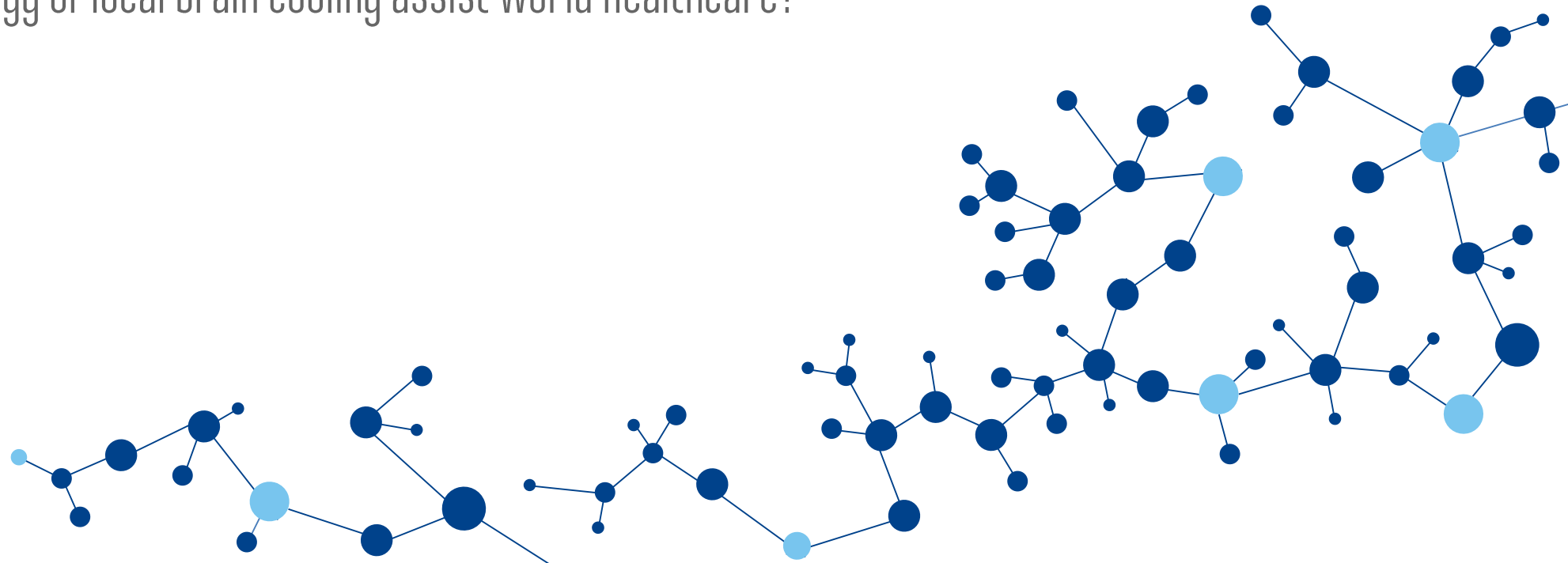


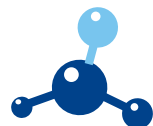
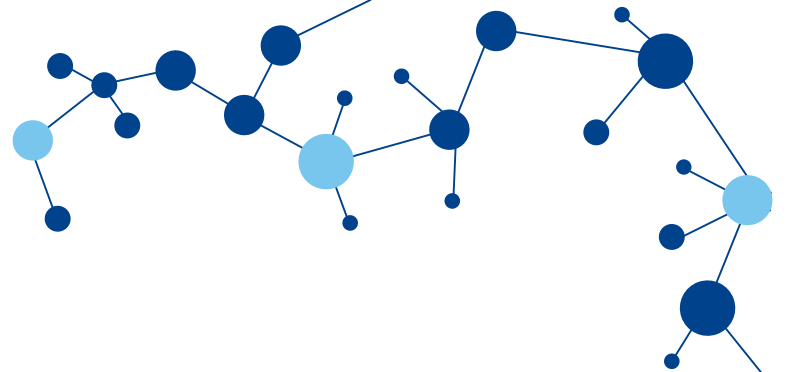


# Craniocerebral Therapeutic Hypothermia Equipment

How can technology of local brain cooling assist World Healthcare?



