		1.5 mn
Fusetic Solution for injection	A DexaJii Bitter	 In hepatic coma or precoma, and conditions producing electrolyte depletion, furosemide therapy should not be instituted until the underlying conditions have been corrected or ameliorated. In breastfeeding women. Do not administer furosemide to newborns presenting jaundice or to infants with conditions which might induce hyperbilirubinemia or kerniciterus (e.g. Rhesus incompatibility, familial nonhemolytic jaundice etc.) because of furosemide's potential to displace bilirubin from albumin. Furosemide 250 mg injection must not be used as a bolus injection. It must only be infused
Furosemide 10 mg		using volume or rate controlled infusion pumps to reduce the risk of accidental overdose.
List of Excipients: Sodium chloride, hydrochloric acid 10%, sodiu	m hydroxide, water for injection.	Warnings and Precautions: - Excessive diuresis may result in dehydration and reduction in blood volume with circulatory
Product Description:	foreign particles. It is packed in a type I amber	collapse and with the possibility of vascular thrombosis and embolism, particularly in elderly patients.
glass ampoule.	loreign particles. It is packed in a type i amber	 Excessive loss of potassium in patients receiving cardiac glycosides may precipitate digitalis toxicity. In patients with hepatic cirrhosis and ascites, initiation of therapy with furosemide solution
Pharmacodynamics: ATC code: C03CA01		for injection is best carried out in hospital. Sudden alterations of fluid and electrolyte balance
the ascending limb of Henle's loop and in both of efficacy is due to this unique site of action. any inhibitory effect on carbonic anhydrase or Furosemide may promote diuresis in cases v	tion. It inhibits sodium and chloride absorption in the proximal and distal tubules. The high degree The action on the distal tubule is independent of aldosterone. which have previously proved resistant to other	in patients with cirrhosis may precipitate hepatic coma, therefore, strict observation is necessary during the period of diuresis. - Cases of reversible or irreversible tinnitus or hearing impairment have been reported. - Usually, reports indicate that furosemide ottoxicity is associated with rapid injection or infusion, severe renal impairment, hypoproteinemia, doses exceeding several times the usual recommended dose, or concomitant therapy with aminoglycoside antibioits,
diuretics. Furosemide has no significant pharmacologic:	al effects other than on renal function.	ethacrynic acid, or other ototoxic drugs. In patients with hypoproteinemia, e.g. associated with nephrotic syndrome, the effect of furosemide may be weakened and its ototoxicity
Pharmacokinetics Absorption		potentiated. Cautious dose titration is required. If the physician elects to use high dose parenteral therapy, controlled intravenous infusion is advisable (for adults with normal renal function, an infusion rate not exceeding 4 mg furosemide per minute must be used; for
patients have been reported from 60–69% an	strointestinal tract. Absorption rates in healthy d from 43–46% in patients with end stage renal	adults with impaired renal function [creatinine >5 mg/dl], an infusion rate of no greater than 2.5 mg per minute must be used).
failure. The onset of diuresis following intravenous a later after intramuscular administration. The p duration of diuretic effect is approximately 2 h	dministration is within 5 minutes and somewhat leak effect occurs within the first half hour. The ours.	 Caution should be exercised when administering curare or its derivatives to patients undergoing furosemide therapy. It is also advisable to discontinue furosemide for one week prior to any elective surgery. Rigid sodium restriction is conducive to both hyponatremia and hypokalemia, thus strict
Distribution Furosemide is extensively bound to plasma pro	oteins, mainly to albumin. Plasma concentrations nd in healthy individuals. The unbound fraction	restriction of sodium intake is not advisable in patients receiving furoSemide. Furosemide should be used with care, especially in the initial stages, in patients with impairment of miclunition (e.g., prostatic hypertrophy). Unnary outflow must be secured, in patients with a partial obstruction of unitate outflow (e.g., in patients with bladder emptying the stage of the stage
Metabolism Recent evidence suggests that furosemide biotransformation product of furosemide in ma	glucuronide is the only, or at least the major, n.	 Careful monitoring is required in patients with gout, with partial obstruction of unine may provoke or aggravate complaints. These patients require careful monitoring, careful monitoring is required in patients with gout, with partial obstruction of uninary outflow, in patients at risk from hypotension (e.g. patients with heratorenal syndrome or in patients with latent or manifest diabetes mellitus, in patients with hepatorenal syndrome or in patients
