



WOMB WELLBEING

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Fetal & Neonatal Mortality

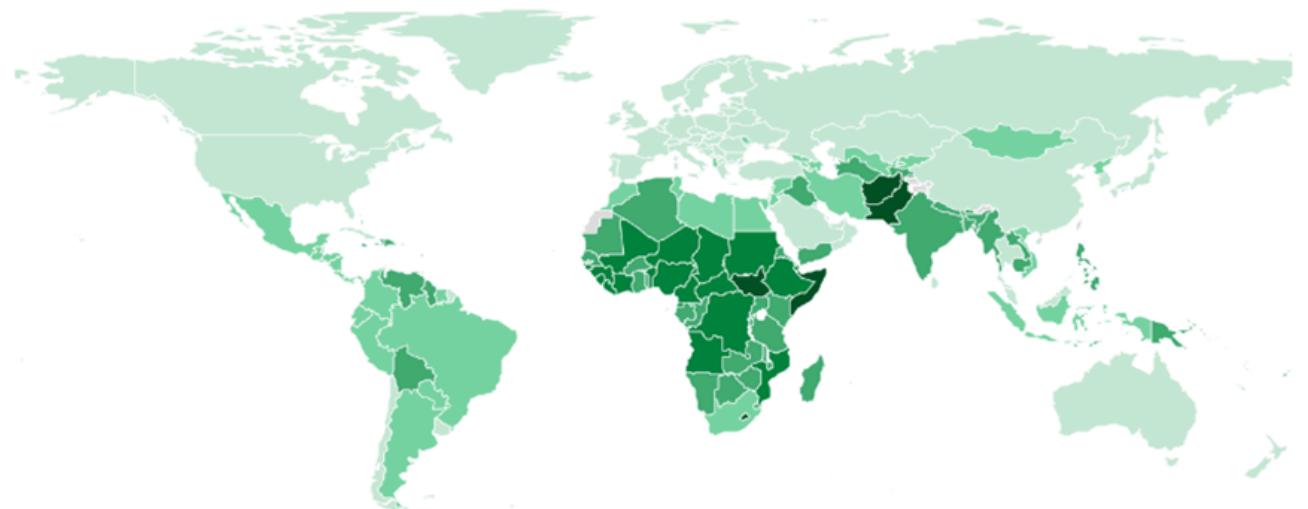
- Fetal mortality, also known as stillbirth, is a tragic event wherein a baby dies in the womb before birth, typically after 20 weeks of gestation. While neonatal mortality refers to the death of a newborn within the first 28 days of life.
- Globally 2.3 million children died in the first 20 days of life in 2022. There are approximately 6500 newborn deaths every day, amounting to 47% of all child deaths under the age of 5 years.



Neonatal mortality rate (deaths per 1,000 live births) by country, 2022



Neonatal mortality rate (deaths per 1,000 live births) by country, 2022



● ≤5 ● 5 to 12 ● 12 to 25 ● 25 to 35 ● >35

This map does not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers.

Note: The classification is based on unrounded numbers.

Source: United Nations Inter-agency Group for Child Mortality Estimation (UN IGME), 2024

