

BM-02 BABY BREATHING MONITOR

We would like to congratulate you on the birth of your child and thank you for buying our product. With this monitor you can be at ease while your baby is asleep.



PRODUCT DESIGNATION

BM-02 BABY BREATHING MONITOR

The BM-02 is a certified medical device that monitors a baby's breathing. It is designed for use by health care providers and also for the home health care environment. Its purpose is to give a timely optical and acoustic warning of any decrease in a baby's breathing frequency which may threaten her life (so-called Sudden Infant Death Syndrome - SIDS). The breathing of babies younger than one year is irregular and reasons that have not yet been clarified sometimes make a baby 'forget' to take a breath. However, respiratory arrest of breath or apnea can be due to other causes as well (vomit, symptoms of certain diseases, etc.).

BM-02 consists of a sensor pad with a sensitive detector that is placed under the baby's mattress and of an electronic unit with indication lamps and an acoustic alarm. The device has a very simple control. It is battery operated and runs its proper function auto-test upon startup. It does not affect or restrict the baby's movement.

In oxygen-enriched environments just the sensor pad can be used.

RECOMMENDED MEASURES TO REDUCE THE RISK OF SIDS

- ▶ Do not put the baby to sleep on her tummy but on her back or side.
- ▶ Do not smoke during pregnancy and after childbirth in the presence of the baby, not even within residential premises. Nicotine has a proven inhibitory effect on the baby's respiratory center. Its presence was repeatedly detected in the blood of dead babies. When in contact with her baby a mother-smoker exhales cigarette smoke and nicotine residues even 30 minutes after finishing her last cigarette!
- ▶ Make sure the baby is neither too warm nor too cold during sleep. Hyperthermia may boost bacteria growth in the airways. Their presence may trigger a complex immunologic response that may even lead even to a respiratory center arrest.
- ▶ Leave the baby's head uncovered. Do not place any soft covers and pillows in the crib of a baby that is not at least 12 months old and that could pull such covers or pillows over her head.
- ▶ Do not use any straps in the crib, make sure the baby's toys are free of strings or tapes longer than 30 cm. Never place plastic bags in the crib.

Warning:

The BM-02 does not prevent the occurrence of sleep apnea in an infant! If operated and used in accordance with this manual, the monitor is unlikely to fail.

INSTALLATION INSTRUCTIONS

1. Place the sensor pad into the crib (pram, Moses basket, etc.) under the mattress (or cushion) underneath the area where the baby will be sleeping – see the figure.

- ▶ The center of the sensor pad should be approximately where the baby's chest is.
- ▶ The pad should be placed on an even firm surface with the printed side facing up – It must not be bent!
- ▶ If there is only a bed frame in the crib, place a firm board under the sensor pad; e. g. hardboard, plywood, etc. The base board should not cover the whole crib surface so as not to prevent air circulation – its satisfactory size overhangs the sensor pad by approx. 3 cm on each side.
- ▶ For further installation advice and instructions read page 8, Frequently Asked Questions.

**Note:**

When using the BM-02 for twins it is absolutely necessary that each baby has its own crib provided with an independent baby monitor. To ensure correct signal evaluation the cribs must not touch each other.

2. Insert batteries into the device (the battery compartment cover is on the back of the device).

- ▶ To remove the battery compartment cover, push its straight edge gently and move it towards the round edge – see Fig no. 1.
- ▶ Insert batteries.
Only use new alkaline batteries - AA LR6 type (do not use rechargeable batteries).
The polarity of batteries is clearly marked in the battery compartment.
- ▶ Seal the battery compartment cover and turn the switch to position I.
- ▶ If the batteries are in good condition, all 3 indicators will flash one after another and you will hear a beep.
- ▶ If there is no beep after turning the unit ON, check the batteries.
- ▶ Wait approx. 3 seconds before turning the unit on again – after turning the unit on its electronic system checks the batteries and functions.
- ▶ The unit must be clearly visible and must not be covered by anything – see Fig no. 2.
- ▶ If the evaluation unit has to be mounted outside the crib, extend its cable by means of the splitting connector and the 5 m long cable (both are included in the supply).



Fig 1

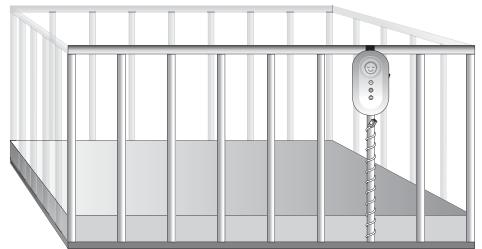


Fig 1

- ▶ When used for a bigger baby, mount the unit outside her reach.
- ▶ It is also possible to attach the unit on the wall by means of a plastic holder (included in the supplied items).