Excretion	" mately 80% of an intravenous or intramuscular rs. Urinary excretion is accomplished both by	with alternt or mannest clabetes menuts, in patients with nepatorenal synctome or in patients with hypoproteinemia (e.g. associated with nephrotic syndrome). Dose thration, especially in this latter case, is required. In premature infants, there is the possible development of nephrocacinosis/nephrotilitaiss and therefore renal function must be monitored and renal ultrasonography performed. In premature infants furosemide administered during the first
glomerular filtration and proximal tubular sec ingested dose, the remainder being excreted cleavage of the side chain	retion, which accounts for roughly 66% of the in the feces. A small fraction is metabolized by	 As with any effective diuretic, electrolyte depletion may occur during therapy, especially in patients, requiring higher degree and a restricted calt intelle. All patients requiring
Significantly more furosemide is excreted in administration.	urine following the IV injection than after oral	In patients receiving indire uobers and a restricted sail intake. All patients receiving furosemide therapy should be observed for signs of fluid or electrolyte imbalance, namely hyponatremia, hypochloremia alkalosis, and hypokalemia. Periodic determinations of serum electrolytes to detect a possible imbalance should be performed at appropriate intervals,
Furosemide has a biphasic half-life in the pla prolonged by renal and hepatic insufficiency a	asma with t _{1/2} ranging up to 100 minutes; t _{1/2} is nd in newborn infants.	as well as creatinine, blood urea and CO ₂ content determinations. This is particularly
Indications: - Edema due to cardiac and hepatic diseases	(ascites)	important when the patient is vomiting excessively or receiving parenteral fluids. Warning signs of an imbalance, irrespective of cause include dryness of mouth, thirst, weakness, the parent description of the patient of the pati
 Edema due to renal diseases (in the nephro has precedence). 	ic syndrome, therapy of the underlying diseases	lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguna, tachycardia, arrhythmia, and gastrointestinal disturbances such as nausea and vomiting. Hypovolemia or dehydration as well as any significant electrolyte and acid-base
with other therapeutic measures).	ulmonary edema (administration in conjunction	 disturbances must be corrected. This may require temporary discontinuation of furosemide. During long-term therapy, a high potassium diet is recommended. Potassium supplements
fluid volume to normal. - Supportive measures in brain edema.	regnancy-related nephrosis), after restoring the	may be required, especially when high doses are used for prolonged periods. Particular caution with potassium is necessary when the patient is on digitalis glycosides, potassium depleting steroids or in the case of infants and children. Potassium supplementation, diminution in dose, or discontinuation of furosemide therapy may be required.
 Edema due to burns. Hypertensive crisis (in addition to other anti 	hypertensive measures).	 Periodic checks on urine and blood glucose should be made in diabetics and even those
 To support forced diuresis in poisoning. Recommended Dosage: 		suspected of latent diabetes when receiving furosemide. Increases in blood glucose and alterations in glucose tolerance tests with abnormalities of the fasting and 2-hour postprandial sugar have been observed, and rare cases of precipitation of diabetes mellitus
Adults Parenteral therapy with furosemide solution for to take oral medication or in emergency situa	injection should be used only in patients unable tions and should be replaced with oral therapy	have been reported. Furosemide may lower calcium levels, and rare cases of tetany have been reported. Accordingly, periodic serum calcium levels should be obtained.
as soon as practical. <i>Edema:</i> The usual initial dose of furosemide solution fo	r injection is 20 to 40 mg given as a single dose,	 In children, urge to defecate, complaints of abdominal pain and cramping have been reported after IV furcesmide. An association of these symptoms with a low serum calcium and/or a low calcium/protein ratio is possible. Reversible elevations of bload urea may be seen. These have been observed in association
injected intramuscularly or intravenously. The Warnings and Precautions). Ordinarily a prompt diuresis ensues. If needed	intravenous dose should be given slowly (see , another dose may be administered in the same eased. The dose may be raised by 20 mg, and	 with dehydration, which should be avoided, particularly in patients with renal insufficiency. Furosemide increases cholesterol and triglycerides short-term. It is not clear whether this effect persists long-term, however, the current evidence does not indicate this.