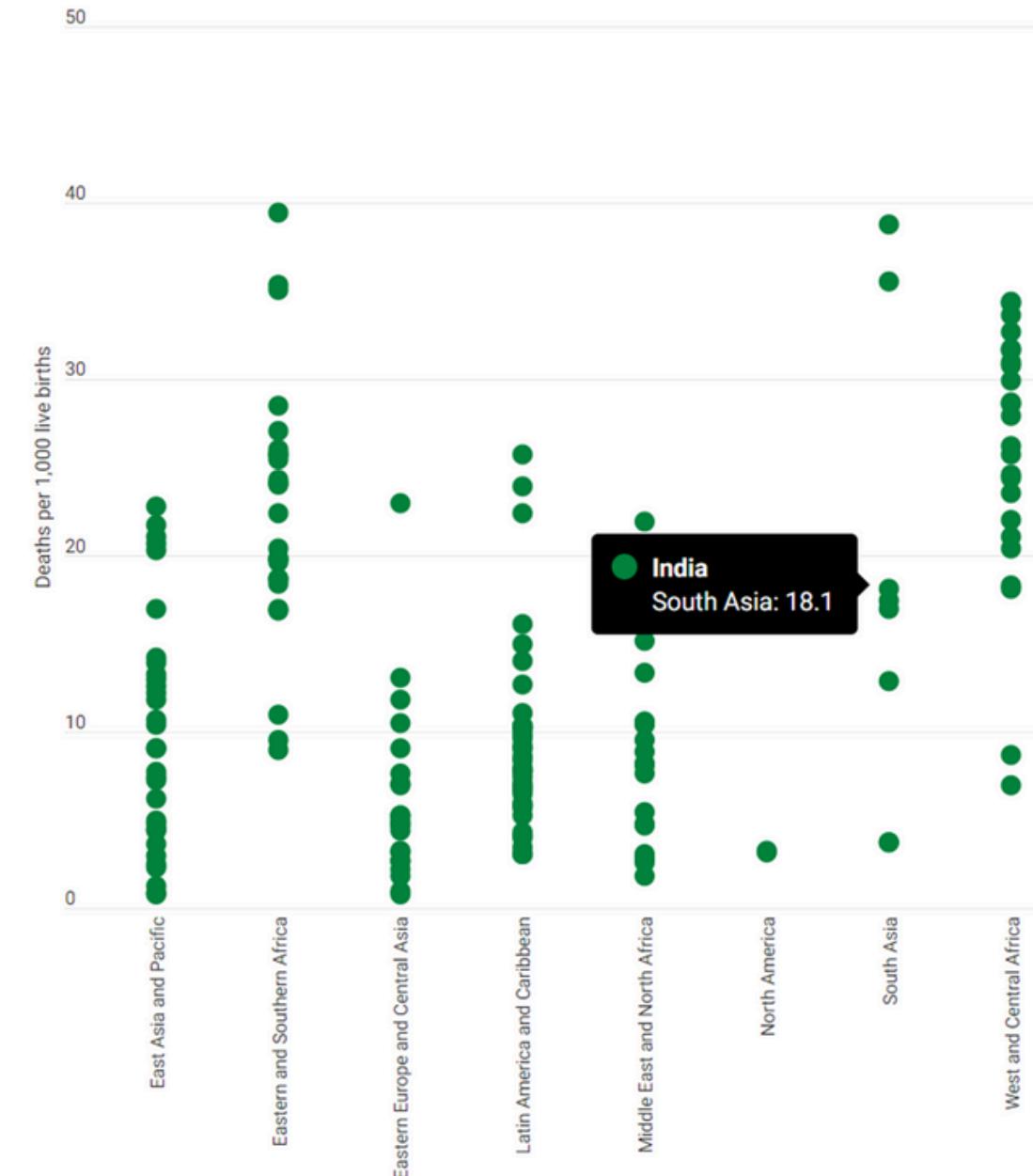


On India

- India contributes to one-fifth of global live births and more than a quarter of neonatal deaths.
- India had 4,68,000 neonatal deaths in 2020. The neonatal mortality rate in India in 2022 was 18 deaths per 1,000 live births



