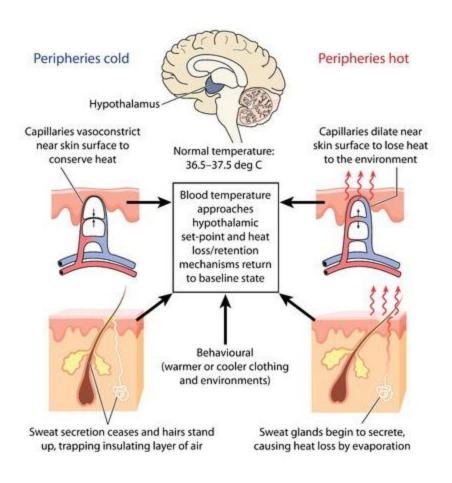
#### **Temperature curves**



#### Fever is an elevation of body temperature mediated by an increase of the hypothalamic heat regulatory set-point.



# Control mechanisms of body temperature

- Hypothalamic thermoregulatory center controls body temperature by
  - Peripheral cold and warm neuronal receptors
  - Temperature of blood circulating in the hypothalamus

### Control mechanisms of body temperature

- Heat generation
  - Increased cell metabolism
  - Muscle activity
  - Involuntary shivering
- Heat conservation
  - Vasoconstriction
- Heat loss
  - Obligate heat loss (evaporation, radiation, convection, conduction)
  - Vasodilation
  - Sweating

## Human is "homoioterm" (has constant temperature)

- Normal core body temperature 37°
   C within a narrow range of 1-1.5°
   C.
- Axillary temperature may be 1° C lower than core temperature cutaneous vasoconstriction
- Oral temperature may be falsely lowered owing to rapid respirations.

### Circadian rhythm of body temperature

- Early morning temperature is low
- Highest level occurs at 4.00-6.00
   PM

### Physiological factors may increase body temperature

- Physical activity (maximum 1.1°C)
- Digestion
- Changes in environmental temperature
- After ovulation in women
- First three months of gestation
- Exicement

#### Pathogenesis of fever

- Various infectious, immunologic or toxin-related agents (exogenous pyrogens) induced the production of endogenous pyrogens by host inflammatory cells.
  - These endogenous pyrogens are cytokines, such as interleukins (IL-1β, IL-1α, IL-6), tumor necrosis factors (TNF-α, TNF-β), and interferon-α (INF).

#### Pathogenesis of fever

- Endogenous pyrogenic cytokines directly stimulate to hypothalamus to produce prostoglandin E2, which then resets the temperature regulatory set point
- Endogenous pyrogens induce fever within 10-15 min. Whereas the febril response to exogenous pyrogens has a delayed onset requiring the synthesis and release of pyrogenic cytokines (60-90 min).

The table below gives the normal ranges of body temperature for adults and children according to a thermometer manufacturer:

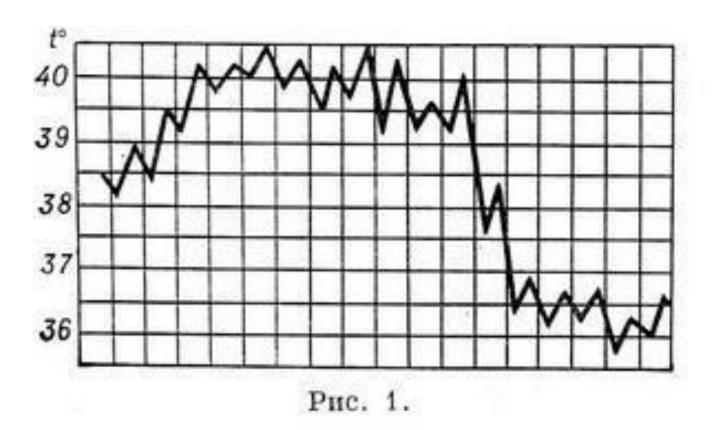
Type of reading	0–2 years	3–10 years	11–65 years	Over 65 years
Oral	95.9-99.5°F	95.9–99.5°F	97.6-99.6°F	96.4-98.5°F
	(35.5-37.5°C)	(35.5–37.5°C)	(36.4-37.6°C)	(35.8-36.9°C)
Rectal	97.9–100.4°F	97.9–100.4°F	98.6–100.6°F	97.1–99.2°F
	(36.6–38°C)	(36.6–38°C)	(37.0–38.1°C)	(36.2–37.3°C)
Armpit	94.5–99.1°F	96.6–98.0°F	95.3–98.4°F	96.0-97.4°F
	(34.7–37.3°C)	(35.9–36.7°C)	(35.2–36.9°C)	(35.6-36.3°C)
Ear	97.5–100.4°F	97.0-100.0°F	96.6–99.7°F	96.4-99.5°F
	(36.4–38°C)	(36.1-37.8°C)	(35.9–37.6°C)	(35.8-37.5°C)

