HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use NORVASC safely and effectively. See full prescribing information for NORVASC.

NORVASC*(amlodipine besylate) Tablets for oral administration
Initial U.S. Approval: 1992

----------INDICATIONS AND USAGE----------

NORVASC is a calcium channel blocker and may be used alone or in combination with other antihypertensive and antianginal agents for the treatment of:

- Hypertension (1.1)
  - NORVASC is indicated for the treatment of hypertension, to lower blood pressure. Lowering blood pressure reduces the risk of fatal and nonfatal cardiovascular events, primarily strokes and myocardial infarctions.
- Coronary Artery Disease (1.2)
  - Chronic Stable Angina
  - Vasospastic Angina (Prinzmetal's or Variant Angina)
  - Angiographically Documented Coronary Artery Disease in patients without heart failure or an ejection fraction < 40%

----------DOSAGE AND ADMINISTRATION----------

- Adult recommended starting dose: 5 mg once daily with maximum dose 10 mg once daily. (2.1)
  - Small, fragile, or elderly patients, or patients with hepatic insufficiency may be started on 2.5 mg once daily. (2.1)
- Pediatric starting dose: 2.5 mg to 5 mg once daily. (2.2)

Important Limitation: Doses in excess of 5 mg daily have not been studied in pediatric patients. (2.2)

----------DOSAGE FORMS AND STRENGTHS----------

- Tablets: 5 mg, and 10 mg (3)

----------CONTRAINDICATIONS----------

- Known sensitivity to amlodipine (4)

----------WARNINGS AND PRECAUTIONS----------

- Symptomatic hypotension is possible, particularly in patients with severe aortic stenosis. However, acute hypotension is unlikely. (5.1)
- Worsening angina and acute myocardial infarction can develop after starting or increasing the dose of NORVASC, particularly in patients with severe obstructive coronary artery disease. (5.2)
- Titrate slowly in patients with severe hepatic impairment. (5.3)

----------ADVERSE REACTIONS----------

Most common adverse reaction to amlodipine is edema which occurred in a dose related manner. Other adverse experiences not dose related but reported with an incidence >1.0% are fatigue, nausea, abdominal pain, and somnolence. (6)

----------DRUG INTERACTIONS----------

- Do not exceed doses greater than 20 mg daily of simvastatin. (7.2)

----------USE IN SPECIFIC POPULATIONS----------

- Pediatric: Effect on patients less than 6 years old is not known. (8.4)
- Geriatric: Start dosing at the low end of the dose range. (8.5)

Revised: 10/2017

FULL PRESCRIBING INFORMATION: CONTENTS*

* Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

1.1 Hypertension

NORVASC* is indicated for the treatment of hypertension, to lower blood pressure. Lowering blood pressure reduces the risk of fatal and nonfatal cardiovascular events, primarily strokes and myocardial infarctions. These benefits have been seen in controlled trials of antihypertensive drugs from a wide variety of pharmacologic classes including NORVASC.

Control of high blood pressure should be part of comprehensive cardiovascular risk management, including, as appropriate, lipid control, diabetes management, antithrombotic therapy, smoking cessation, exercise, and limited sodium intake. Many patients will require more than one drug to achieve blood pressure goals. For specific advice on goals and management, see published guidelines, such as those of the National High Blood Pressure Education Program's Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC).

Numerous antihypertensive drugs, from a variety of pharmacologic classes and with different mechanisms of action, have been shown in randomized controlled trials to reduce cardiovascular morbidity and mortality, and it can be concluded that it is blood pressure reduction, and not some other pharmacologic property of the drugs, that is largely responsible for those benefits. The largest and most consistent cardiovascular outcome benefit has been a reduction in the risk of stroke, but reductions in myocardial infarction and cardiovascular mortality also have been seen regularly.

Elevated systolic or diastolic pressure causes increased cardiovascular risk, and the absolute risk increase per mmHg is greater at higher blood pressures, so that even modest reductions of severe hypertension can provide substantial benefit. Relative risk reduction from blood pressure reduction is similar across populations with varying absolute risk, so the absolute benefit is greater in patients who are at higher risk independent of their hypertension (for example, patients with diabetes or hyperlipidemia), and such patients would be expected to benefit from more aggressive treatment to a lower blood pressure goal.