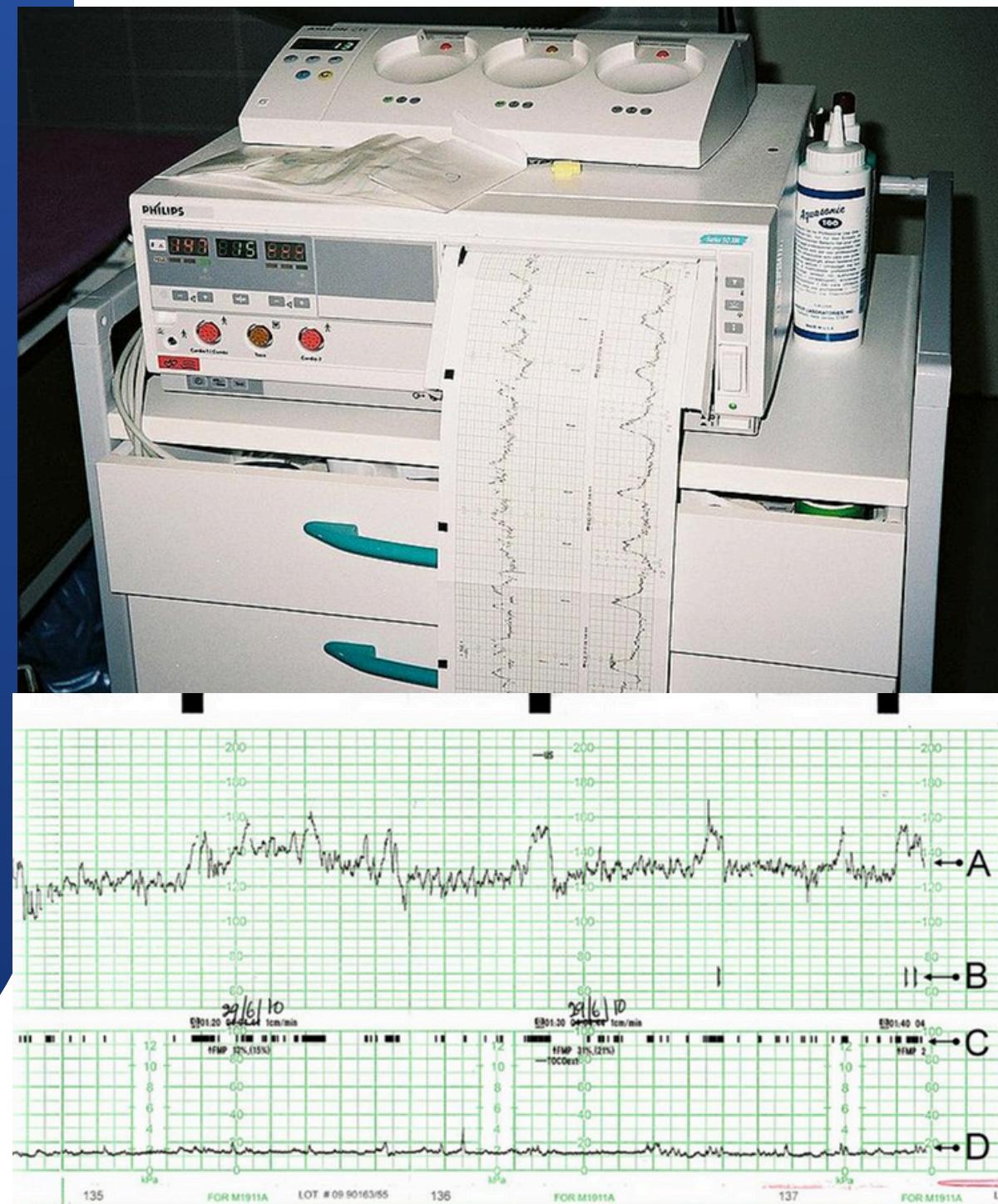
Neonatal mortality rates, by country and region, 2022



Source: United Nations Inter-agency Group for Child Mortality Estimation (UN IGME), 2024

CARDIOTOCOGRAPH

- Cardiotocograph :- A device that is widely used to assess fetal well-being during labour. This device is indispensable for the purpose of observing Fetal Heart Rate, Uterine Contractions and other important parameters of Fetal Health
- According to the Cochrane review from February 2017, CTG was associated with fewer neonatal seizures. But
- While CTG is a valuable tool in obstetrics, there are several issues associated with its use, which ultimately leads to its inefficiency in properly assessing Fetal Health and resulting in no improvement in the Fetal Mortality Scenario.
- In particular, CTG interpretation requires specialized training and experience. Misinterpretation of CTG traces can lead to both false positives (unnecessary interventions) and false negatives (missed signs of fetal distress). Also interpretation of CTG traces can vary among healthcare providers, leading to inconsistencies in management decisions.