Temperature curves - graphic representation of the temperature fluctuations during the daily measurement.

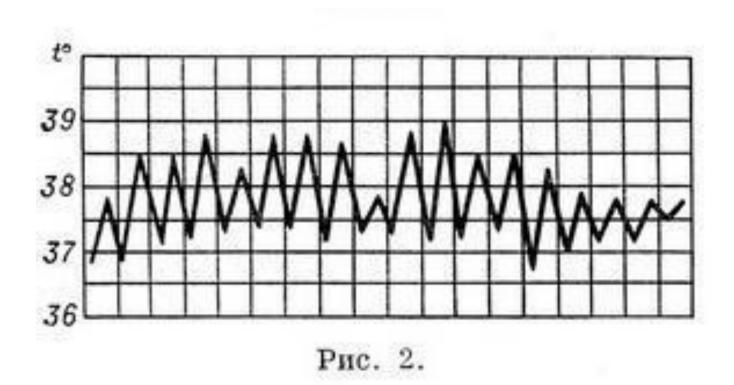
Temperature curves give a clear picture of the nature of fever (see)have often significant diagnostic and prognostic value.



1. At constant fever (febris continua) body temperature is usually high, within 39C, held for a few days or weeks with fluctuations within 1 degree. Occurs in acute infectious diseases: typhoid fever, lobar pneumonia, and other (Fig. 1).



2. Laxative, or relapsing fever (febris remittens) is characterized by significant daily fluctuations in body temperature (up to 2 degrees or more), found at purulent diseases (Fig. 2).



3. Intermittent, or intermittently, fever (febris intermittens) is characterized by sharp rise of body temperature up to 39-40 degrees and more and recession in the short term to normal and even subnormal numbers; in 1-2-3 day the same rise and fall again. Typical for malaria (Fig. 3).

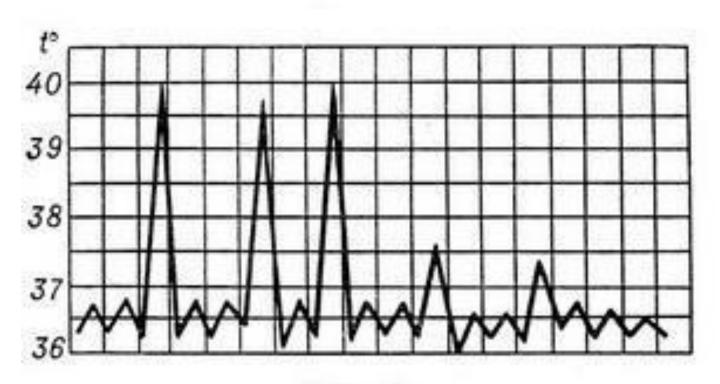


Рис. 3.

4. Hectic, or debilitating, fever (febris hectica) characterized by large daily fluctuations of temperature of the body (more than 3 degrees) and a sharp drop it to normal and subnormal numbers, and fluctuations of temperature greater than that with relapsing fever; observed in septic conditions and severe forms of TB (Fig. 4).

