a beautiful name and is the second planet from the Sun



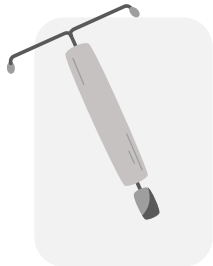
MERCURY



PLUTO



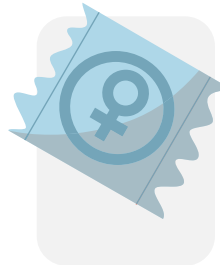
VENUS



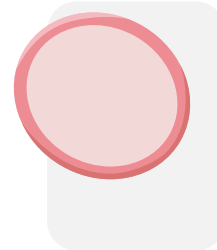
MARS



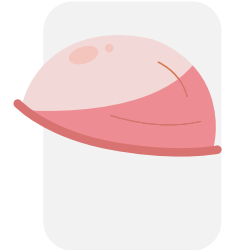
SATURN



JUPITER

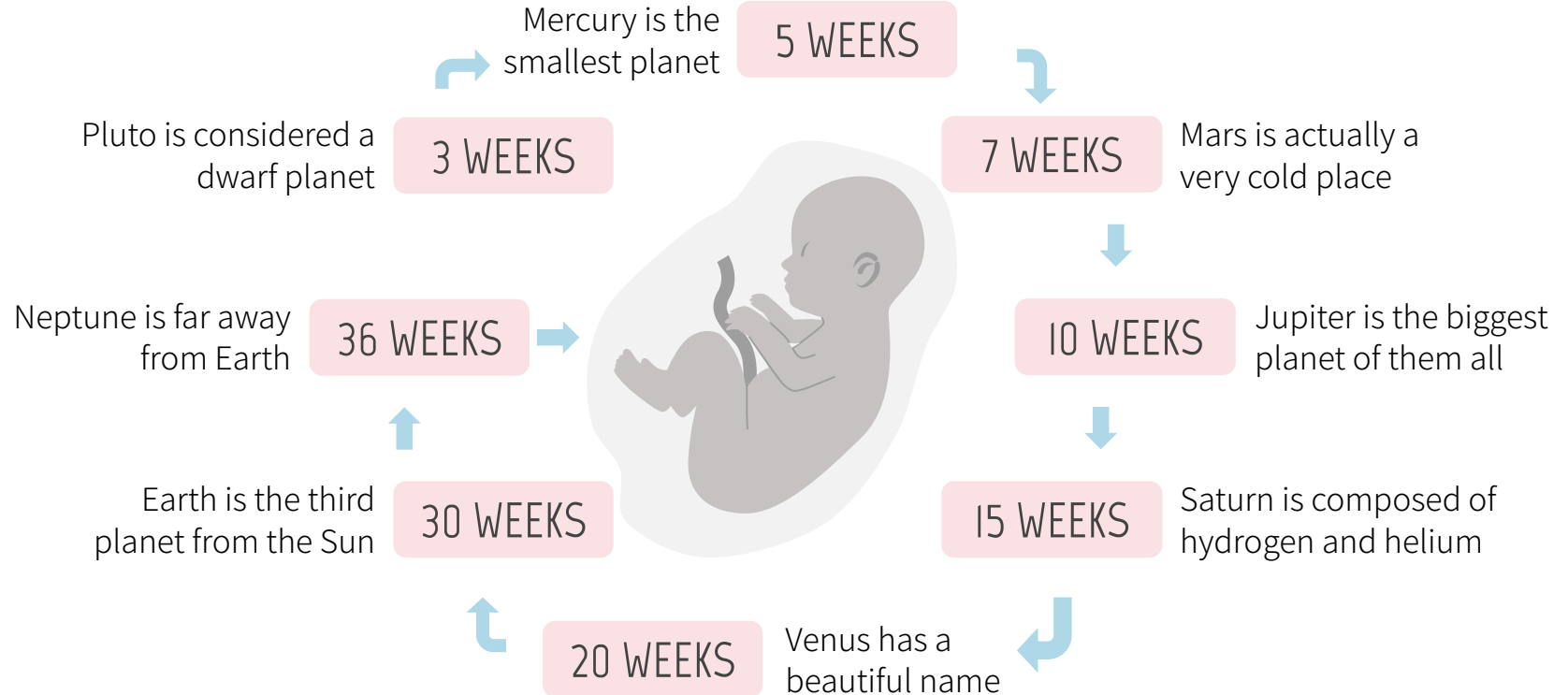


NEPTUNE



EARTH

PREGNANCY BREAKTHROUGH INFOGRAPHICS



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- **Change the color** by clicking on the paint bucket.
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