- There is also the factor of cost. The significant requirement of equipment, staffs and training all add to healthcare cost.
- All these issues become more prevalent in low-resource settings.
- This is where we would like to introduce Fetus Health Classifier

Fetal Health



- This section is responsible for classifying the health of the fetus based on certain parameters
- The parameters include baseline Fetal Heart Rate, Uterine Contractions, fetal movement that are obtained from CFT.
- Then these parameters are analyzed by our machine learning model that has been trained on a huge dataset of values using 3 different algorithms - Random Forest, K Neighbors and Support Vector Machine algorithm.

Foetus Data	
Baseline Value	133
Accelerations	0.003
fetal_movement	0
uterine_contractions	0.008
light_decelerations	0.003
severe_decelerations	0
prolonged_decelerations	0
abnormal_short_term_variability	16
mean_value_of_short_term_variability	2.1
percentage_of_time_with_abnct	0
mean_value_of_long_term_variability	13.4
histogram_width	130
histogram_min	68
histogram_max	198



- The model gives us an output with the health of the fetus classified as either normal, suspect or pathological.
- This system can be used to greatly reduce the time taken to analyze the CFT data by trained individuals. It also lowers the requirement of skilled analyzers.

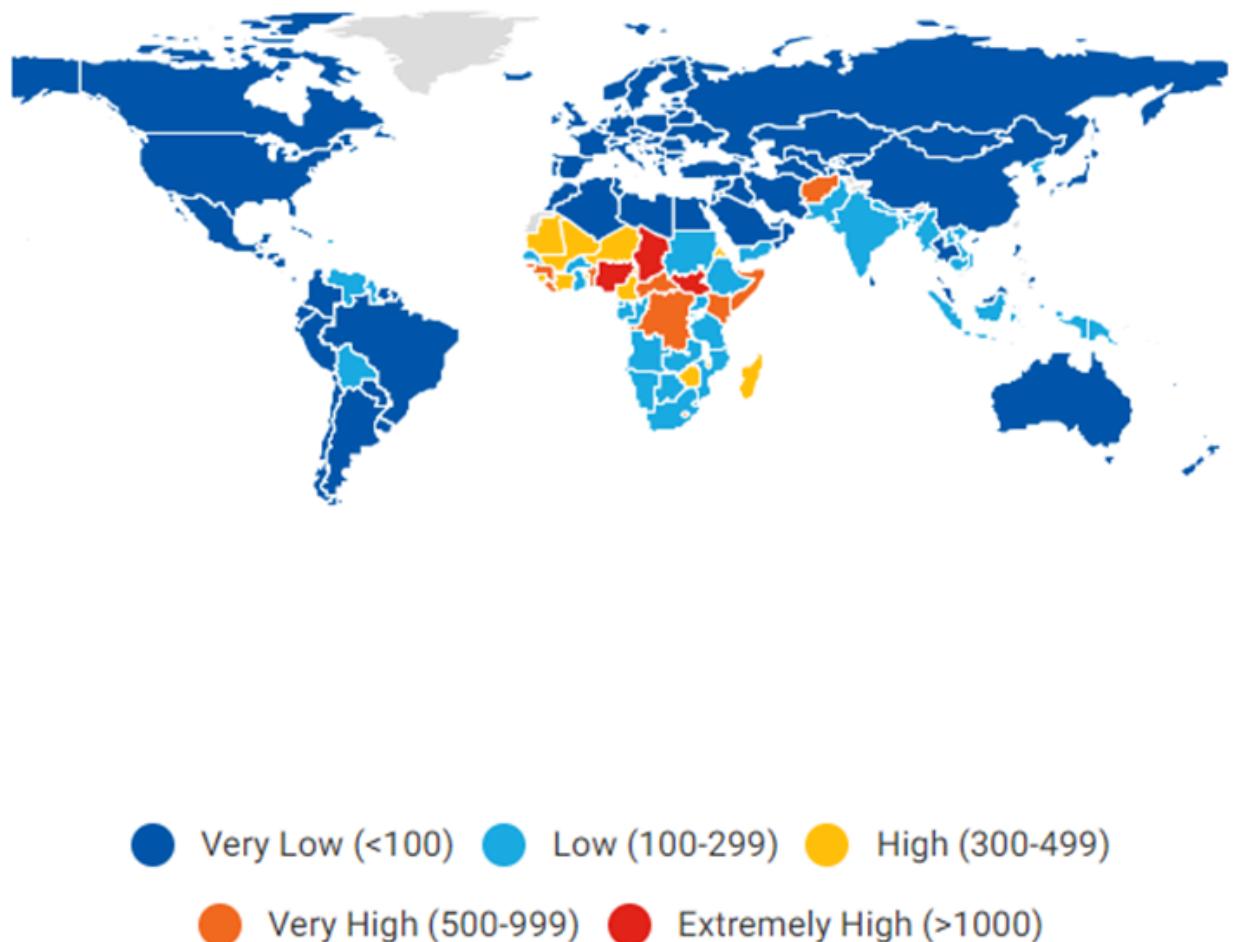


Maternal Mortality

- Parallel to notion of child mortality is of course maternal mortality, which accounts for 295 000 deaths during and following pregnancy and childbirth.
- Maternal mortality refers to the death of a woman during pregnancy, childbirth, or within 42 days of the termination of pregnancy
- Every day in 2020, almost 800 women died from preventable causes related to pregnancy and childbirth. A maternal death occurred almost every two minutes in 2020



Maternal Mortality Ratio, (maternal deaths per 100,000 live births)



- The vast majority of these deaths (94%) occurred in low-resource settings, and most could have been prevented.
- So, we also included an additional feature to monitor the health of mothers with the inclusion of Mother Health Classifier



Mother Health Classifier

- This section is responsible for classifying the health of the mother under pregnancy
- The inputs to this section involve Age, Systolic Blood Pressure, Heart Rate, Blood Glucose etc and gives us the risk level.
- The risk is classified as High Risk, Mid Risk and Low Risk
- The model responsible for the predictions is trained on data obtained from different hospitals, community clinics and maternal health cares through IoT based risk monitoring system.
- This system compliments the fetal health classifier. The health of the fetus is largely dependent on the health of the mother