given not sooner than 2 hours after the previou obtained. This individually determined single of	is dose, until the desired diuretic effect has been lose should then be given once or twice daily.	 As with many other drugs, patients should be observed regularly for the possible occurrence of blood dyscrasias, luver damage, or other idiosyncratic reactions. Renal calcifications (from barely visible on X-ray to staghorn) have occurred in some severely premature infants treated with intravenous furosemide for dedma due to patent
Therapy should be individualized according to response and to determine the minimal dose n	eded to maintain that response. Close medical	ductus arteriosus and nyaline membrane disease. The concurrent use of chlorothiazides
furosemide solution for injection to either 0.9%	ts to use high dose parenteral therapy, add the sodium chloride, 5% dextrose, or Ringer lactate d intravenous infusion at a rate not greater than	has been reported to decrease hypercalciuria and to dissolve some calculi. - The possibility exists of exacerbation or activation of systemic lupus erythematosus. Asymptomatic hyperuricemia can occur and rarely, gout may be precipitated.
4 mg/minute. Furosemide solution for injection	is a buffered alkaline solution.	 When furosemide is administered parenterally, a maximum injection rate of 4 mg/minute should be used to minimize the risk of ototoxicity.
Acute pulmonary edema: The usual initial dose of furosemide solution for injection is 40 mg injected slowly intravenously (see Warnings and Precautions). If a satisfactory response does not occur, a further dose of 20-40 mg is ingredet after 20 minutes. If necessary, additional therapy (e.g. digitalis, oxygen)		 Intramuscular administration of furosemide must be limited to exceptional cases where neither oral nor intravenous administrations are feasible. Intramuscular administration is not suitable for acute conditions such as pulmonary edema. Concomitant use with risperidone
may be administered concomitantly.	,	Caution should be exercised and the risks and benefits of this combination or cotreatment with other potent diuretics should be considered prior to the decision to use. There was
Parenteral therapy should be used only in emergency situations, and should be replaced	patients unable to take oral medication or in with oral therapy as soon as practical.	 no increased incidence of mortality among patients taking other diuretics as concomitant treatment with risperidone. In risperidone placebo-controlled trials in elderly patients with dementia, a higher incidence
The recommended dose of furosemide solutic in infants and children is 1 mg/kg body weight supervision up to a maximum of 20 mg.	n for injection (intravenously or intramuscularly) and should be given slowly under close medical	of mortality was observed in patients treated with furosemide plus risperidone (7.3%; mean age 89 years, range 75–97 years) when compared to patients treated with risperidone alone (3.1%; mean age 84 years, range 70–96 years) or furosemide alone (4.1%; mean age
Route of Administrations: Intravenous, intramuscular.		80 years, range 67–90 years). Irrespective of treatment, dehydration was an overall risk factor for mortality and should therefore be avoided in elderly patients with dementia (see Contraindications).
Contraindications: - Known hypersensitivity to furosemide or s	ulfonamides or any of the inactive ingredients.	Interactions with Other Medicines and Other Forms of Interaction: Combinations that are not recommended
Patients allergic to sulfonamides (e.g. sulfo cross-sensitivity to furosemide.	namide antibiotics or sulfonylureas) may show	 Furosemide may increase the ototoxic and nephrotoxic potential of certain antibiotics (e.g. aminoglycosides) and certain cephalosporins (e.g. cephaloridine), especially in the
poisoning by nephrotoxic or hepatotoxic ag	ing to furosemide. Renal failure as a result of ents. during treatment of severe progressive renal	presence of impaired renal function, therefore the simultaneous administration of these drugs is not advisable.
 disease, discontinue furosemide. Severe hypokalemia, hyponatremia, hypocontraindications until serum electrolytes, 	volemia, or hypotension must be regarded as fluid balance, and blood pressure have been	 Anticonvulsants may decrease the response to furosemide. In isolated cases intravenous administration of furosemide within 124 hours of taking chloral hydrate may lead to flushing, sweating attacks, restlessness, nausea, tachycardia, and elevation of blood pressure. As a result, this combination is not recommended.
restored to normal levels.		63401-00XX-YY Last revised: dd/mm/yyy
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Approved :RA Officer 02, Regulatory Affairs Officer,