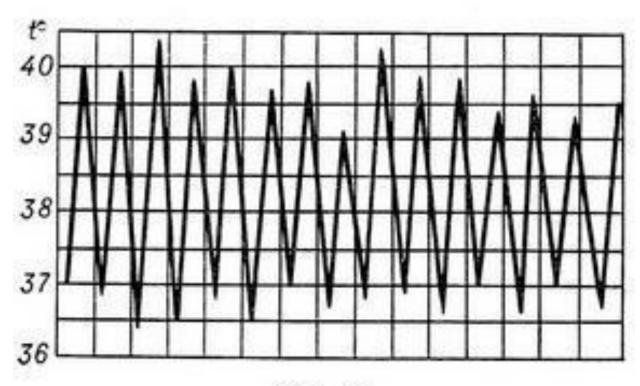


Рис. 4.

5. Recurrent fever (febris recurrens). The body temperature rises up to high numbers, rests on these values few days, then decreases to normal. Some time later the fever comes back again followed by remission (febrile seizures may occur, 4-5). This type of fever typical of some of spirochetosis (relapsing fever and other) (Fig. 5).

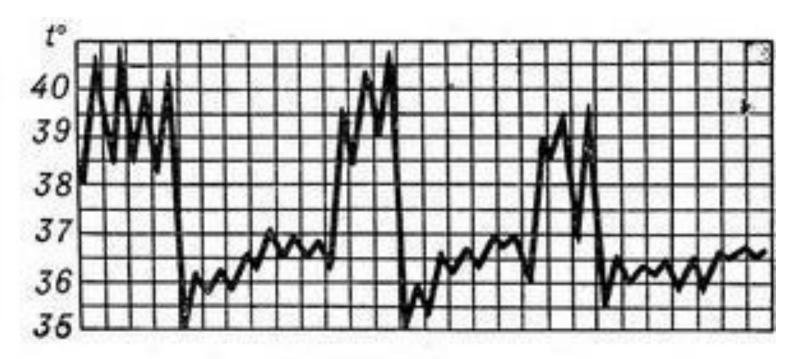
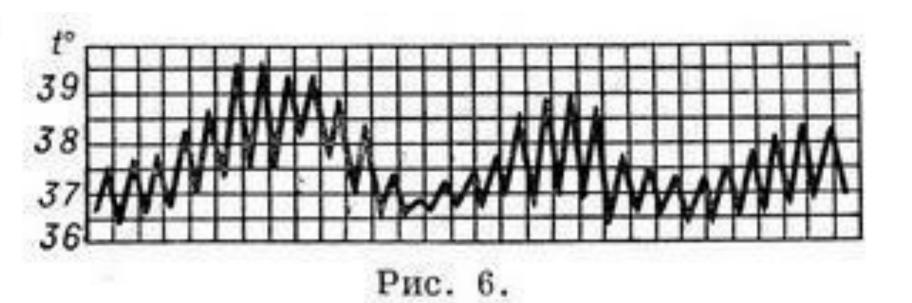


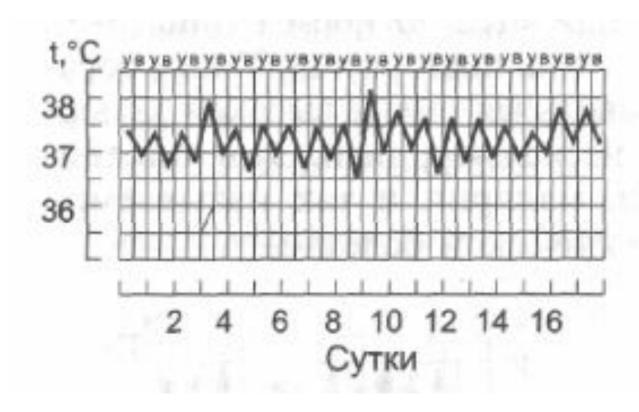
Рис. 5.

