

Dinbeat UNO

Hospitalisation Protocol

When can we use Dinbeat UNO?

INDEX Hospitalisation Protocol

General:

Unstable patients who present alterations of any system that need continuous monitoring.

1. Electrocardiogram
2. Heart rate
3. Breath per minute
4. Temperature
5. Position
6. Exercise
7. Vocalisation

Dinbeat UNO for hospitalisation, is aimed at:

1. Patients difficult to explore:

(young animals that are excited or nervous or fearful in which our presence can interfere with the real constants or aggressive patients, whose exploration requires sedation).

2. Patients who require monitoring and intensive care because they are physiologically unstable:

(urgent care patients in whom it is necessary to assess whether the treatment is medical or surgical; traumas, burns, shock...).

3. Patients who need continuous monitoring and observation, but are physiologically stable:

(animals that have been hospitalised because there is a risk of decompensation, such as risk of seizures, hypoglycemia, arrhythmias, blood transfusion...).

When can we use Dinbeat UNO?

4. Patients who need sustained auxiliary care:

(these are animals that require constant and tedious care, for example, animals hospitalised for pancreatitis, acute gastroenteritis, heart disease...).

5. Patients under anesthesia or sedation:

(continuous anesthetic monitoring of necessary parameters).

6. Postoperative patients:

(especially in those where intensive monitoring is recommended, such as trauma surgery, splenectomy, gastric torsion).

7. Patients who need analgesic control:

(situations in which there may be chronic or acute pain due to a surgical procedure, illness, stress, anxiety...).



When can we use Dinbeat UNO?

1. Difficult patients (young, fearful or aggressive animals):

Dinbeat UNO is indicated for young animals in hospital, which may be nervous or fearful or excited by human presence, and interfere with their real constants, in this way we obtain objective data in real time without needing to be present.

In aggressive patients, who cannot be monitored without sedation, the device will allow us to obtain information with no risk and without stressing the patient.

2. Patients who require monitoring and intensive care because they are physiologically unstable:

Urgent care patients, in whom the use of Dinbeat UNO can provide us information about their constants and ECG in real time, allowing us greater data information for decision-making since, depending on the case, it will be necessary to choose a medical or surgical treatment.

For example, in cases of gastric dilatation-volvulus syndrome (DVG), hemodynamic stabilization, as well as gastric decompression, is essential for the therapeutic decision and, together with the measurement of lactate, influence the prognosis. By monitoring with Dinbeat UNO we will obtain information on the rhythm and heart rate, ECG, breaths per minute and temperature in real time and for a long time.

Another example, in case of heat stroke, where it will be necessary to constantly monitor the temperature to obtain a progressive and gradual decrease, as well as to prevent and control the complications of the cardiovascular system associated with hypoperfusion. In hyperthermia, hyperventilation occurs as a compensatory mechanism and increases cardiac work. In contrast, in hypothermia there is a cardiac decrease resulting from peripheral vasoconstriction. Continuous monitoring of the temperature will help us knowing how to act.



When can we use Dinbeat UNO?

Example of situations of use of Dinbeat UNO in emergencies	
Trauma	Diaphragmatic hernia
Burns	Bladder rupture/urinary obstruction
Hemothorax	DVG or gastric rupture.
Hemoabdomen	Coagulopathies or DIC
Pneumothorax	Shock situations (Table 2)
Sepsis	Brain edema or hemorrhage
Internal bleeding	Cardiorespiratory arrest
Pericardial effusion	Intoxications
Heat stroke	Respiratory distress
Systemic diseases	Fever
Intestinal obstruction due to a foreign body (FB)	Septic peritonitis
Electrocution	Syncope

Table 1: Examples of Dinbeat UNO situations in emergencies

Types of shock and primary cause

Cardiogenic shock caused by hemodynamic abnormalities	
Systolic dysfunction	Dilated cardiomyopathy Subaortic stenosis Obstructive hypertrophic cardiomyopathy Mitral regurgitation secondary to chordae tendineae rupture
Diastolic dysfunction	Pericardial tamponade Hypertrophic cardiomyopathy Tachyarrhythmias
Severely decreased cardiac output	Bradyarrhythmias (grade III atrioventricular block , sick sinus syndrome)
Distributive shock secondary to a systemic inflammatory response	
Sepsis	Heat stroke
Traumatic processes	Neoplasms
Burns	Pancreatitis
Metabolic shock	
Cyanide poisoning	Heatstroke
Sustained hypoglycemia	Sepsis
Hypoxic shock	
Pulmonary pathology	Anemia

Table 2: types of shock and primary cause



When can we use Dinbeat UNO?