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Effective date: 17.05.2022 SpecPacGen008082/2 CONFIDENTIAL

DIS-FORM-RND-187 (Rev.00) eff.date 08 Jan. 2016

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- Precautions for use Furcesemide should not be used concomitantly with ethacrynic acid or cisplatin because of the possibility of ototoxicity. In addition, nephrotoxicity of aplatin may be enhanced if furosemide is not given in low doess (e.g. 40 mg in patients with normal renal function) and with positive fluid balance when used to achieve forced diuresis during cisplatin treatment. Furosemide decreases the excretion of fittimum sails and may cause increased serum lithium levels resulting in increased risk of fittimum toxicity, including increased risk of cardiotoxic and patients receiving this combination. Administration of furosemide and succiliate within two hours of each other should be avoided, as succiliate reduces the absorption of furosemide and hence, reduces its effect. The action of other antihypertensive drugs may be potentiated by furosemide, especially when a Administration of accompletions of the administration of AC enhibitor maynesis per tessed hypotensics expectedly when an ACE inhibitor or angliotensi II neceptor antagonist is given for the first time or for the first time in an increased dose. Consideration must be given to interrupting the administration of furosemide temporarily or at least reducing the dose of furosemide for 3 days before starting treatment with an ACE inhibitor or angliotensin II ecoptor antagonist is given of the ACE inhibitor or angliotensin II receptor antagonist.

- of the ACE inhibitor or angiotensin II receptor antagones. **To be considered** The effects if digitalis preparations and drugs inducing QT interval prolongation syndrome may be potentiated by changes in electrolyte concentrations e.g. hypotkalenia, hypomagnesemia due to furosemide. When a cardiac glycoside is administered the sensitivity of the myocardium to digitalis and may increase the toxicity of drugs which induce QT interval prolongation syndrome. When a glucocorticoid is administered during diruteric treatment, the potassium-lowering effect of the steroid should be borne in mind. Carbenoxohone, corticosteriods, prolonged use of laxitives or ingestion of liquorice in large amounts may also predispose a patient to hypokalemia. Patients receiving high doess of salicylate taxicity at lower doese because of competitive renal excretory sites. Interactions between furosemide and neuromuscular blocking agents have been reported. These appear to be dependent on the does of furosemide and the neuromuscular blocking agent involved. Low doess of salicylate toxicity at lower doess (f-s-Gingki) of furosemide potentiate the action of succinylcholine. The clinical relevance of these findings is uncertain. The combination of furosemide and amplotericin may result in an excessive loss of potensite. The constraint relevance of these findings is uncertain. The combination of furosemide and amplotericin may result in an excessive loss of