3. Connect the sensor pad's cable to the evaluation unit. When connected properly, the connector clicks and is firmly attached.

- ▶ Lead the cable so that it cannot be pulled by a bigger child and so that it is stretched properly and does not create loops.
- ▶ If the whole length of the cable is not used, wind the excess cable and tighten it firmly with the binding wire supplied with the cable (keep the wound cable outside the reach of children).
- ▶ To disconnect the cable from the evaluation unit push the connector lever towards the cable.

Caution:

The acoustic indicator of the breath monitoring unit must not be aimed at the baby and must be placed at least 0.5 m from her head to protect her hearing from possible damage.

THE DEVICE'S SIGNALING AND CONTROL ELEMENTS

switch – position 0 = OFF, I = ON



green indicator – it flickers briefly to confirm the baby's breath (movement).



red indicator – it flickers to indicate a warning alarm.



red indicator – it flickers to indicate a low battery.

USING THE BM-02 MONITOR

Before using the BM-02 read this manual carefully, especially paying close attention to the chapter "First Aid – General Procedures of Emergency Child Care"! More information can be found at: www.monitornanny.com.

1. Put the baby in the crib.
2. Turn on the evaluation unit (activation is confirmed by a beep and flickering indicators).
3. The green indicator flickers in response to the baby's breathing or movements. The flickering may be irregular – its frequency corresponds to the baby's breathing or movements.
4. Before taking the baby out of the crib make sure to turn the evaluation unit off.
5. If the device does not detect any breathing or movement of the baby, the green indicator does not flicker, a red indicator begins to flicker after approx. 20 seconds and then the alarm goes off. Moreover, the alarm is activated when the baby's breathing frequency drops below 8 breaths per minute.

Warning:

The product should be used for babies weighing from 2 kg up to 15 kg.

Don't open the monitor and don't make any modifications; in this case the manufacturer would not be liable for the functionality and usability of the monitor.

ALARM STATUS

If the evaluation unit detects that the baby has not taken a breath for longer than about 20 seconds, the following type of alarm goes off: firstly, there is a short acoustic pre-alarm followed by intensive acoustic alarm accompanied with the flickering red indicator. If the child is breathing too slowly – less than 8 intakes per minute, the following type of alarm goes off: there is an immediate acoustic alarm and the red light is flickering. Check the baby. If she isn't breathing, try to wake her up. If she does not wake up, start administering first aid immediately (release her airways, start mouth-to-mouth resuscitation, etc.). We recommend contacting a doctor depending on the circumstances. In some cases the alarm signal itself rouses the baby strongly enough to make her take a breath. To turn the alarm off, press the switch on the evaluation unit. Exceptionally, a false alarm may occur, which is the case especially when the sensor pad is not fitted properly (see the Installation Instructions and the Frequently Asked Questions) or when the baby can crawl and moves outside the reach of the sensor pad inside the crib.

We hope you hear the alarm signal only once: when testing our product.

SENSOR PAD

- ▶ A sensor pad can be bought as a separate item. It is available under item No. BM-02D.
- ▶ It is extremely handy when the device is used in several places; e.g. in another crib, at grandma's, etc. In this case the evaluation unit is the only thing you have to remember to take along.
- ▶ The sensor pad may be placed in incubators by health care providers.

Warning:

Never use another type of sensor pad or those from other manufacturers, nor the BM-02D sensing mat in combination with another type of product from another manufacturer.

FUNCTION TEST

Check the operation of the device as follows (recommended testing frequency is once a week):

1. When the baby is in the crib and the BM-02 is on, the green indicator must flicker with the rhythm of the baby's breath.
2. Leave the BM-02 on and take the baby out of the crib. The indicator usually keeps flickering for a while until the crib stops shaking. Do not hold on to the crib because the BM-02 could detect your breath and movements.
3. When the crib has been still for about 20 seconds the evaluation unit gives off a warning beep and then an alarm signal is activated. While the alarm is on, the red indicator keeps flickering. The alarm can be turned off with the switch.

If the BM-02 does not work check whether:

1. The evaluation unit confirms the activation of the BM-02 by a low beep and flickering. If it does not, check the batteries.
2. The green indicator stops flickering after taking the baby out of the crib. If it does not, the BM-02 detects disturbing vibrations – see the following information.