Some antihypertensive drugs have smaller blood pressure effects (as monotherapy) in black patients, and many antihypertensive drugs have additional approved indications and effects (e.g., on angina, heart failure, or diabetic kidney disease). These considerations may guide selection of therapy.

NORVASC may be used alone or in combination with other antihypertensive agents.

1.2 Coronary Artery Disease (CAD)

Chronic Stable Angina

NORVASC is indicated for the symptomatic treatment of chronic stable angina. NORVASC may be used alone or in combination with other antianginal agents.

Vasospastic Angina (Prinzmetal's or Variant Angina)

NORVASC is indicated for the treatment of confirmed or suspected vasospastic angina. NORVASC may be used as monotherapy or in combination with other antianginal agents.

Angiographically Documented CAD

In patients with recently documented CAD by angiography and without heart failure or an ejection fraction <40%, NORVASC is indicated to reduce the risk of hospitalization for angina and to reduce the risk of a coronary revascularization procedure.

2 DOSAGE AND ADMINISTRATION

2.1 Adults

The usual initial antihypertensive oral dose of NORVASC is 5 mg once daily, and the maximum dose is 10 mg once daily.

Small, fragile, or elderly patients, or patients with hepatic insufficiency may be started on 2.5 mg once daily and this dose may be used when adding NORVASC to other antihypertensive therapy.

Adjust dosage according to blood pressure goals. In general, wait 7 to 14 days between titration steps. Titrate more rapidly, however, if clinically warranted, provided the patient is assessed frequently.

Angina: The recommended dose for chronic stable or vasospastic angina is 5–10 mg, with the lower dose suggested in the elderly and in patients with hepatic insufficiency. Most patients will require 10 mg for adequate effect.

Coronary artery disease: The recommended dose range for patients with coronary artery disease is 5–10 mg once daily. In clinical studies, the majority of patients required 10 mg *[see Clinical Studies (14.4)]*.

2.2 Children

The effective antihypertensive oral dose in pediatric patients ages 6–17 years is 2.5 mg to 5 mg once daily. Doses in excess of 5 mg daily have not been studied in pediatric patients *[see Clinical Pharmacology (12.4), Clinical Studies (14.1)]*.

3 DOSAGE FORMS AND STRENGTHS

Tablets: 5 mg white, flat emerald shape tablet with VLE engraved on one side and NVC 5 on the other
Tablets: 10 mg white, round biconvex tablet with VLE engraved on one side and NVC 10 on the other

4 CONTRAINDICATIONS

NORVASC is contraindicated in patients with known sensitivity to amlodipine.

5 WARNINGS AND PRECAUTIONS

5.1 Hypotension

Symptomatic hypotension is possible, particularly in patients with severe aortic stenosis. Because of the gradual onset of action, acute hypotension is unlikely.

5.2 Increased Angina or Myocardial Infarction

Worsening angina and acute myocardial infarction can develop after starting or increasing the dose of NORVASC, particularly in patients with severe obstructive coronary artery disease.

5.3 Patients with Hepatic Failure

Because NORVASC is extensively metabolized by the liver and the plasma elimination half-life ($t_{1/2}$) is 56 hours in patients with impaired hepatic function, titrate slowly when administering NORVASC to patients with severe hepatic impairment.

6 ADVERSE REACTIONS

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.

NORVASC has been evaluated for safety in more than 11,000 patients in U.S. and foreign clinical trials. In general, treatment with NORVASC was well-tolerated at doses up to 10 mg daily. Most adverse reactions reported during therapy with NORVASC were of mild or moderate severity. In controlled clinical trials directly comparing NORVASC (N=1730) at doses up to 10 mg to placebo (N=1250), discontinuation of NORVASC because of adverse reactions was required in only about 1.5% of patients and was not significantly different from placebo (about 1%). The most commonly reported side effects more frequent than placebo are reflected in the table below. The incidence (%) of side effects that occurred in a dose related manner are as follows:

	Amlodipine			Placebo
	2.5 mg N=275	5 mg N=296	10 mg N=268	 N=520
Edema	1.8	3.0	10.8	0.6
Dizziness	1.1	3.4	3.4	1.5
Flushing	0.7	1.4	2.6	0.0
Palpitation	0.7	1.4	4.5	0.6