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- anticipated. Nonsteroidal anti-inflammatory drugs including acetylsalicylic acid may reduce the natriuretic and antihypertensive effects of furosemide in some patients by inhibiting prostaglandin synthesis. In patients with dehydration or preexisting hypovolemia, nonsteroidal anti-inflammatory drugs may cause renal fallure. Salicylate toxicity may be increased by
- synthesis, in patients with derydation of prevaluing hypotoprima, industributal atte-inflammabry drugs may cause renal failure. Salicylate toxicity may be increased by Phenytoin or drugs which undergo significant renal tubular secretion such as methotrexate and probeneod, may attenuate the effects of furosemide. Conversely turosemide may decrease renal elimination of these drugs. In the case of high dose treatment (in particular of both furosemide and the other drugs), this may lead to an increased risk of adverse effects due to furosemide or the concomitant medication. IV furosemide was shown to increase the steady state concentration of theophylline by 20% in a small number of asthmatic patients; hence it is appropriate to measure serum theophylline levels when both drugs are given together. The effects of curare-type muscle relaxants or of theophylline may be increased. Ingernent of renal function may develop in patients receiving concurrent treatment with furosemide and high dores of certain cephalosporins. The harmful effects of engline hybe increased. Concomitant use of ciclosporin A and furosemide is associated with increased risk of gouty arthrits secondary to furosemide-induced hyperuricemia and ciclosporin impairment of renal vate excretion. Patients who were at high risk for radiocontrast nephropathy treated with furosemide engline. Patients who were at high risk for radiocontrast nephropathy treated with furosemide apprenced a higher incidence of detencionation in renal function after receiving radiocontrast.

- urate excretion. Patients who were at high risk for radiocontrast nephropathy treated with furosemide experienced a higher incidence of deterioration in renal function after receiving radiocontrast compared to high risk patient who received only intravenous hydration prior to receiving radiocontrast.

Use during Pregnancy and Lactation: Pregnancy Furosemide must not be given during pregnancy unless there are compelling medical reasons. Treatment during pregnancy requires monitoring of fetal growth. Thiazides, related durietics and loop diuretics enter the fetal circulation and may cause electrolyte disturbances. Neonatal thrombocytopenia has been reported with thiazides and related diuretics. Loop diuretics, like furosemide and bumetanide, are probably also associated with this risk.

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Lactation Furosemide passes into the breast milk and inhibits lactation. Women must not breastfeed if being treated with furosemide.

Effects on Ability to Drive and Use Machines: Some adverse effects (e.g. an undesirable pronounced fall in blood pressure) may impair the patient's ability to concentrate and react and therefore constitute a risk in situations where these abilities are of special importance (e.g. operating a vehicle or machinery).

Adverse Effects: As with other diuretics, electrolytes and water balance may be disturbed during therapy with furosemide, especially in patients receiving high doses for a prolonged period.

Excessive diuresis may give rise, especially in elderly patients and children, to circulatory disturbances such as headache, dizziness, dry mouth, or visual impairment, as symptoms of hypovolemia and dehydration may lead to hypotension, circulatory collapse and, in elderly patients in particular, thrombophila. However, with individualized dosage, acute hemodynamic reactions are generally not to be expected, although diuresis sets in rapidly.

All saluretics may cause hypokalemia, mainly in cases of low potassium diet, vomiting, or chronic diarrhea.

Factors such as underlying diseases (liver cirrhosis, cardiac failure), concomitant medication, or nutritional inadequacies (excessive restriction of salt intake), may lead to sodium or other electrolyte or fluid deficiencies which may produce a fall in orthostatic blood pressure, calf muscle spasms, anorexia, weakness, dizziness, drowsiness, apathy, vomiting, and confusion.

Furosemide may lower the serum calcium level which may trigger a state of increased neuromuscular irritability. In very rare cases, tetany has been observed. In premature infants, calcium saits may be deposited in the renal tissue (nephrocalcinosis).

Hypomagnesemia and, in rare cases, tetany or cardiac arrhythmias have been observed as a consequence of increased renal magnesium loss.

Treatment with furosemide may lead to transitory increases in blood creatinine and urea levels. Serum levels of uric acid may increase and attacks of gout may occur.

Preexisting metabolic alkalosis (e.g. due to decompensated liver cirrhosis) may be aggravated during furosemide treatment.

Hepatic system In isolated cases, acute pancreatitis and increases in liver transaminases have been observed. Additionally, intrahepatic cholestasis and jaundice have been reported. Furosemide may increase the bile flow and distend the biliary tree which is already obstructed.

Central nervous system Reactions such as dizziness, vertigo, paresthesia, headache, and blurred vision occasionally accompany furosemide induced diuresis. Reversible hearing impairment and tinnitus and rarely, permanent tinnitus and impairment of hearing have been observed, especially in patients with markedly reduced renal function or hypoproteinemia (e.g. in nephrotic synforme). This occurs particularly when the recommended rate of injection or infusion of 4 mg per minute (mormal renal function) or 2.5 mg per minute (impaired renal function) is exceeded, or in patients with are also receiving drugs known to be ototoxic.

