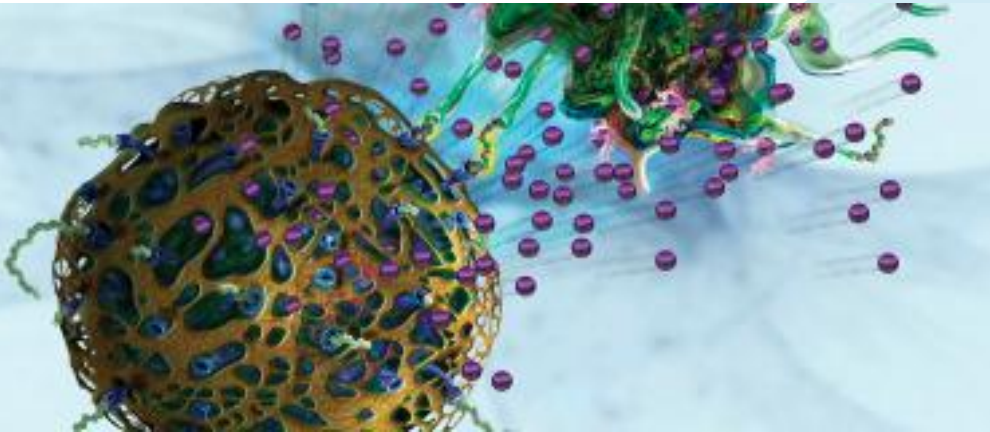




# APPROACH TO A CHILD WITH CANCER



Prof. Dr. Handan Uğur Dinçaslan





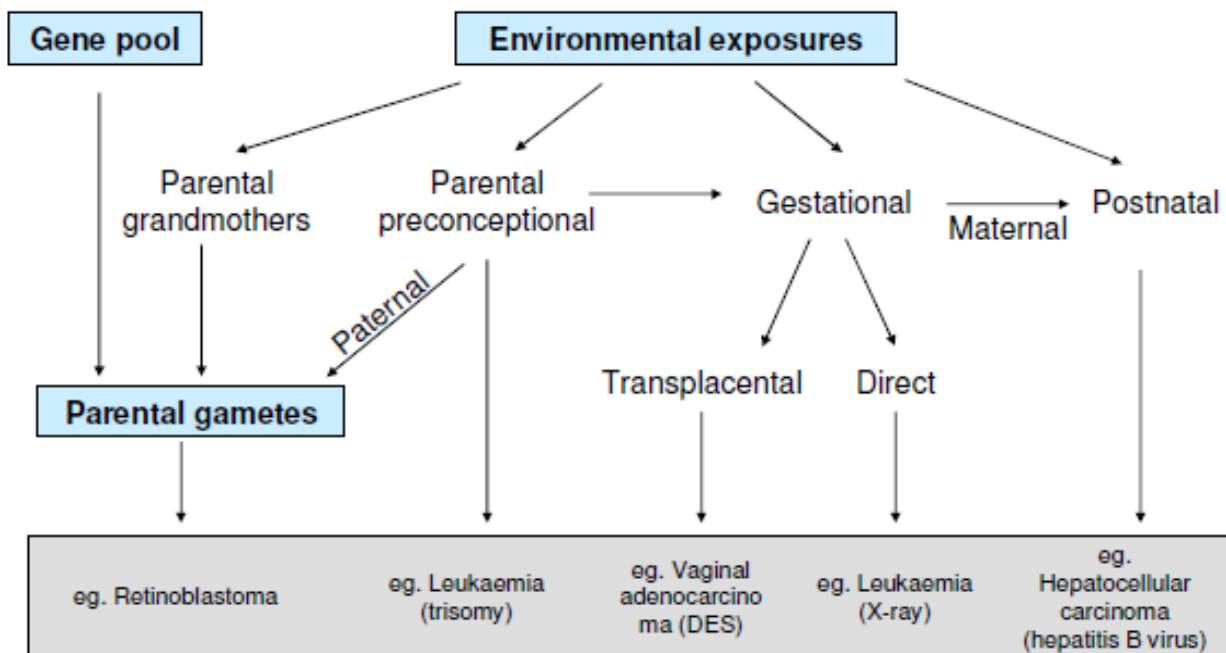
# CANCER IN CHILDREN



- The word “**cancer**” is used to describe a group of diseases in which abnormal cells divide without control, invade nearby tissues, and spread to other parts of the body through the blood and lymph systems.
- The most common childhood cancers are leukemia, lymphoma and brain and other central nervous system tumors.