Important information:

- ▶ The device uses a highly sensitive sensor to detect breathing. Its operation can be affected by shakes of the crib, floor or the whole building especially in the home health care environment. This is why the crib must not touch a bed in which somebody is sleeping or other equipment that vibrates. Interfering shocks can also be caused by intensive air circulation (fans, air conditioning, etc.), people walking near the crib and other factors. If you move the crib to a new place or if you turn on a new appliance that generates mechanical vibrations or electromagnetic interference, we recommend that you test the device's functioning. Wireless communication technology devices such as wireless home networks, mobile phones, cordless phones and their base stations, mobile stations, which may adversely affect the baby and affect the functionality and usability of the BM-02 should not be used closer than 1 m, nor should amateur radio equipment be closer than 10 m from any part of the BM-02. Interferences can prevent the BM-02 from monitoring the infant's breathing. Therefore we always recommend you to test the device functions before use.
- ▶ You should avoid using mattresses made of hard materials (foam polystyrene, etc.) that absorb disturbing vibrations caused by the movement of the ambient air.
- ▶ Bear in mind that the device can only warn you in the case of an emergency but that it does not prevent the risk of a breathing stoppage! If the baby has any physical problem, it is up to you or your doctor to provide appropriate help. Do not stay too far from your baby to make sure that you hear the alarm, should it go off, and that you are able to respond.
- ▶ The manufacturer is responsible for the functionality of the BM-02 provided it is installed and used in accordance with this manual. The manufacturer waives any responsibility for the proper functionality of the product in the event that it is mechanically or otherwise damaged or for battery defects. Moreover, the manufacturer waives any responsibility in the event that the product has been used in contradiction to this user manual or the service life of the product has been exceeded.
- ▶ The manufacturer urges you not to purchase a used product or to get it from a rental store. Rough handling may reduce the sensitivity of the sensor, which may have its consequences. Should this be the case the manufacturer waives all responsibility for the functionality of the product.

BATTERY REPLACEMENT

The device checks its battery status. When the batteries are running low, necessary replacement is signaled by the indicator with the battery symbol flickering red. Also, the device does not confirm the activation of the switch when the batteries are discharged. Turn off the device before replacing the batteries. Remove the battery compartment cover (see the Installation Instructions – page 4) and take out the original batteries. Always use only new, branded alkaline AA LR6 batteries (the polarity is clearly marked in the battery compartment). Once you have replaced the batteries, turn the device on briefly – its activation must be confirmed by a beep. Do not use rechargeable batteries. When finished using the device, take the batteries out.

CLEANING AND MAINTENANCE

Besides battery replacement, the device does not require any special maintenance. We recommend that you occasionally check the sensor pad in the crib to make sure that no moisture precipitates in the area where the pad touches the mattress. You should turn the pad inside the crib by 180° once in a while, or turn it over and air it. Clean the pad with a slightly moist cloth. (Do not use aggressive detergents.). Despite resistance to foreign elements or liquids, their intrusion can damage the device. The product is supplied with an anti-bacterial tissue for disinfecting the pad, if necessary. The frequency of cleaning does not affect the service life of the product. Protect the sensor pad, supply cable and connector from mechanical damage (shocks, sagging, tensile stress, etc.). If you detect any damage, contact the vendor or the manufacturer's service department directly (page 9).

FREQUENTLY ASKED QUESTIONS

1. Why does BM-02 trigger an alarm when the baby is breathing regularly?

Cause: There is not sufficient contact between the sensor pad and the movement of the baby's body while the baby is breathing.

Solution:

- ▶ Babies up to 3 months are small in weight and do not change their position in the crib; therefore, you should place the sensor pad directly under the sheet, towel or blanket on which the baby is lying. This minimizes the possible occurrence of false alarms. As soon as the baby starts to move around the crib, install the sensor pad under the mattress.
- ▶ If the baby is lying with her head supported (when a doctor suggests that her head be higher than her body), good mechanical contact between the baby, the mattress and the sensor pad must be maintained. Underlay the bed frame (not only the mattress) to comply with the condition in the previous sentence. Alternatively, support the back legs of the crib.
- ▶ Make sure that the mattress applies its entire weight on the sensor pad. The mattress must not be fitted between the crib walls too tightly so that it does not get caught above the bed frame.