Other adverse reactions that were not clearly dose related but were reported with an incidence greater than 1.0% in placebo-controlled clinical trials include the following:

	NORVASC (%) (N=1730)	Placebo (%) (N=1250)
Fatigue	4.5	2.8
Nausea	2.9	1.9
Abdominal Pain	1.6	0.3
Somnolence	1.4	0.6

For several adverse experiences that appear to be drug and dose related, there was a greater incidence in women than men associated with amlodipine treatment as shown in the following table:

	NORVASC		Placebo	
	Male=% (N=1218)	Female=% (N=512)	Male=% (N=914)	Female=% (N=336)
Edema	5.6	14.6	1.4	5.1
Flushing	1.5	4.5	0.3	0.9
Palpitations	1.4	3.3	0.9	0.9
Somnolence	1.3	1.6	0.8	0.3

The following events occurred in <1% but >0.1% of patients in controlled clinical trials or under conditions of open trials or marketing experience where a causal relationship is uncertain; they are listed to alert the physician to a possible relationship:

Cardiovascular: arrhythmia (including ventricular tachycardia and atrial fibrillation), bradycardia, chest pain, peripheral ischemia, syncope, tachycardia, vasculitis.

Central and Peripheral Nervous System: hypoesthesia, neuropathy peripheral, paresthesia, tremor, vertigo.

Gastrointestinal: anorexia, constipation, dysphagia, diarrhea, flatulence, pancreatitis, vomiting, gingival hyperplasia.

General: allergic reaction, asthenia,[1] back pain, hot flushes, malaise, pain, rigors, weight gain, weight decrease.

Musculoskeletal System: arthralgia, arthrosis, muscle cramps,[1] myalgia.

Psychiatric: sexual dysfunction (male[1] and female), insomnia, nervousness, depression, abnormal dreams, anxiety, depersonalization.

Respiratory System: dyspnea,[1] epistaxis.

Skin and Appendages: angioedema, erythema multiforme, pruritus,[1] rash,[1] rash erythematous, rash maculopapular.

Special Senses: abnormal vision, conjunctivitis, diplopia, eye pain, tinnitus.

Urinary System: micturition frequency, micturition disorder, nocturia.

Autonomic Nervous System: dry mouth, sweating increased.

Metabolic and Nutritional: hyperglycemia, thirst.

Hemopoietic: leukopenia, purpura, thrombocytopenia.

[1] These events occurred in less than 1% in placebo-controlled trials, but the incidence of these side effects was between 1% and 2% in all multiple dose studies.

NORVASC therapy has not been associated with clinically significant changes in routine laboratory tests. No clinically relevant changes were noted in serum potassium, serum glucose, total triglycerides, total cholesterol, HDL cholesterol, uric acid, blood urea nitrogen, or creatinine.

In the CAMELOT and PREVENT studies *[see Clinical Studies (14.4)]*, the adverse event profile was similar to that reported previously (see above), with the most common adverse event being peripheral edema.

6.2 Postmarketing Experience

Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

The following postmarketing event has been reported infrequently where a causal relationship is uncertain: gynecomastia. In postmarketing experience, jaundice and hepatic enzyme elevations (mostly consistent with cholestasis or hepatitis), in some cases severe enough to require hospitalization, have been reported in association with use of amlodipine.

Postmarketing reporting has also revealed a possible association between extrapyramidal disorder and amlodipine.

NORVASC has been used safely in patients with chronic obstructive pulmonary disease, well-compensated congestive heart failure, coronary artery disease, peripheral vascular disease, diabetes mellitus, and abnormal lipid profiles.

7 DRUG INTERACTIONS

7.1 Impact of Other Drugs on Amlodipine

CYP3A Inhibitors
Co-administration with CYP3A inhibitors (moderate and strong) results in increased systemic exposure to amlodipine and may require dose reduction. Monitor for symptoms of hypotension and edema when amlodipine is co-administered with CYP3A inhibitors to determine the need for dose adjustment *[see Clinical Pharmacology (12.3)]*.

CYP3A Inducers
No information is available on the quantitative effects of CYP3A inducers on amlodipine. Blood pressure should be closely monitored when amlodipine is co-administered with CYP3A inducers.

Sildenafil
Monitor for hypotension when sildenafil is co-administered with amlodipine *[see Clinical Pharmacology (12.2)]*.