# «CryoTechnoMed»



## What we do:

Development и production of craniocerebral therapeutic hypothermia equipment line

Introduction of craniocerebral hypothermia into medical practice

Development of methodologies of craniocerebral hypothermia

Scientific research of craniocerebral hypothermia



## Mission statement:

Development of effective and economically efficient hypothermia technologies with aim to improve resuscitation and rehabilitation outcomes:

- reduction of mortality
- reduction of rehabilitation period
- protection of health and preventive healthcare
- improvement of quality of life



## Support:

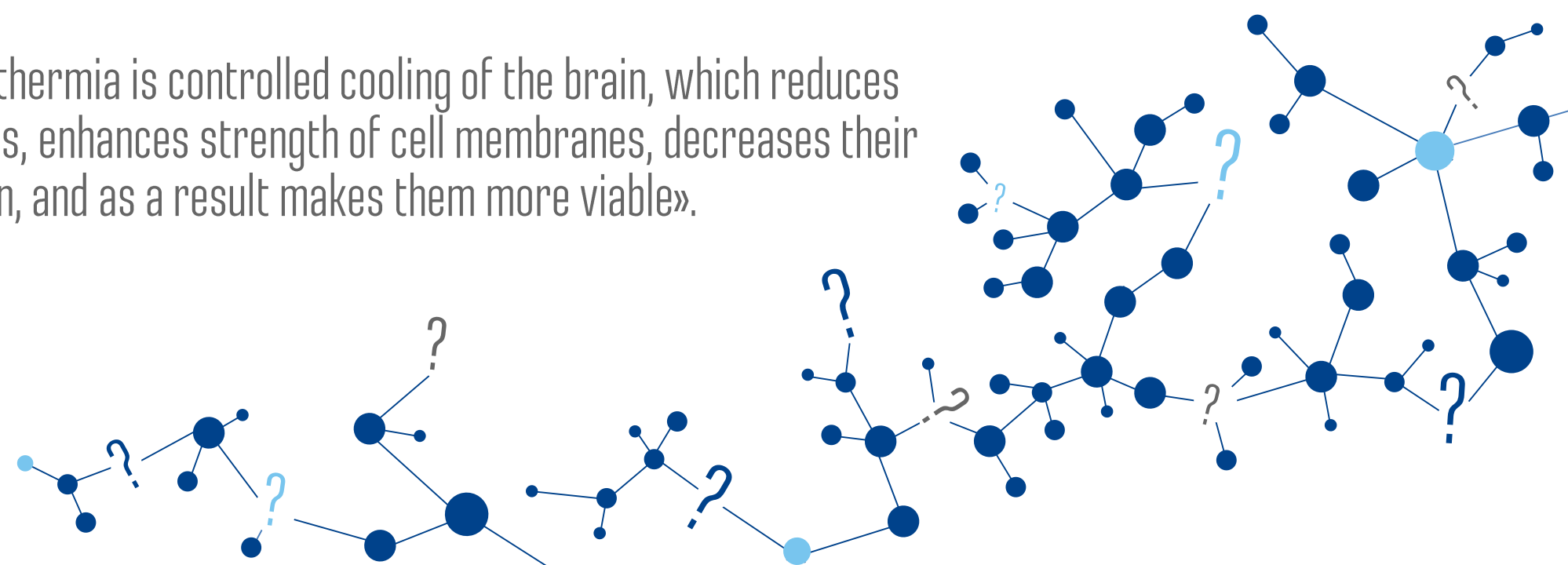
Agency of Strategic Initiatives (RUS)

Skolkovo Innovation Centre (RUS)



# What is craniocerebral hypothermia?

«Craniocerebral hypothermia is controlled cooling of the brain, which reduces metabolism of neurons, enhances strength of cell membranes, decreases their requirement in oxygen, and as a result makes them more viable».