2. Why doesn't the alarm go off after the baby's been taken out of the crib?

Cause: The sensor pad can detect various vibrations, for instance:

- ▶ People walking around the crib which stands on a parquet or laminate floor. The crib legs must be supported with an anti-vibration underlay – e.g. carpet pieces.
- ▶ An open window nearby the crib in windy weather. These interferences must be eliminated to ensure the BM-02's proper operation.
- ▶ The crib leans on a fridge or another source of vibrations. Move the crib.

3. How should the BM-02 be used when monitoring twins?

Solution: Each twin must have her own crib and the cribs must not touch each other. Each baby must have his/her own BM-02 device - i.e. a sensor pad and an evaluation unit. Do not connect two separate pads to one evaluation unit as this would jeopardize the babies' lives.

4. Can the BM-02 be used in a pram, cradle or Moses basket?

Solution: Yes, but only in strict compliance with the condition that the pram is not moving and that nobody touches it. It must be parked in a quiet windless place – i.e. not outside, on a porch, etc. The wind and ambient noise can have a negative impact on the device and may prevent the alarm from being activated should the baby stop breathing. The same applies to cradles and Moses baskets.

However, this use is not recommended!

5. Why does the device give a low battery warning immediately after being switched on?

Solution: Make sure you haven't used so-called rechargeable batteries (Their voltage is lower and the device evaluates this condition as low batteries.). Only alkaline batteries can be used.

6. Why doesn't the device react to the baby's movement properly anymore?

Cause: Make sure that the supply cable or its connector is not damaged. If the cable is not attached to the crib as described in this manual it can be pulled by the baby and damaged. Another possible cause is the careless handling of the sensor pad (it being dropped on the floor, etc.).

Solution: Contact our Service Department.


7. Can a liquid leak from the pad?

Answer: That is absolutely impossible. The pad does not contain any liquid. Please follow the information on page 7- Cleaning and Maintenance.

8. What should I do in the case of defects?

Solution: If you experience any difficulties with the device, please contact our distributor's customer line before you contact your retailer. Difficulties are not always caused by a defect. In most cases they follow from wrong device installation, misunderstanding the user manual, etc. We will be happy to help you solve any problems so that the BM-02 can keep a reliable eye on your baby. However, if a technical defect occurs, we will find the best solution for you as soon as possible so that your baby is not left unmonitored. Thank you.

TECHNICAL DATA

Power	3 V 2×1.5 V AA LR6 size alkaline batteries
Standby current	0.2 mA
Alarm current	100 mA
Battery low indication level	2.38 V ± 0.15 V
Monitored breathing frequency	<8 breaths/minute (i.e.<0.13 Hz)
Average battery life - home health care	6 months (gets reduced by frequent alarm testing)
Average battery life - health care providers	4 months (gets reduced by frequent alarm testing)
Sensor pad	type BM-02D, max. size 305×500×15 mm, weight: 1000 g, material: PVC-P, cable length 1.2 m
Acoustic alarm level	80 dB/m ±5 % dB/m
Control unit	max. size 140×80×35 mm, weight 123 g, material ABS
Operating conditions	+5 °C to +35 °C at 15 % to 93 % relative humidity, 700 – 1200 hPa
Transport and storage	0 °C to +40 °C, relative humidity 10 % to 85 %, 700 – 1200 hPa
Product characteristics	BM-02D type BF applied part 

Package contents:

sensor pad, control unit, 5 m long extension cable, plastic wall attachment, splitting connector, 2 antibacterial tissues, 2 alkaline batteries type AA LR6 1.5 V. Product service life: 2 years (from the date of purchase).

Certification was carried out by the following notified body: EZÚ Prague, No. 1014.

The product underwent clinical testing and was registered by the Health Ministry of the Czech Republic as a medical instrument of category IIb.



JABLOTRON ALARMS a.s. hereby declares that BM-02 complies with the essential requirements and other respective provisions of Directives 93/42/EC and 2007/47/EC and 2011/65/EU (RoHS). The original compliance certificate can be found at www.jablotron.com.

Note: Discharged batteries should not be disposed of as household waste but returned to a designated collecting point. Even though the product is free of harmful materials, it should not be disposed of with other waste but returned to a vendor or the manufacturer.



Please check the website www.monitornanny.com for your local support or contact

MANUFACTURER AND SERVICE PROVIDER:

JABLOTRON ALARMS a.s.
Pod Skalkou 4567/33
466 01 Jablonec nad Nisou
CZECH REPUBLIC
(+420) 483 559 811
e-mail: nanny@jablotron.cz
www.monitornanny.com

GENERAL PROCEDURES FOR CHILD EMERGENCY CARE

First aid – steps designed to save someone's life in the case of arrested breathing or blood circulation.