6. Undulating fever (febris undulans). Gradual day-to-day temperature increase with a similar reduction nature. There may be several waves of raising and lowering the temperature differs from recurrent fever gradual increase and losing temperature. Occurs when brucellosis and other diseases (Fig. 6).



7. Twisted fever (febris in versa). Morning temperatures above the evening, meets with tuberculosis, protracted sepsis, prognostically unfavorable.

8. Irregular fever occurs most often. Daily fluctuations of body temperature varied, the duration is not determined. Observed at rheumatism, pneumonia, dysentery, influenza (Fig. 7).



8. Febris irregularis (irregular fever) is one of the most common types of fever. The temperature curve shows various irregular fluctuations without any regularity. Occurs in flu, other acute viral respiratory infections, bronchopneumonia, collagenosis, sepsis, acute intestinal infections, etc.

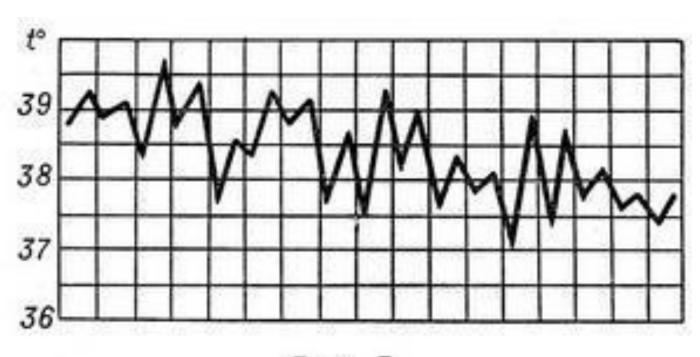
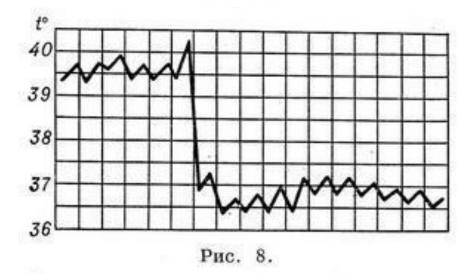


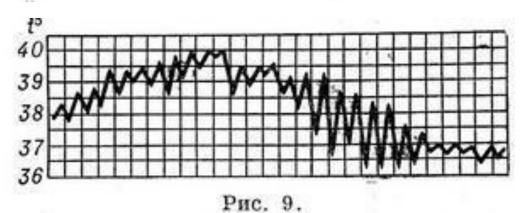
Рис. 7.

#### There are 3 periods of fever.

- 1. The initial period, or a stage of rise of temperature (stadium incrementi). Depending on the nature of the disease, this period may be very short and measured in hours, usually accompanied by fever (for example, malaria, lobar pneumonia), or stretch out on a long term of up to several days (for example, typhoid fever).
- 2. Stage height of fever (fastigium or acme). Lasts from several hours to several days.

3. Stage of temperature reduction. The rapid drop in temperature is called the crisis (malaria, lobar pneumonia, typhus; Fig. 8); gradual decrease called lysis (typhoid and others; Fig. 9).





	4 7 7	ный	777.0	-
 411 E P		пын		

	-
M	
THE R. ASSOCIATION	

Фамилия, имя, отчество больного	Фаментия.	mes.	отчество	больжого
---------------------------------	-----------	------	----------	----------