Womb Wellness

Resize this responsive page to see the effect!

Welcome Aditya Shravan | [Log out](#)

[View All Documents](#)

Mother Data

Patient Name

Rohan

Gender

Female Other

Patient Age

16

SystolicBP (in mm Hg)

100

DiastolicBP (in mm Hg)

70

BS

7.2

BodyTemp (in Fahrenheit)

98

HeartRate (in BPM)

80

Psychological Wellbeing



- Mental Wellbeing is a critical aspect during pregnancy that can have an impact on both Fetal as well as Maternal outcomes.
- Mothers are very prone to issues such as Anxiety, Depression, Eating Disorders etc, which can influence fetal development and health outcomes.
- Therefore we found it necessary to also include a section dedicated to analyzing and diagnosing the mental wellbeing of parents during this period.
- We have accomplished this in Mental Health Classifier





Mental Health Classifier

Parent Health (Both F/M)

Entity	Afghanistan
Country Code	AFG
Year	1990
Schizophrenia Disorders	0.22320578
Depressive Disorders	4.996118
Anxiety disorders	4.713314
Bipolar Disorders	0.70302314
Eating disorders	0.12770003

Submit

- This section is responsible for the mental health diagnosis of the user.
- It is based on proven medical practices and psychological assessment test and involves a question-and-answer type interface where users answer the questions based on how they feel about it.
- This system can be used by both the father and the mother without the need of any external parameter and provides an automatically generated report based on its findings directly to the user.



Bussiness Prospects



- Our project caters to two different users which vastly increases our target audience :-
1)The Doctors 2)The Parents
- The project is capable of releasing a fully-built report of the maternal and psychological well being of the mother and display it to the users. It also sends a copy of the report to the doctor to keep them informed
- The project falls under Health Tech field which has been booming in revenue in recent times
- The global digital health market in terms of revenue was estimated to be worth \$180.2 billion dollars un 2023 and poised to reach \$549.7 billion by 2028.
- In India, the Indian Healthtech market is projected to reach \$25 billion by 2025 and \$50 billion by 2033.
- Our project circumvents the need to employ trained individuals in low-resource settings, effectively lowering the cost of childbirth and subsequent treatments and care.
- With the use of AI and an ever growing dataset, the project can be updated to reach higher levels of precision
- Since our project works as a Web Application, it can also penetrate the mobile platforms of smartphones and tablets, multiplying its reach.