## Children and Cancer

### MULTI-CAUSAL! - MULTI-GENERATIONAL?



# CHILDREN ARE NOT LITTLE ADULTS



*Raphael, National Gallery of Art, Washington, DC*

1. Different and unique exposures
2. Dynamic developmental physiology
3. Longer life expectancy
4. Politically powerless



# How can we approach to a child who diagnosed cancer?

- Childhood cancers require a multimodal approach.
- Cancer treatment provided by a team.
  - Pediatric oncologist/hematologist
  - Pediatric surgeon /Neurosurgeon /Orthopedic surgeon
  - Radiologist
  - Radiation oncologist
  - Pediatric psychologist
  - Pathologist
  - Supportive care team



# Step 1: Correct diagnosis

- Evolution of the symptoms
  - Fever
  - Feeling tired
  - Swollen glands
  - Weight loss
  - Bruising or tender joints or bones



# Diagnostic tests and procedures

- **Physical examination**
- **Blood tests**
  - **A blood chemistry study**
  - **A CBC with differential (also called blood cell count with differential)**
  - **A peripheral blood smear**
  - **Viral studies**



# Diagnostic tests and procedures

- A tumor marker test

TUMOUR BIOMARKER	CANCER TYPE
Alfa-fetoprotein	Germ-cell hepatoma
Calcitonin	Medullary thyroid carcinoma
CA 125	Ovarian
CA 15-3	Breast
CA 19-9	Pancreatic
Carcinoembryonic antigen	Colon
ER and PgR	Breast
HER2	Breast
Human chorionic gonadotropin-beta	Testicular
Lactate dehydrogenase	Germ cell
Prostate-specific antigen	Prostate
Thyroglobulin	Thyroid

*Based on Kulasingam V. Nature Clinical Practice Oncology, 2008,5:588-599*



# Diagnostic tests and procedures

- **Scans**
  - A bone scan
  - A CT scan (computerized tomography)
  - An MRI (magnetic resonance imaging)
  - A PET scan (positron emission tomography scan)
  - An ultrasound.
  - X-ray





# Diagnostic tests and procedures

- **A biopsy**

- an **incisional biopsy** removes only a sample of tissue

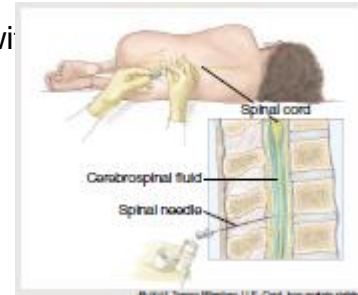
- an **excisional biopsy**

- a **needle biopsy** removes



of a suspicious area

fluid with



- **Bone marrow aspiration**

- **Bone marrow biopsy**

- **A spinal tap (also called a lumbar puncture)**



## Step 2: Risk group, grade, or stage: Planning treatment

- **Risk group**
- **Grade**
- **Stage**



# Step 3: Determination of treatment options

- Childhood cancers require a multimodal approach.
- Cancer treatment provided by a team.
  - Pediatric oncologist/hematologist
  - Pediatric surgeon /Neurosurgeon /Orthopedic surgeon
  - Radiologist
  - Radiation oncologist
  - Pediatric psychologist
  - Pathologist
  - Supportive care team

CHEMOTHERAPY

RADIOTHERAPY

SURGERY



## Step 4: Talking to family and (if possible) child

- About the cancer
- About painful treatments or procedures
- About possible side effects (early and late)

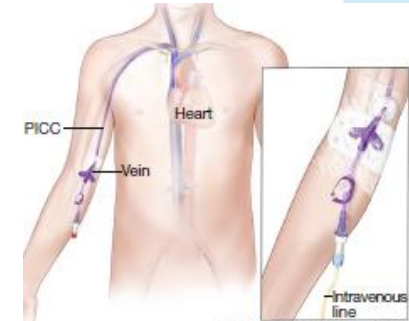
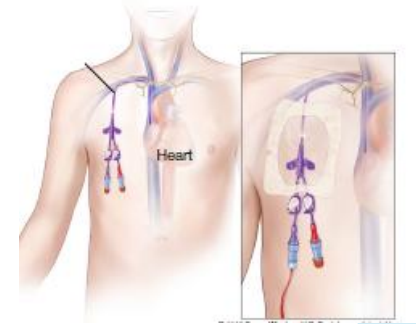
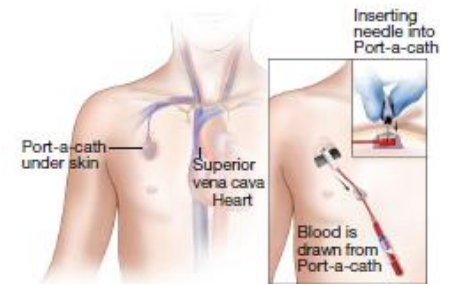