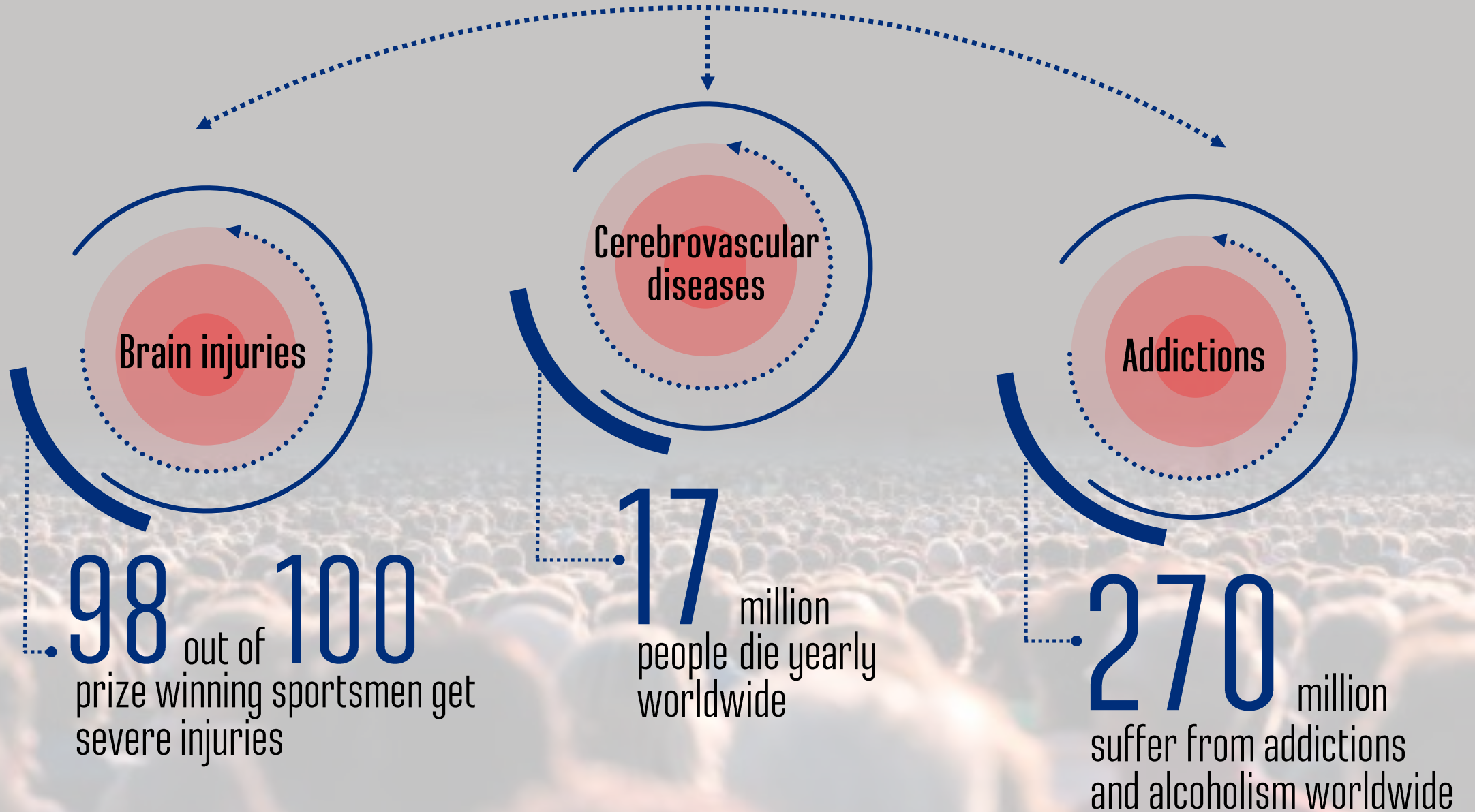
# When is craniocerebral hypothermia necessary?

«In case of diseases which are accompanied by overheating of the brain and result in destruction of the neurons, causing death and disability»