3. Patients who need continuous monitoring and observation, but are physiologically stable (animals that have been hospitalized because there is a risk of decompensation, such as risk of seizures, hypoglycemia, arrhythmias, blood transfusion...):

Hospitalized animals who have the possibility of complications that could put their lives at risk. Either due to decompensation of some parameter or because of an underlying disease.

The use of Dinbeat UNO in these cases will help us in the early detection of possible complications. Animals with metabolic diseases that compromise the cardiovascular or respiratory system.

For example, diseases or situations that carry the risk of arrhythmias: hyperkalemia, due to diseases as hypothyroidism and hyperthyroidism, or in situations where continuous monitoring is required to control pain (pancreatitis) or monitor for seizures (epilepsy).

Patients who need constant monitored treatment due to the risk of adverse effects or complications, as in the case of transfusions or antiarrhythmic therapies, would also be included.



When can we use Dinbeat UNO?

Risk of complications, arrhythmias or seizures, in the following situations:

Hypothyroidism
Hyperthyroidism in cats
Hypoadrenocorticism
Hypoglycemia
Acromegaly
Pancreatitis
Epilepsy
Hepatic encephalopathy
Metabolic alterations
Electrolyte alterations (Table 4)
Alterations acid – basis (table 5)
Decompensation due to heart disease
Hypoglycemia
Acute renal failure (cardiovascular control)
Blood transfusion (Table 6)

Table 3: Situations and diseases prone to the development of complications in which the use of Dinbeat is recommended.

When can we use Dinbeat UNO?

Electrolyte disturbances requiring monitoring		
Imbalance	When to start monitoring	Complications we can monitor with Dinbeat UNO
Hyperkalemia	>5 mEq/l	Muscle weakness and heart abnormalities (among other possible alterations, tachyarrhythmias supraventricular in severe cases).
Hypokalemia	≤ 2,5 – 3 mEq/l	Arrhythmias (tachyarrhythmias ventricular in severe cases).
Hypernatremia	>180 mEq/l	Increased temperature and risk of triggering pulmonary edema depending on the degree of blood volume.
Hyponatremia	≤ 130 mEq/l	Risk of pulmonary edema and neurological signs such as fasciculations, tremors, seizures, and coma.
Hypercalcemia	> 5,6mg/dl	Neuromuscular and cardiac symptoms (arrhythmias).
Hypocalcemia	<4,5 mg/dl (ionic calcium)	Muscle weakness, tremors ... ECG changes.
Hyperphosphatemia	>6 mg/dl	Muscle disorders.
Hypophosphatemia	<2,5 mg/dl	Muscular alterations that also affect the cardiac and respiratory muscles.

Table 4 : recommendation for monitoring electrolyte abnormalities with Dinbeat UNO.

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Alterations acid – base requiring monitoring		
Alkalemia	pH: > 7,5 (in blood)	Cardiovascular and respiratory problems.
Acidemia	pH: < 7,3 (in blood)	Cardiorespiratory disorders (arrhythmias, hyperventilation).

Table 5: recommendation for the monitoring of alterations acid - base with Dinbeat UNO.

Blood transfusion	
Monitoring	Parameters to monitor with Dinbeat UNO
Before starting the transfusion	FC, FR, ECG y T
During the transfusion	FC, FR, ECG y T
1 – 2 hours post transfusion	FC, FR, ECG y T
3-5 days post-transfusion (since delayed immune mediated reactions may appear)	FC, FR, ECG y T

Table 6: recommendations for monitoring blood transfusions with Dinbeat UNO.

When can we use Dinbeat UNO?

4. Patients who need sustained auxiliary care (animals that require constant and tedious care, for example, animals hospitalized for pancreatitis, acute gastroenteritis, heart disease...). They usually have a definitive diagnosis and are in treatment or under supervision:

Physiologically stable animals but require constant and repetitive care or treatment over time, either because they have a chronic or acute disease, and their management can be controlled through therapy and monitoring. Dinbeat will help us carry out exhaustive and precise controls, such as assessing the response to treatment.

In acute gastroenteritis in which it is necessary to carry out constant controls three or more times a day, we can carry out the complete examination with Dinbeat UNO.