# Step 5: Treatment preparation

- How chemotherapy works?
- How chemotherapy is given?
- IV (intravenous)
- Oral
- As a shot (injection) into a muscle or another part of the body or under the skin
- Topical

# Step 6: Treatment preparation

- IV catheterization
  - Port-a-cath (port or subcutaneous implantable port)
  - Central venous catheter (tunneled catheter)
  - Peripherally inserted central catheter (PICC)





# Step 7: Possible side effects

- How chemotherapy works?
- How chemotherapy is given?
- IV (intravenous)
- Oral
- As a shot (injection) into a muscle or another part of the body or under the skin
- Topical





## Step 8: Supportive care during treatment

- How chemotherapy works?
- How chemotherapy is given?
- IV (intravenous)
- Oral
- As a shot (injection) into a muscle or another part of the body or under the skin
- Topical



# Step 5: Making a follow-up plan after treatment

- Childhood cancers require a multimodal approach.
- Cancer treatment provided by a team.
  - Pediatric oncologist/hematologist
  - Pediatric surgeon /Neurosurgeon /Orthopedic surgeon
  - Radiologist
  - Radiation oncologist
  - Pediatric psychologist
  - Pathologist
  - Supportive care team



# Step 6: Monitoring for late effects

- Childhood cancers require a multimodal approach.
- Cancer treatment provided by a team.
  - Pediatric oncologist/hematologist
  - Pediatric surgeon /Neurosurgeon /Orthopedic surgeon
  - Radiologist
  - Radiation oncologist
  - Pediatric psychologist
  - Pathologist
  - Supportive care team



# Step 7: Palliative care

- How chemotherapy works?
- How chemotherapy is given?
- IV (intravenous)
- Oral
- As a shot (injection) into a muscle or another part of the body or under the skin
- Topical

# TABLE OF CONTENTS ...

## 01

### OBJECTIVES

Here you could describe  
the topic of the section

## 02

### METHODOLOGY

Here you could describe  
the topic of the section

## 03

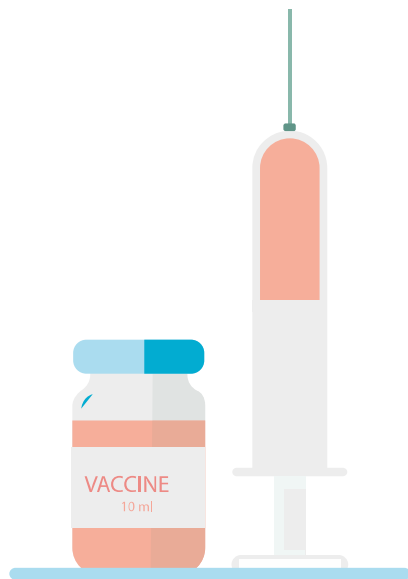
### RESULTS ANALYSIS

Here you could describe  
the topic of the section

## 04

### CONCLUSIONS

Here you could describe  
the topic of the section



# 01

## OBJECTIVES

You can enter a subtitle here if you need it





## INTRODUCTION

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



# BACKGROUND ...

01

## MERCURY

Mercury is the closest planet to the Sun

02

## MARS

Despite being red, Mars is actually a cold place

03

## JUPITER

It's the biggest planet in the Solar System

04

## VENUS

Venus has a beautiful name, but it's terribly hot

05

## SATURN

Saturn is the ringed one and a gas giant

06

## NEPTUNE

Neptune is the farthest planet from the Sun





## GOALS ...

### MERCURY

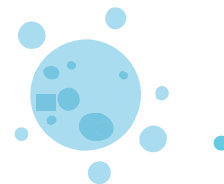
Mercury is the closest planet to the Sun and the smallest one in the Solar System