# Why is craniocerebral hypothermia necessary?

# Diseases which are accompanied by overheating of the brain

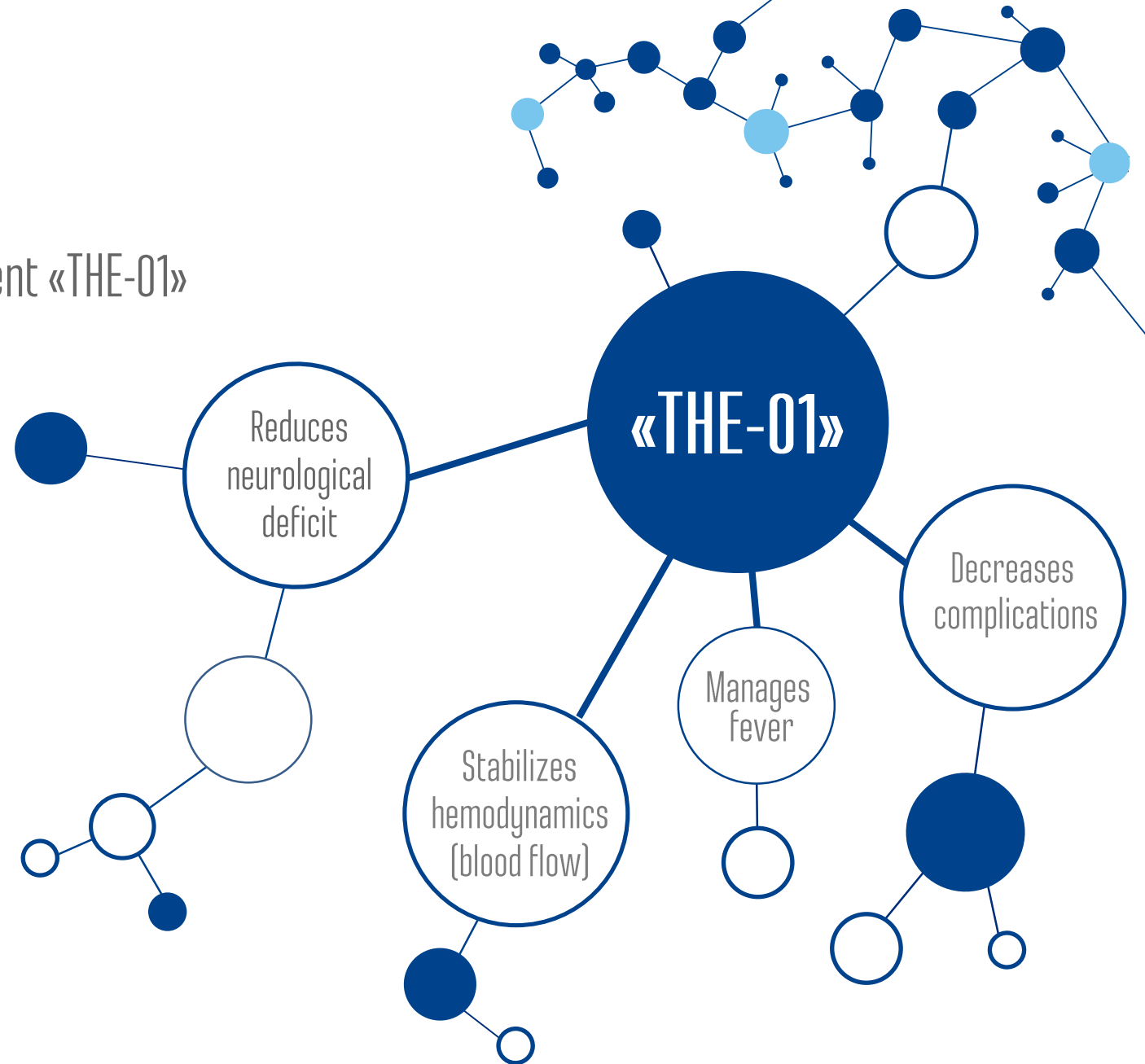


# Solution

Craniocerebral therapeutic hypothermia equipment «THE-01»

Craniocerebral hypothermia induced with «THE-01»:

- Can form local cerebral hypothermia  
Brain  $T^{\circ}C < \text{Body } T^{\circ}C$
- Can also induce general hypothermia (cool the whole body)
- No complications or side effects
- No requirement for sedation and myorelaxation
- Applicable in various states of consciousness





Improves pharmacoeconomical characteristics of the medical care

Improves cognitive abilities and reduces fatigue

Reduces time in the resuscitation units by 1,5 times

Halves neurological deficit

Halves death rate among patients in critical conditions

More than **5 000** people

have been treated in Russia and Kazakhstan clinics with defined therapeutic effect and without side effects and complications