Warning: First aid should be administered by an experienced first-aider!

The basic procedures of child emergency care include a sequence of steps designed to restore sufficient breathing and blood circulation in children who have suffered breathing or blood circulation arrest. The following procedure applies to babies – newborns and infants:

1. CHECK THE BABY'S CONSCIOUSNESS

- ▶ Call the baby distinctly and loudly.
- ▶ If the baby does not respond, tap or scratch its sole to elicit the baby's response (fig. 1).
- ▶ Alternatively, rub the baby's back with your hand for several seconds.
- ▶ If the baby is lifeless and unresponsive, she is unconscious.
- ▶ Call your local UK emergency rescue service on 999 or dial the European emergency telephone number 112.

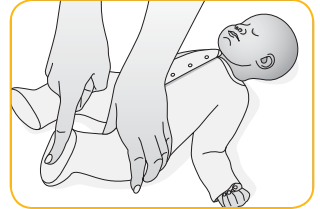


Fig. 1

2. OPEN YOUR BABY'S AIRWAY

- ▶ Check the baby's mouth. Remove obvious obstacles and objects with your fingertips.
- ▶ Put one hand on the baby's forehead and tilt its head a little, while gently lifting the chin with the fingers of your other hand (fig. 2).
- ▶ Keep the airway clear by placing some support under the baby's shoulders.
- ▶ If you suspect that the baby has inhaled a foreign object (i.e. the breathing problem occurred suddenly – for instance, while eating, playing with a tiny toy; or the baby is coughing, wheezing, has audible difficulty breathing, its face is reddish and neck and face are swollen meanwhile the skin may turn blue or grayish), try to remove the object from the airways as follows:

Give 3–5 backslaps

- ▶ Position the baby with her face down on your forearm. Her head must be lower than the rest of her body. Support her head and body with your hands all the time (fig. 3).
- ▶ Give her 3–5 slaps between her shoulder blades with 2–3 of your fingers or possibly with your hand; your hand must be oriented away from the airways.
- ▶ Alternatively, hold the baby by its ankles, (the ankle area must not be covered with clothes), turn her with her head facing down and perform the same maneuver. If the maneuver is not successful do the following:

Give 3–5 chest thrusts

- ▶ Position the baby with her face up on your forearm, tilting her head gently (fig. 4).
- ▶ Press the lower half of the chest bone 3–5 times with two fingers. Give her about 1 thrust in 3 seconds.
- ▶ At the end of each step, check the baby's mouth to see if a foreign object has been dislodged.

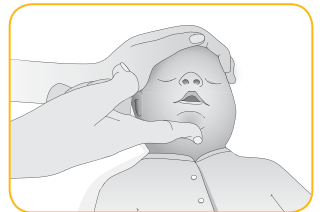


Fig. 2

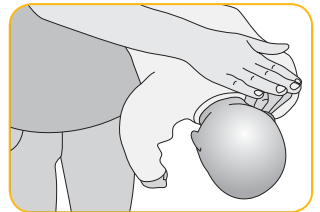


Fig. 3

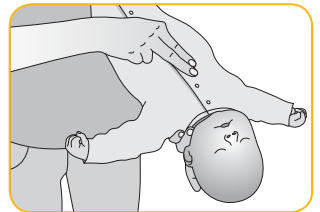


Fig. 4

- ▶ If the respiration problem continues, repeat the individual steps 1–3 times and call – or have somebody call – your local emergency telephone number 999 or 112.

3. RESTORE BREATHING

- ▶ Listen and look to check whether the baby is breathing (fig. 5).
- ▶ If the baby does not breathe, start rescue breathing immediately; simultaneously call – or have somebody call – your local emergency telephone number 999 or 112.
- ▶ Place one hand on the baby's forehead and keep her head tilted a little. Lift her chin with your other hand and seal your mouth around the baby's mouth and nose (fig. 6).
- ▶ Initiate rescue breathing with 2–5 breaths so that at least 2 breaths are efficient enough.
- ▶ Check the efficiency of breaths by watching the bay's chest – the chest should rise visibly upon breathing in and fall upon breathing out.
- ▶ Watch the volume of the inhaled air. It must be neither too small (the chest does not rise or fall), nor too big. Inappropriate air volume would cause damage to the baby's lungs and airways and its overall condition would get even worse. The baby's chest should rise and fall approximately as if the baby was breathing on its own. Never give breaths if you feel obvious resistance!
- ▶ Give 30 breaths in 1 minute to a newborn (i.e. 1 breath in 2 seconds), and 20 breaths in 1 minute to an infant (i.e. 1 breath in 3 seconds).