### VENUS

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

### JUPITER

Jupiter is a gas giant and also the biggest planet in the entire Solar System



# METHODS ...

## NEPTUNE

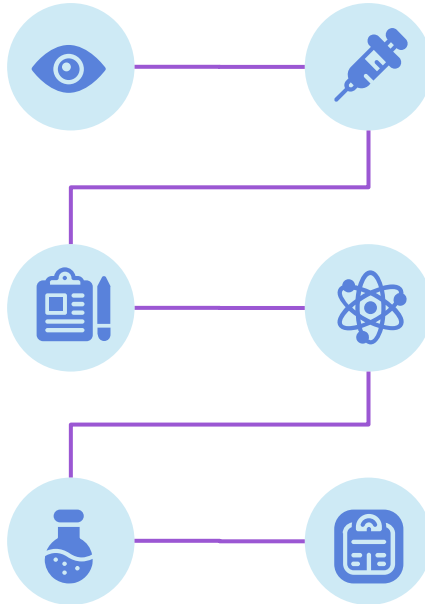
Neptune is the farthest planet from the Sun

## SATURN

Saturn is the ringed one and a gas giant

## VENUS

Venus has a beautiful name, but it's terribly hot



## MERCURY

Mercury is the closest planet to the Sun

## MARS

Despite being red, Mars is a cold place

## JUPITER

It's the biggest planet in the Solar System

# RESEARCH AND PUBLICATIONS ...



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

by **MERCURY**



Mars is full of iron oxide dust, which gives the planet its reddish cast

by **MARS**

# RESEARCH RESOURCES ...

- Here you can list your reference websites or publications.
- Here you can list your reference websites or publications.
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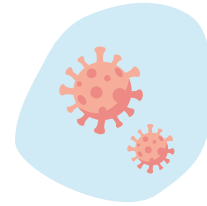


# FACTORS TO CONSIDER...



## VENUS

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

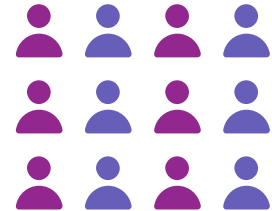


## MERCURY

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

# CLINICAL TRIAL ...

PRECLINICAL	PHASE 1	PHASE 2	PHASE 3
Lab Studies	Human Safety	Expanded Safety	Efficacy & Safety



# TRIAL TIMELINE ...



## EXPERIMENTATION

Despite their size, planets from the solar system



## CONCLUSIONS

Mercury is the closest planet to the Sun



## PRECLINICAL

Jupiter is a gas giant and the biggest planet



## RESULTS

Saturn is a gas giant and has several rings

# PHASE 1 ...

## SAMPLE



Young healthy  
people



20 - 80  
Participants

## SECONDARY EFFECTS

# 80%

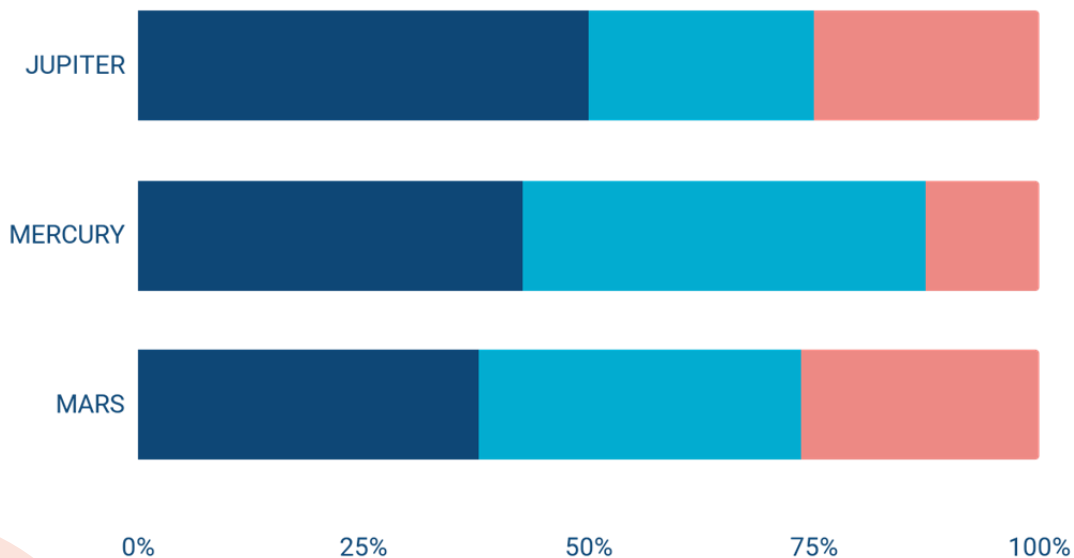
Success rate

Mercury is the closest  
planet to the Sun

RESULTS	GOAL	6 MONTHS
Venus is the second planet from the Sun	Study the safety of medication	Experimentation time



# TENDENCY ...



## MARS

Despite being red, Mars is a cold place

## JUPITER

It's the biggest planet in the Solar System

## MERCURY

Mercury is the closest planet to the Sun

To modify this graph, click on it, follow the link, change the data and paste the resulting graph here

**A PICTURE IS  
WORTH A  
THOUSAND  
WORDS**

...