	Дата		Т		П															Т	П							_										
Дата	болез	-						- 2					15		93		12.	. (2)		- 31						3		_										
Левь	преба	423-		1	- 1	2	3		-			5	-	5		7:	. 1	3	9	)	1	0	1	1	1	2	1	13										
-	CTAIL.		1	ξġ.		Ti.			3	S		100		100		200		100		100				3	coli			Ž.,				8.		31.	10	33,		Ē
П	AI	T	y	3	y.	3	y	3	Ŧ	8	Y	8	Y	3	Y	8	y.	2	y	8	y	3	y	3	y	3	Ŧ	I										
			$\vdash$																									ļ										
140	200	41	Н		Н		-			Н		Н		Н	100				Н	- 11	Н		$\vdash$		-		-	ł										
	-00	**	Н							Н		Н				8			Н	7	Н		Н				100	t										
			L																									ļ										
			Н					(2.0		Н		Н		Н	900	0	100		Н		Н		$\vdash$				200	t										
120	175	40													0			10										İ										
	1.00		$\vdash$												3.	8									-		38	ļ										
	:		$\vdash$	816		27.5	:	07.0	940	Н		Н	51.5	Н	97.3	5	973	340	Н		Н	2.3	$\vdash$	07.5		973	300	ł										
303.3	96066	1.3				3	9	33	18						30	0	33	88		5.13				3	8	33	38	İ										
100	150	39					1											33				100			1			Į										
		3	$\vdash$							-		Н			000	0	000		H		H		$\vdash$		-	000	- 50	ł										
- 3						93	-	90	100					Н	93	-	9,0	100		343			Н	93	-	9,0	100	t										
120	25525	100	$\sqsubseteq$				ì									à				12					1			1										
90	125	38	$\vdash$				Н			L		Н							Н		L				_			ł										
		1	Н				-	0.00			279	Н		Н	37.5	-	0.00	6110	Н	210	$\vdash$		Н			3.0	-	ł										
- 3		누글				9		93	1						93	-	9							4		93		İ										
00	100	37	$\vdash$										8		3										1			Į										
90	100	31	$\vdash$		Н		Н			Н		Н		Н					Н	- 20	Н		$\vdash$					ł										
			Н				Н			Н		Н		Н					Н		Н		Н					t										
- 1	9	41 3	$\vdash$												1			8									7	I										
70	75	36	$\vdash$	-						Н				H	21	3		183	Н	7.	H	-	H				183	ł										
(37	3.5	-	Н			313		313	100	Н		Н		Н	31.3		313	110	Н		Н		Н	313		313	1 1	t										
																												I										
		7	$\vdash$		Н			999		Н		Н		H	990				Н		H		H		-			ł										
50	50	35	$\vdash$					200		Н		Н		$\vdash$	90	2		180	Н	7 (3	$\vdash$		$\vdash$				100	t										
100	200,000	2000						3.0							31.3			10						. 1	1		1	İ										
Tarre	(Amile)		H	Щ		9.0		30.0	550	Ц		Щ		Щ	650				Н		H	Щ		975		30.0	2504	1										
Bec.			+	7				-		-	-				-		-	7	$\vdash$	1	$\vdash$	7	$\vdash$	-			-	-										
	ETO 22	UDK.		-				3							8		3	83	$\vdash$	- 10	$\vdash$	- 13				- 8		-										
	KOZ. M																											_										
Стул	ì	- 1		- 6				÷							97		97	100		- 15		- 6		- 3	-	- 7												

Temperature sheet is a medical document, intended for graphics Desk daily fluctuations of temperature of the body sick.

On the vertical scale temperature curves indicated figures body temperature from 35 to 41 degrees; on horizontal - date and time of measurement.

Putting points daily thermometer against relevant designations and connecting them, get a polygonal line, called the temperature curve .

Filling temperature curve is the number of paramedical workers daily after measuring sick temperature in the morning and evening.

1000	CTTED.	ATVDH	T. T. C.	THEFT

76.7	
70.0	KADIM

№ папаты

Фаментия, выя, отпество больног	Фаментал.	IDEA.	отпество	больжог
---------------------------------	-----------	-------	----------	---------