7.2 Impact of Amlodipine on Other Drugs

Simvastatin
Co-administration of simvastatin with amlodipine increases the systemic exposure of simvastatin. Limit the dose of simvastatin in patients on amlodipine to 20 mg daily *[see Clinical Pharmacology (12.3)]*.

Immunosuppressants
Amlodipine may increase the systemic exposure of cyclosporine or tacrolimus when co-administered. Frequent monitoring of trough blood levels of cyclosporine and tacrolimus is recommended and adjust the dose when appropriate *[see Clinical Pharmacology (12.3)]*.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary
The limited available data based on post-marketing reports with NORVASC use in pregnant women are not sufficient to inform a drug-associated risk for major birth defects and miscarriage. There are risks to the mother and fetus associated with poorly controlled hypertension in pregnancy *[see Clinical Considerations]*. In animal reproduction studies, there was no

evidence of adverse developmental effects when pregnant rats and rabbits were treated orally with amlodipine maleate during organogenesis at doses approximately 10 and 20-times the maximum recommended human dose (MRHD), respectively. However for rats, litter size was significantly decreased (by about 50%) and the number of intrauterine deaths was significantly increased (about 5-fold). Amlodipine has been shown to prolong both the gestation period and the duration of labor in rats at this dose *[see Data]*.

The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2%-4% and 15%-20%, respectively.

Clinical Considerations
Disease-associated maternal and/or embryo/fetal risk
Hypertension in pregnancy increases the maternal risk for pre-eclampsia, gestational diabetes, premature delivery, and delivery complications (e.g., need for cesarean section and post-partum hemorrhage). Hypertension increases the fetal risk for intrauterine growth restriction and intrauterine death. Pregnant women with hypertension should be carefully monitored and managed accordingly.

Data
Animal Data
No evidence of teratogenicity or other embryo/fetal toxicity was found when pregnant rats and rabbits were treated orally with amlodipine maleate at doses up to 10 mg amlodipine/kg/day (approximately 10 and 20 times the MRHD based on body surface area respectively) during their respective periods of major organogenesis. However, for rats litter size was significantly decreased (by about 50%) and the number of intrauterine deaths was significantly increased (about 5-fold) in rats receiving amlodipine maleate at a dose equivalent to 10 mg amlodipine/kg/day for 14 days before mating and throughout mating and gestation. Amlodipine maleate has been shown to prolong both the gestation period and the duration of labor in rats at this dose.

8.2 Lactation
Risk Summary
Limited available data from a published clinical lactation study reports that amlodipine is present in human milk at an estimated median relative infant dose of 4.2%. No adverse effects of amlodipine on the breastfed infant have been observed. There is no available information on the effects of amlodipine on milk production.

8.3 Pediatric Use
NORVASC (2.5 to 5 mg daily) is effective in lowering blood pressure in patients 6 to 17 years *[see Clinical Studies (14.1)]*. Effect of NORVASC on blood pressure in patients less than 6 years of age is not known.

8.4 Geriatric Use
Clinical studies of NORVASC did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy. Elderly patients have decreased clearance of amlodipine with a resulting increase of AUC of approximately 40–60%, and a lower initial dose may be required *[see Dosage and Administration (2.1)]*.

10 OVERDOSAGE

Overdosage might be expected to cause excessive peripheral vasodilation with marked hypotension and possibly a reflex tachycardia. In humans, experience with intentional overdosage of NORVASC is limited.

Single oral doses of amlodipine maleate equivalent to 40 mg amlodipine/kg and 100 mg amlodipine/kg in mice and rats, respectively, caused deaths. Single oral amlodipine maleate doses equivalent to 4 or more mg amlodipine/kg or higher in dogs (11 or more times the maximum recommended human dose on a mg/m^2 basis) caused a marked peripheral vasodilation and hypotension.