# RESULTS ...

## Experiment A

	OUTCOME		
TREATMENT	Test 1	Test 2	Test 3
Group 1	315	285	600
Group 2	210	390	600
Group 3	240	165	580

## Experiment B

	OUTCOME		
TREATMENT	Test 1	Test 2	Test 3
Group 1	189	285	474
Group 2	210	234	444
Group 3	367	123	396

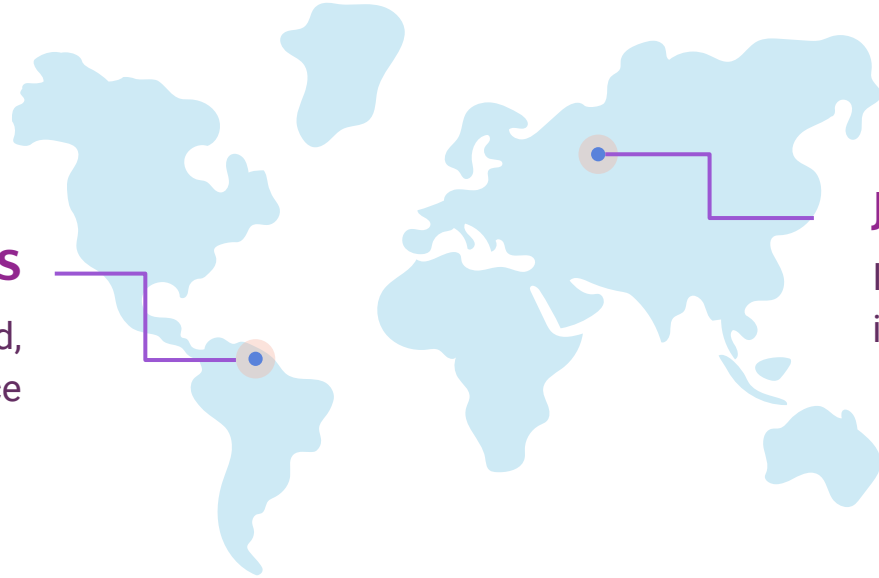
# RESULTS ...

## MARS

Despite being red, Mars is a cold place

## JUPITER

It's the biggest planet in the Solar System

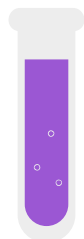


# RESULTS ANALYSIS ...



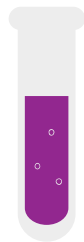
**MARS**

It's actually a cold place



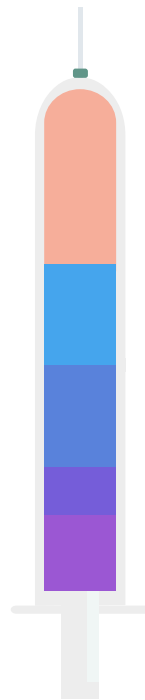
**JUPITER**

It's the biggest planet



**MERCURY**

It's a small planet



81%



**MERCURY**

54%



**MARS**

42%



**JUPITER**

23%



**VENUS**

12%

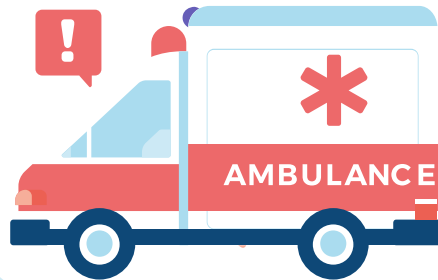


**NEPTUNE**

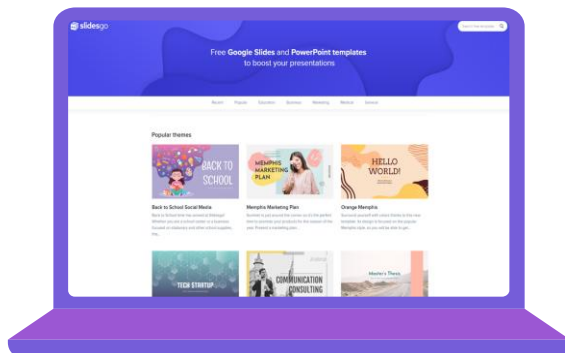
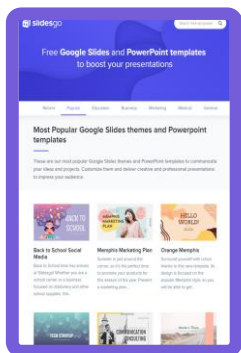