	Дата		Т																		П							Т				
Дата	болез		1				٤	card lost					31.		8		8.	83							٤	3	1	_				
Деп	преба	MEG-		1	1	2	3	3 4		3	i	-	5		ī:	. 1	3	9	)	1	0	1	1	- 1	2	1	3					
-	S CTAM.		1			Ti.			S		35		100 m		- 63		915	ŝ			033		- 3					ĸ.			. 83	
П		T	y	3	y	3	v	10	Ŧ	8	Y	8	¥	3	Y	В	y	2	y	8	y	25	y	8	y	3	¥	2				
		8	L			0.000		000							000	0	000	-	Н		L		Н	ovi et		0.00		F				
140	200	41	F								2		8															þ				
			E					000			310		28.2		200		650		H	333	E	28.2		200		600		þ				
120	175	40	F				0									0.0			Ħ		F				0			þ				
	F250		F		F		8									000			Ħ		F				0.0		38	F				
- 3			F			9,3	0	940							9, 3	0.00	9,0		Ħ		F				0	9,0		F				
100	150	39	F		F														H		F							F				
			F		F	200		200	100				513		9/3		940	200	H		F	51.5		900		9,0	200	F				
90	125	38	F		F						:2					- 10			H		F		Н					F				
	201 561		F			0.03		310	(h)	-	913		828		al ;	2	e le	į lie	H	948	F	Š.		313	ć	9.0	, to	F				
300	E-022.5		F														90				F					33		F				
80	100	37	Е				0 - 00	3			18) 949					0.000	31			1.8 945					0 - 200	30		F				
-	ė.					ege:	0		200						ege-	0.0	140	5350						eş:	0	0433	700	E				
70	75	36	E				0				233					000					E				0.00		38	E				
		L	E			313	2	310	100		216				3/3		01.0	200						3/3	2	910	3.46	t				
60	50	35	E																H									t				
OU.	30	33	E					310	150						313	ć.	313	100	H	986				313	0	310	300	F				
Дых	100	5 V 8		_	$\vdash$	97	Н	500	53.0	_	Н		297	Н	100		30		Н	111	$\vdash$	Щ	Н	98		9.0	500	L				
Вес	- Line		+								V	-	1		000		13	-	$\vdash$		$\vdash$		$\vdash$			- 0		_				
Bam	ито жи	UDK.	+	- 1				- 3							8		3	8	$\vdash$	10		- 13				- 3		_				
	KOZ. M		$\top$	Т	Т														Г	T	Т		$\vdash$					_				
Crys				- 6			-	- 3			3		2		97		97	- 100		-10		- 6		- 3		- 3		_				
Banz			1			- 1		- 9					33		10		12	337	Г	35				- 1		- 2		-				

In addition to body temperature, the temperature curves includes the results of some other observations over the course of the disease: the respiratory rate and pulse rate, blood pressure, and the amount consumed and the selected fluid and so on, as well as information on measures taken for the care and treatment of patients (hygienic bath, change of linen, special procedures)

	VPHI		

_	
3.7	

-			-
Фаментал.	TOMAS.	CTRACTED	DOMESTO

	Дата		Т		П																П							Т		
Дата			1			, . ·	١.	. 3					1		8		8.	83							٤	3		_		
Дата боления День пребыва-		ыва- 1 2 3 4 5 6							5	7 8				9	,	1	0	11 12		2	13									
-	S CTAM.		1				. 3		37	-7	- 63			ŝ			033													
П		T	y	3	y	3	y	10	Ŧ	8	Y	8	¥	3	Y	8	y	2	y	8	y	25	y	8	y	3	T	1		
		- 8	F			0.000		0000							000	0	00.0	-	L				Н	eet.co		000	5353	F		
140	200	41	F								2																	F		
			F			0000		600	2000				28.2		200		600	2000		1	E	22.2		200		000	2000	F		
120	0 150 39	40	F													8			Ħ		F				0			F		
	F250		F													8		38	F		F				0.0		38	F		
- 3	0 150 :				F			9,3		940							9, 3	0	9,0		F		F				0	9,0		F
100	150	39	F		F					Ε									F		F							F		
			F			203		960	100				21.5		963		990	500	H		F	21.5		96		950	200	F		
90	90 125 38	38	F		F					F	:22		81						F		F	8:	Н					F		
0.91	701.081		F			303		310	, de						3	į.	gi s	, de		942	F	S		a in		3.0	No.	F		
3	80000		Е			93		8-68	3-89								90	35 88							150	82.08	3	F		
80	100	37	Е						9									9		13	Н		$\blacksquare$		0.0		8	E		
	0		L			eșe.		ego.	700						eşe.	8	eş:	100	H		E			ege.	9	eq.	700	E		
70	75	36	E				8				233					8			E		E				0.00			E		
		Ľ	E			313		310	100		256				30.5		310	200	H		E			303		910	200	E		
60	50	35	E								2								E									Ė		
OU.	30	33	E			313		310	150						313	ć.	313	100		986					0	310	100	F		
Дых	100	5 V 8		_		- 22		500	53.0	_	Н		100	Н	100		30		Н	111	$\vdash$	Щ	Н	975		9.0	300	Ц		
Вес	- Line		+		-						V	-			000		13	-	$\vdash$		$\vdash$		$\vdash$			- 0	-	_		
Выш	ито жи	UIX.	+	- 1				- 3			1				8		3	8	$\vdash$	- 10		- 13				3		_		
	KOZ. M		Т																	T								_		
Crys		- 4		1			1	- 1			3				9		97	100		- 15		1			ţ.	- 1		_		
Bann								- 8			-		11		125		12	30	Г	35				- 1	9	- 8		_		