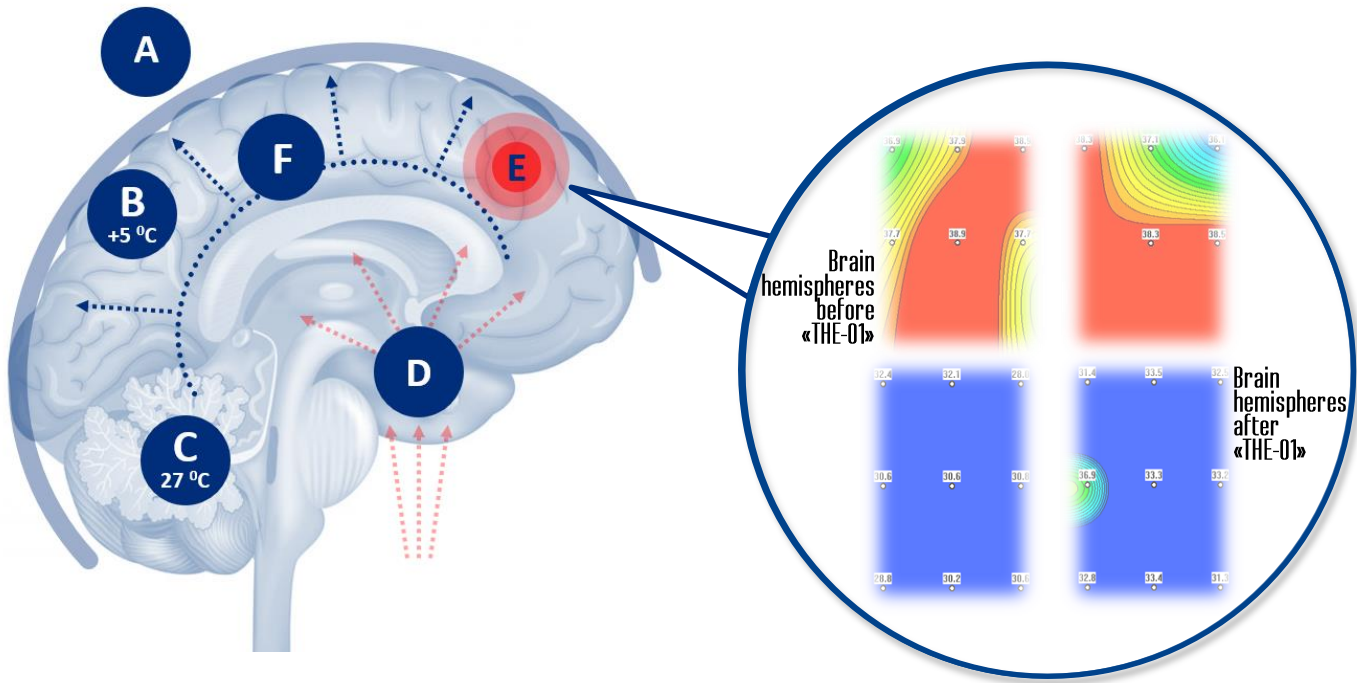




# How does it work?

«When craniocerebral hypothermia initiates neuroprotection,  
one can benefit from it long after cooling»





This enhances strength of cell membranes and decreases their requirement in oxygen, making them more viable.

Temperature reduction control is registered in the ear canal (C)

Cryoapplicator also cools down venous blood of the head which gradually spreads all over the brain (F), including core area of lesion (E), reduces it's temperature and initiates neuroprotection.

Central heat inflows (D) aggravate formation of hypothermia in the brain.