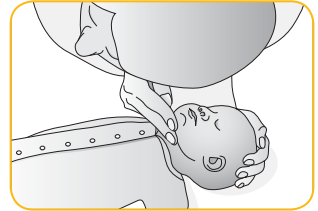


Fig. 5

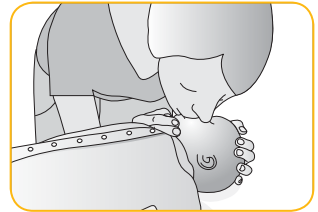


Fig. 6

4. CHECK BLOOD CIRCULATION

- ▶ If the baby does not show any signs of proper blood circulation (i.e. she is unable to move, cough or breathe), start cardiac massage (chest compressions) immediately.
- ▶ Put the baby on her back on a firm surface.
- ▶ Place your index finger and middle finger on the lower third of the chest bone – about 1.5 cm (1-finger-width) under the imaginary line between her nipples (fig. 7). Alternatively, you can hold the baby's torso firmly in your hands while pressing her chest bone with your thumbs being crossed (fig. 8) or with two fingers.
- ▶ Compress the baby's chest by about 2–3 cm (approx. by 1/3 of her torso diameter).
- ▶ Frequency of compressions: 120/min in newborns and 100/min in infants.
- ▶ Resuscitate newborns at a ratio of 1 breath to 3 chest compressions and infants at a ratio of 2 breaths to 30 chest compressions provided there is only one first-aidler. If there are two first-aiders, they give 2 breaths per 15 chest compressions.
- ▶ Take a short break after each sequence of compressions to catch your breath.
- ▶ After completing every 3rd to 5th cycle check whether respiration and blood circulation have been restored.

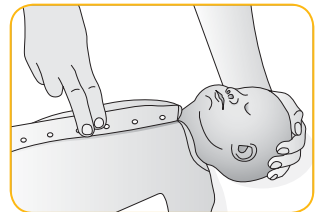


Fig. 7

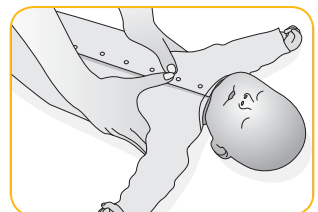


Fig. 8

5. PUTTING THE BABY IN THE RECOVERY POSITION

- ▶ If your resuscitation efforts are successful and the baby's respiration and blood circulation are restored, put her in the recovery position.
- ▶ Hold the infant in your arms with her face facing yours and her head slightly tilted to the side.
- ▶ This position provides prevention against suffocation with a swallowed tongue or vomit (fig. 9).
- ▶ Keep monitoring the baby at all times, especially focusing on her breathing and on the signs of uninterrupted blood circulation. Watch the color of her skin. NOTE: If her skin begins to turn blue or gray, it may be a sign of a relapsing breathing or blood circulation failure.
- ▶ Make sure that the baby's proper body temperature is maintained. Above all, protect her against hypothermia.

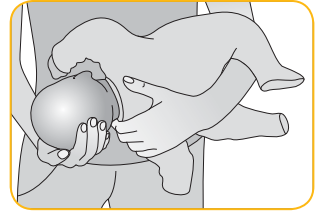


Fig. 9

When should you call the emergency services on the emergency number 999 or on the European emergency number 112?

- ▶ If there are several first-aiders at the site, one calls the emergency immediately after a respiration or cardiac arrest has been detected. The other first-aider starts resuscitation immediately.
- ▶ If you are alone, start resuscitating according to the emergency care for children rules. Resuscitate a child for about 1 minute then call the emergency services. If you do not have a phone at hand and have to run to another place to seek help (be it an adjacent room), it is advised to take the resuscitated child with you as that will prevent the time loss that would be unavoidable if you had to run back to the child after calling for help.

WHEN TO END RESUSCITATION:

Keep resuscitating until the baby begins to show signs of life (spontaneous breathing, pulse, movements), until a qualified paramedic arrives or until you are absolutely exhausted. Note: A newborn is less than 1 month old. An infant is 1 month to 1 year old.

Reference materials:

- ERC Guidelines for resuscitation 2010,
- První pomoc u dětí (First Aid for Children) - MUDr. Pavel Srnský, ČČK 2007