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Big numbers catch your audience's attention



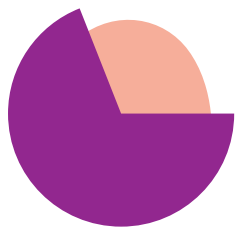
# MULTIMEDIA ...



## DESKTOP SOFTWARE

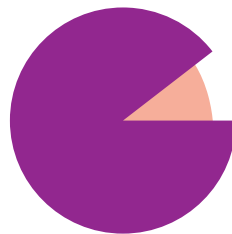
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## SUCCESS RATE ...



75%

Patients cured



97%

Secondary effects



# CONCLUSION

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





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# ALTERNATIVE RESOURCES ...





# RESOURCES ...

## VECTOR

- Emergency ambulance van and person in hazmat suit
- Coronavirus vaccine development
- Coronavirus vaccine development concept
- Virus cure concept
- Mental health awareness and meditation concept
- Character wearing protection and holding a covid-19 test
- Science team trying to develop coronavirus cure
- Web responsive design

## PHOTO

- Heart and medical dust mask copy space
- Front view of coronavirus concept with medical mask

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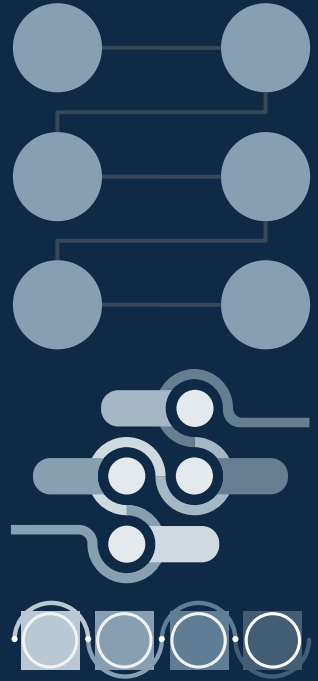
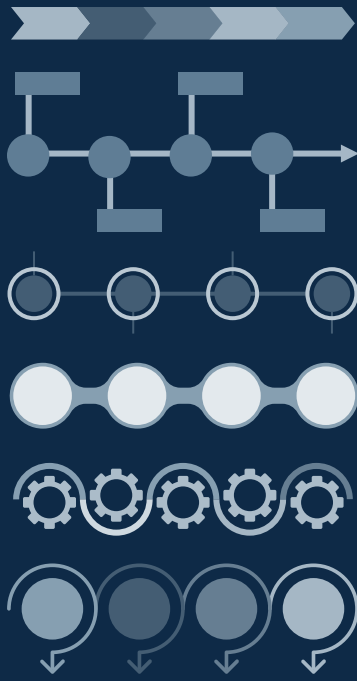
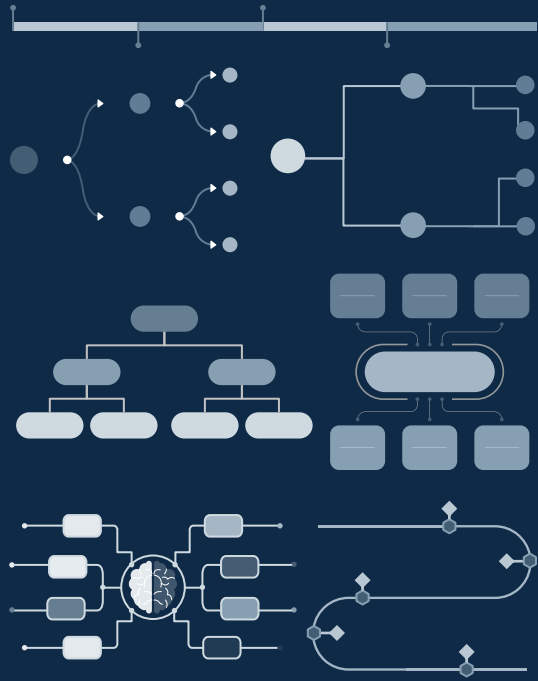
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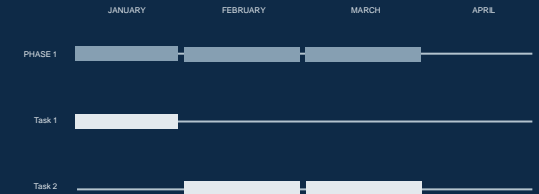
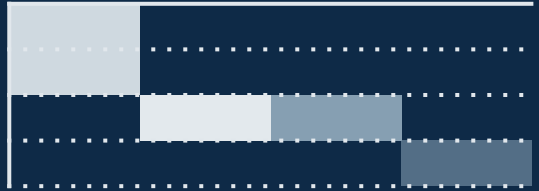
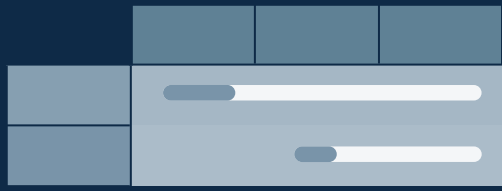
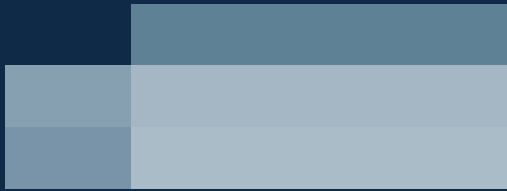
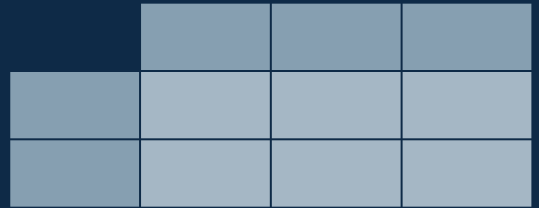
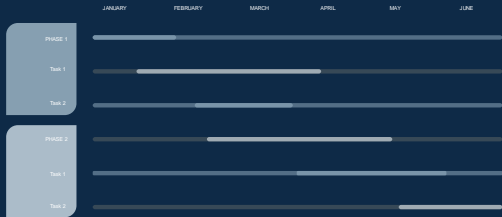
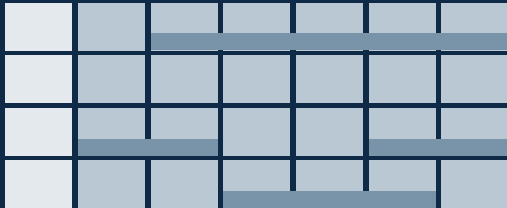
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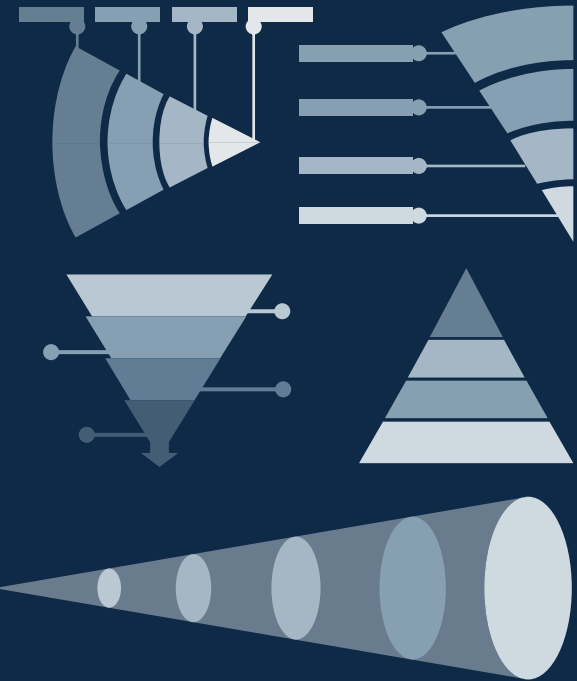
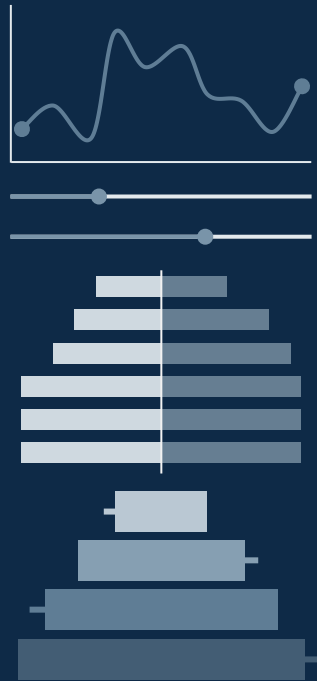
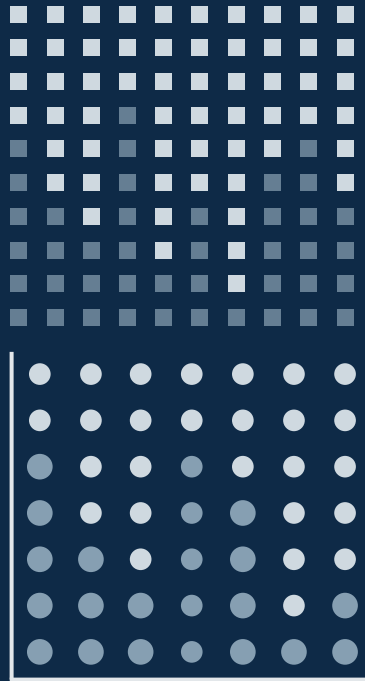