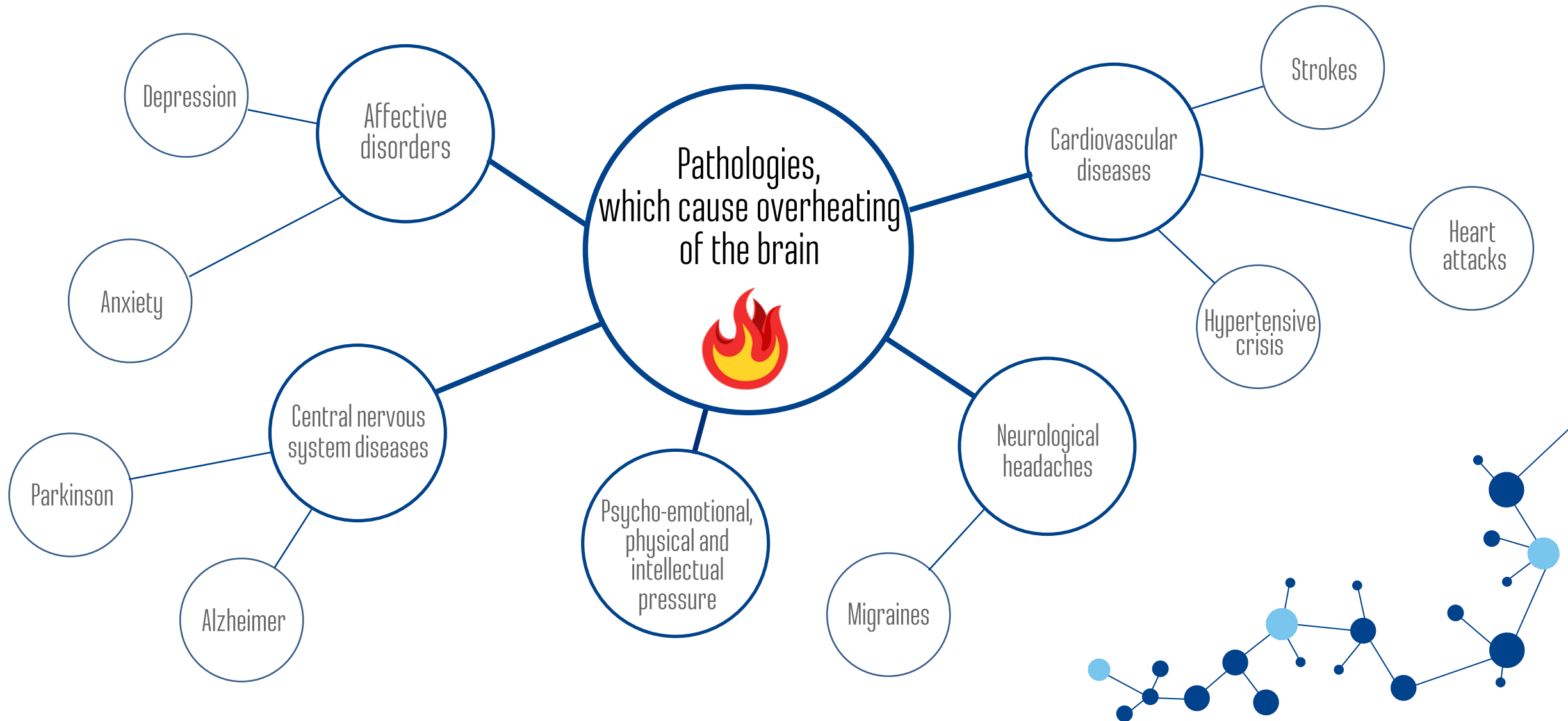
Temperature rises in the area of lesion (E) (up to 41°C) and neurons start to get destroyed.

Cryoapplicator in the form of helmet cools scalp (A) and allows for contact heat removal from the hairy part of the scalp skin (B).

Edema is formed around it area of lesion (E), which does not allow for the cold blood flow to reach core of hyperthermia area.

**Lesion is formed (E)**

# Wide range of application





# Our offer

# «THE-01»

Original stationary model

Registered in RF

Registration certificate FSR 2011/11788 on 12.12.2017  
Declaration of compliance PCCC RU.NM25\_Д01390 on 08.11.2017

Ready for serial production

Methodological recommendations  
for emergency medicine and  
neurology are approved



# «THE-02P»

Compact, portable model



Beta testing

Registration process is progress



	Document	Date of publication	Expiry date
Device for human body local cooling/heating	RF Patent no. 94149	20.05.2010	22.12.2019
Device for human scalp and brain cord cooling	RF Patent no. 96762 dd. 20.08.2010	20.08.2010	08.04.2020
Heat exchanger for human body local cooling systems	RF Patent no. 97504 dd.10.09.2010	10.09.2010	08.04.2020
Device for human body local cooling	RF Patent no. 83369 dd.16.10.2012	16.10.2012	30.03.2026
Device for therapeutic hypothermia induction	RF Patent no. 126262, 2013	27.03.2013	28.08.2022
Device for correction of cerebral hyperthermia	RF Patent no. 2615283, dd. 04.04.2017	04.04.2017	12.11.2035
«Method of diagnostics and management of cerebral hypothermia syndrome»	RF Patent no. 2645927	15.06.2017	15.06.2037
«Device for conduction of controlled therapeutic hypothermia of the brain»	RF Patent no. 2653794	14.05.2018	25.08.2037
Application for «Device for induction of controlled hypothermia of the brain»	PCT/RU2017/000633	In progress	In progress
Application for «Method of therapy of knee joints using deep local hypothermia»	RF Patent no. 2018106482	In progress	In progress

# Simplicity and cost effectiveness

are among many of our advantages over competitors.

We offer:

Individual approach and widest range of application:  
suitable for conscious state, coma, medical anesthesia

Safest and most convenient method:  
no pharmacological assistance required, no complications, no side effects

Reduction of expenses to hospitals

The most attractive price for equipment and consumables on the market  
cryoapplicators – reusable consumables (6 months)

**N°1**  
**in the world**  
Price/Quality ratio parameter

# We are ready for cooperation!

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Marketing engineer

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