Situations
Oncology patients
Stable cardiopathic patients
Chronic renal failure
Acute gastroenteritis

Table 7: Example of situations of use of Dinbeat UNO in stable patients.

When can we use Dinbeat UNO?

5. Patients under sedation / anesthesia:

The American College of Veterinary Anesthesiologists (ACVA) maintains that good monitoring of anesthesia includes the evaluation of oxygenation, ventilation, rhythm and heart rate, an adequate anesthetic plan, good muscle relaxation, temperature control, color of the mucous membranes and a correct analgesia.

Dinbeat UNO allows us to monitor anesthesia the following parameters continuously and in real time:

- Ventilation: hypoventilation is an expected effect of general anesthesia, with Dinbeat UNO we can monitor the respiratory rate through breaths per minute.
- Circulation: hypotension is a common complication in anesthesia, by performing continuous ECG, heart rhythm and HR we can improve our monitoring in addition to detecting possible arrhythmias.
- Temperature: we will obtain continuous body temperature control, due to its prevalence of hypothermia.
- Anesthetic plan and analgesic control: we will control it through rhythm and heart rate, breaths per minute and vocalizations.

In sedation, patients are not intubated, but the risk of adverse effects (hypothermia, bradycardia or bradypnea) due to drugs still exists. With this harness we will have complete information in case of any mishap.

Recommendations for use:

Dinbeat UNO is recommended for any intervention that requires sedation or anesthesia as long as the operative field allows it.



When can we use Dinbeat UNO?

6. Post-operative patients:

In post-operative recovery, it is advisable to monitor the animal regardless of the surgery performed. However, there are surgeries that involve more risks or associated post-surgical complications.

That is why in the following table we find the main surgeries where the use of Dinbeat UNO should be essential (table 8).

For example, in DVG syndrome there is high cardiorespiratory compromise due to hypovolemia and hypoxia. The postoperative ECG can help us control postoperative complications such as arrhythmias and tachypnea associated with hypercapnia and hypoxemia

Risk of arrhythmia (continuous ECG monitoring):
Neoplasm
Splenectomy
Gastric dilatation torsion (DVG)
Eye surgery
Adrenal surgery
Obstruction of urinary tract.
Trauma.

Table 8: examples of post-surgical complications detectable with Dinbeat UNO.



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Risk of respiratory complications
Tracheotomy
Thoracentesis
Parathyroidectomy
Thyroidectomy
Pheochromatoma

Table 8: examples of post-surgical complications detectable with Dinbeat UNO.

Risk of thermoregulatory alterations
Sepsis
Pyometra

Table 8: examples of post-surgical complications detectable with Dinbeat UNO.

Recommendations as a reference, each case must be assessed according to clinical symptoms. In case of doubt, we always recommend the use of Dinbeat UNO to monitor the patient or obtain complete monitoring providing information in real time (except in cases where there is an open wound or any type of injury or bandage that does not allow the adjustment of the harness).

When can we use Dinbeat UNO?

7. Patients who need analgesic control:

For analgesic control in our patients (during anesthesia, post-operative recovery, systemic diseases, or any situation that causes pain), Dinbeat UNO will help us evaluate and control the pain to adjust better our analgesic therapy.

Signs of post-surgery pain:
Excitement
Disorientation
Dysphoria
Vocalizations
Agitation
Aggressiveness
Postural changes

Table 9: Examples of post-operative pain signs .

When can we use Dinbeat UNO?

Physiological consequences of pain with Dinbeat UNO:
Tachycardia
Tachypnea
Hyperthermia
Continuous postural changes
Vocalizations

Table 10: Parameters indicating pain.

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Classification of examples of surgical procedures based on pain's degree	
Mild to moderate pain	
	Dental cleaning
	Endoscopy with biopsy
	Subsequent abdominal surgery (sterilization, cystotomy)
	Fracture stabilization (radius and ulna, tibia and fibula)
	Tracheotomies
Moderate to severe pain	
	Pelvic fracture surgery
	Cervical intervertebral disc surgery
	Atrial resection
	Mastectomy
	Eye surgery
	Exploratory laparotomy

Table 11: Classification of pain according to the surgical procedure.

When can we use Dinbeat UNO?

Classification of examples of surgical procedures based on pain's degree
Severe to very severe pain
Nephrectomy
Thoracotomy
Thoracic and lumbar intervertebral disc surgery
Stabilization of long bone fractures (femur or humerus)
Rhinotomy
Amputations

Table 11: Classification of pain according to the surgical procedure.

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