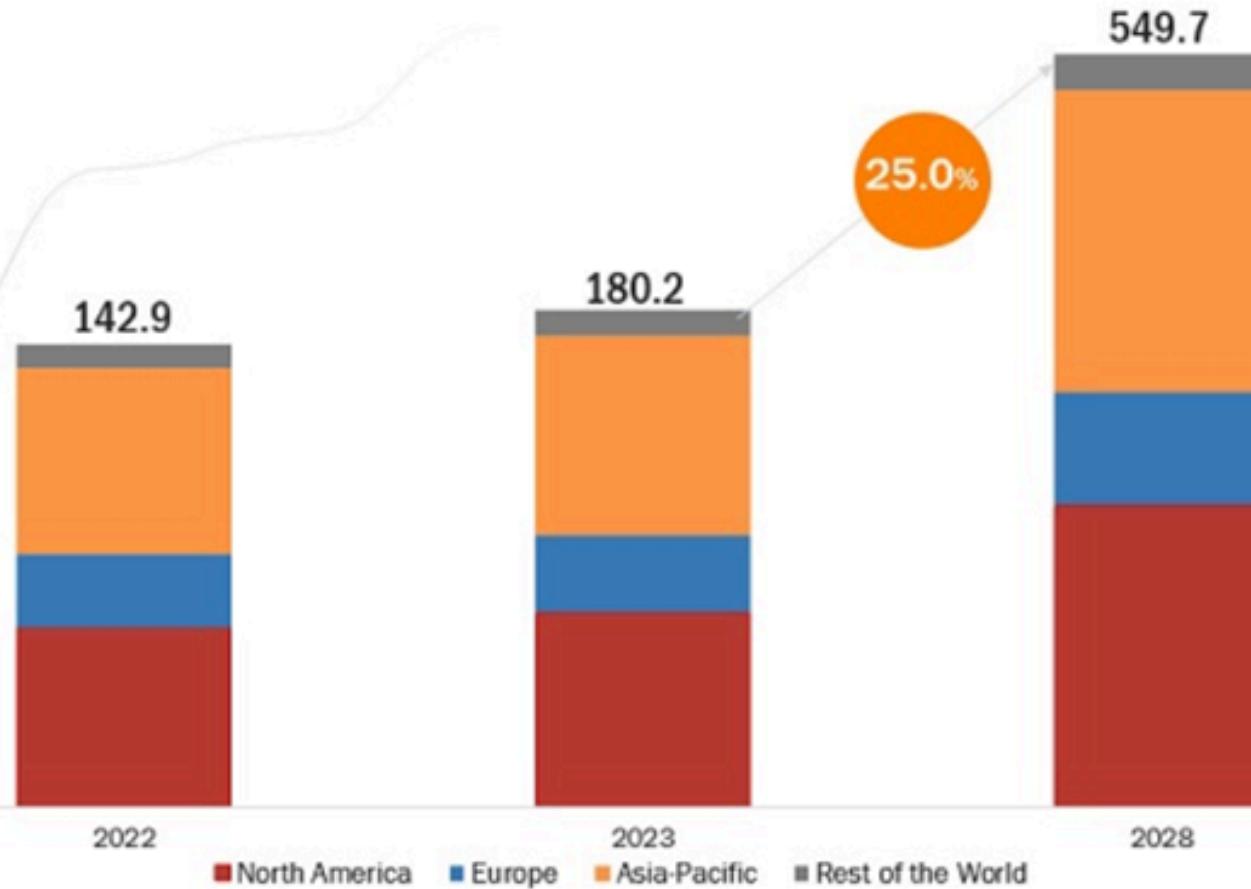


DIGITAL HEALTH MARKET GLOBAL FORECAST TO 2028 (USD BN)



CAGR OF
25.0%

The global digital health in healthcare market is estimated to grow from USD 180.3 billion in 2023 to USD 549.7 billion by 2028, at a CAGR of 25.0%.



Global Digital Health Market Trend

Our Team



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Thank You