Dermatologic Allergic reactions may occur in the form of dermatitis, including rash, urticarial and rare cases of exfoliative dermatitis, necrotizing angitis, bullous eruptions, erythema multiforme and purpura, and pruritus. Photosensitivity reactions have been reported.

Hematologic The following rare adverse reactions have been reported: eosinophilia, thrombophlebitis, hemolytic or aplastic anemia, leukoperia, thrombocytopenia, and agranulocytosis. Vasculitis may also occur.

Urinary system Excessive diuresis and dehydration could cause transient elevation of creatinine and BUN, and reduction of GFR. In elderly men with prostatic hypertrophy, acute urinary retention with overflow incontinence may occur. Symptoms of existing conditions of obstructed micturition, such as uretostenosis or hydronephrosis, may be triggered or aggravated by pronounced diuresis. Interstitial nephritis has also been reported with furosemide use.

Cardiovascular Orthostatic hypotension may occur and may be aggravated by alcohol, narcotics, and barbiturates. Ischemic complications have also been reported in elderly patients.

Other Restlessness, hyperuricemia, fever, a rise in serum cholesterol and triglyceride, in patients with hepatocellular insufficiency, hepatic encephalopathy may occur. Treatment with furosemide has occasionally caused reduced glucose tolerance and deterioration in cases of manifiest diabetes, or made latent diabetes mainfrest. Rarely, fever or paresthesia and occasionally photosensitivity may occur. In premature infantes, furosemide may precipitate nephrocacinosis/nephrolithaiss. If furosemide may precipitate nephrocacinosis/nephrolithaiss. If furosemide the is administered oucus arteriorsus. Following intramuscular injection, local reactions such as pain may occur. Due to the possibility of adverse effects such as hypotension, patients' ability to drive or operate machinery may be

ductus arteriosus. Following intramuscular injection, local reactions such as pain may occur. Due to the possibility of adverse effects such as hypotension, patients' sability to drive or operate machinery may be impaired, especially at the commencement of therapy. Anaphylactic shock is rare, but is acutely life-threatening if it does occur. Whenever adverse reactions are moderate or severe, furosemite dose should be reduced or therapy withdrawn.

Overdose and Treatment:

Overdose and Treatment: The clinical picture in acute or chronic overdose depends primarily on the extent and consequences of electrolyte and fluid loss, e.g. dehydration, blood volume reduction, high listical), hypokalemia and hypochiaremia elikalosis, (if where the elikalow of the

Incompatibilities: Furosemide may precipitate out of solution in fluids of low pH.

Instructions for Use and Handling and Disposal: Furosemide solution for injection should be inspected visually for particulate matter and discoloration before administration. Do not use if solution is discolored. Furosemide solution for injection is for single use in one patient only. Discard any residue. Furosemide solution for discolor and may an is physically and chemically stable in 0.9% sodium chloride, 5% dextrose, and Ringer lactate infusion solution for up to 24 hours store at 30±2°C/75±5% RH.

Shelf Life After Reconstitution: Although the chemical stability of diluted furosemide solution for injection has been demonstrated for storage at 30°C for 24 hours, the diluted solution should be used as soon as practicable to reduce risk of microbiological hazard.

Page 2

Presentation and Registration Number: Box, 25 ampoules x 2 ml; SINXXXXX

ON MEDICAL PRESCRIPTION ONLY.

STORE AT TEMPERATURES BELOW 30°C, PROTECT FROM LIGHT.

Manufactured by PT Ferron Par Pharmaceuticals Kawasan Industri Jababeka I JI. Jababeka VI Blok J3, Cikarang Kabupaten Bekasi-Indonesia

For **PT Dexa Medica** JI. Jend. Bambang Utoyo No. 138 Palembang-Indonesia

Date of review: 13 May 2022

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