On a standard temperature of the page (Fig) indicators pulse, respiration, and blood pressure is celebrated against the corresponding symbols on the left of the vertical scale, other indicators - in the lower part of the temperature of a sheet under the temperature curve

MEP			

76.7	
70.0	KADIM

No папаты

*			F
Фамента,	TOUR.	CLASCIEC	OCCUPATION OF DESCRIPTION OF THE PERSON OF T

	Дата																											
Дата	болез	100				200	٤	. 3		. 17			ð.,		8		Ø,	. 8							8	~. ŝ	1	Т
Девь пребыва-			1	1	2	3		4		. 5			5	7		8		9		10		11		12		13		
BURN S	S CTAM.			22.					33	-				3	ce(1)		co.	1				68.3						
П	АД	T	y	2	y	3	y	3	Ŧ	8	Y	3	Y	2	Y	8	y.	2	y	8	y	25	y	3	y	3	Ŧ	1
			Н	387		ege.		ego	- (2)			-				8	100	0,00		- 36				espe	9	140	100	ł
140	200	41	E													- 12 000								8.	- 12 0 2 2	83		F
120	175	40	E			9:	0.00		38						94 30 30	0.000				3.45 5.46 0.00				9) 3) ()	V5 040 040			
			H				5						983				90					985 986			200	90		-
100	150	39	Е				0.0									0.00		200						80 80 80	0.000			
- 3		+ 3						96							943	į.	940									9,9		-
90	125	38	E				-																					ļ
3	4283		E				<u> </u>										33											t
80	100	37	E				-									0.	84			94					0 - 00	2.7		-
70	75	36	E				2																		0.00			ļ
100	2.5	-	E				-	310							313	0	313			340				300	0	312		t
60	50	35	Ħ																									+
100	200		E		E	313	-	olo	500						al 3		010	500						303	è -	310		Ī
	dani?	×- 1	-	C. II.	_			- 1	-		, 10X	_	11/		35	-	1		_	1	$\vdash$	C. I.	_		1		1000	_
Bec	ETO RE	_	+	-3	_	-		- 1	-	-	2	_		_	30		0	0	$\vdash$	-10	$\vdash$	-3	_	-	-	- 1	-	_
			-	-	-	- 5		- 0	-	-		-	23		(3)			353	$\vdash$	337	$\vdash$		$\vdash$	- 5	-	- 1		_
_	KOZ. M	D.M.	+	4	-	-		-				4			400				$\vdash$	-	$\vdash$	J	-	_		-		_
Стул	50.	_	1	- 1	$\vdash$	-			-		1	_		_	-		-	- 1	$\vdash$	-	<b>—</b>	- 1	-	-			-	_

In some specialized medical institutions use forms temperature sheet that differ from those in the General somatic hospitals; in such temperature sheets to reflect more of the indicators.

Temperature worksheet is stored in the history of the disease.