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## Medical Icons



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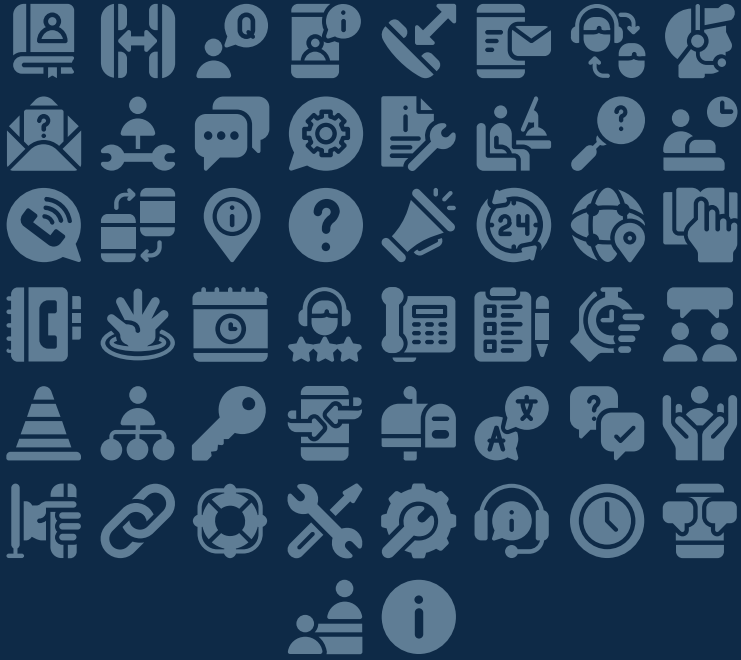


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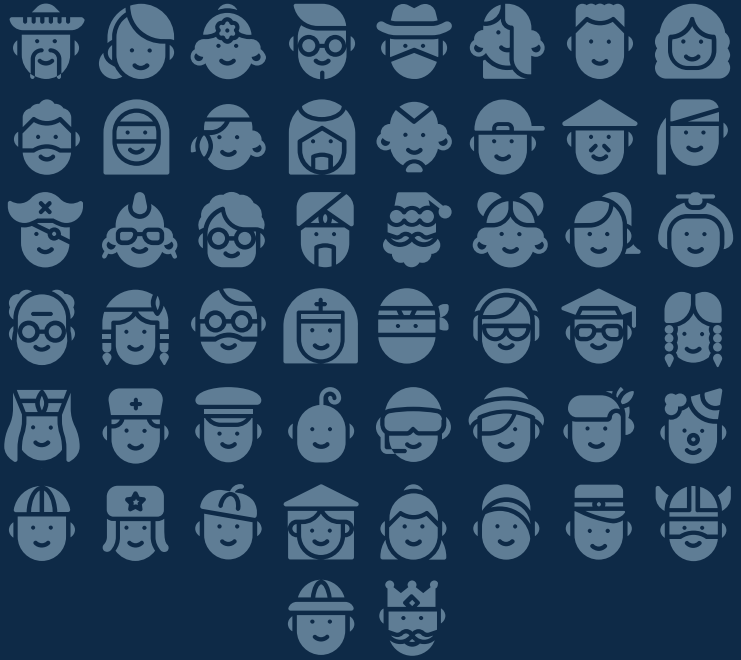




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