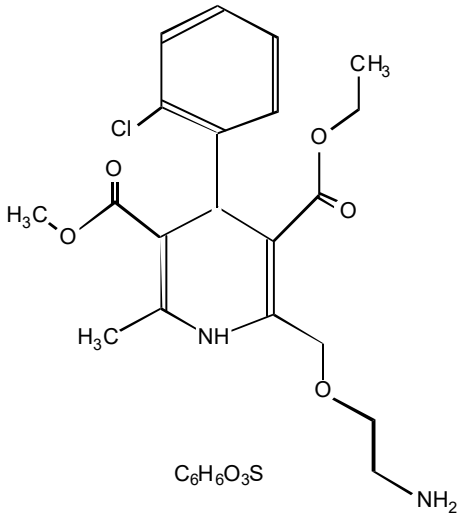
If massive overdose should occur, initiate active cardiac and respiratory monitoring. Frequent blood pressure measurements are essential. Should hypotension occur, provide cardiovascular support including elevation of the extremities and the judicious administration of fluids. If hypotension remains unresponsive to these conservative measures, consider

administration of vasopressors (such as phenylephrine) with attention to circulating volume and urine output. As NORVASC is highly protein bound, hemodialysis is not likely to be of benefit.

11 DESCRIPTION

NORVASC is the besylate salt of amlodipine, a long-acting calcium channel blocker.

Amlodipine besylate is chemically described as 3-Ethyl-5-methyl (±)-2-[(2-aminoethoxy)methyl]-4-(2-chlorophenyl)-1,4-dihydro-6-methyl-3,5-pyridinedicarboxylate, monobenzenesulphonate. Its empirical formula is $C_{20}H_{25}ClN_2O_5 \cdot C_6H_6O_3S$, and its structural formula is:



Amlodipine besylate is a white crystalline powder with a molecular weight of 567.1. It is slightly soluble in water and sparingly soluble in ethanol. NORVASC (amlodipine besylate) Tablets are formulated as white tablets equivalent to 5, and 10 mg of amlodipine for oral administration. In addition to the active ingredient, amlodipine besylate, each tablet contains the following inactive ingredients: microcrystalline cellulose, dibasic calcium phosphate anhydrous, sodium starch glycolate, and magnesium stearate.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Amlodipine is a dihydropyridine calcium antagonist (calcium ion antagonist or slow-channel blocker) that inhibits the transmembrane influx of calcium ions into vascular smooth muscle and cardiac muscle. Experimental data suggest that amlodipine binds to both dihydropyridine and nondihydropyridine binding sites. The contractile processes of cardiac muscle and vascular smooth muscle are dependent upon the movement of extracellular calcium ions into these cells through specific ion channels. Amlodipine inhibits calcium ion influx across cell membranes selectively, with a greater effect on vascular smooth muscle cells than on cardiac muscle cells. Negative inotropic effects can be detected *in vitro* but such effects have not been seen in intact animals at therapeutic doses. Serum calcium concentration is not affected by amlodipine. Within the physiologic pH range, amlodipine is an ionized compound (pKa=8.6), and its kinetic interaction with the calcium channel receptor is characterized by a gradual rate of association and dissociation with the receptor binding site, resulting in a gradual onset of effect.

Amlodipine is a peripheral arterial vasodilator that acts directly on vascular smooth muscle to cause a reduction in peripheral vascular resistance and reduction in blood pressure.

The precise mechanisms by which amlodipine relieves angina have not been fully delineated, but are thought to include the following:

Exertional Angina: In patients with exertional angina, NORVASC reduces the total peripheral resistance (afterload) against which the heart works and reduces the rate pressure product, and thus myocardial oxygen demand, at any given level of exercise.

Vasospastic Angina: NORVASC has been demonstrated to block constriction and restore blood flow in coronary arteries and arterioles in response to calcium, potassium epinephrine, serotonin, and thromboxane A2 analog in experimental animal models and in human coronary vessels *in vitro*. This inhibition of coronary spasm is responsible for the effectiveness of NORVASC in vasospastic (Prinzmetal's or variant) angina.

12.2 Pharmacodynamics

Hemodynamics: Following administration of therapeutic doses to patients with hypertension, NORVASC produces vasodilation resulting in a reduction of supine and standing blood pressures. These decreases in blood pressure are not accompanied by a significant change in heart rate or plasma catecholamine levels with chronic dosing. Although the acute intravenous administration of amlodipine decreases arterial blood pressure and increases heart rate in hemodynamic studies of patients with chronic stable angina, chronic oral administration of amlodipine in clinical trials did not lead to clinically significant changes in heart rate or blood pressures in normotensive patients with angina.

With chronic once daily oral administration, antihypertensive effectiveness is maintained for at least 24 hours. Plasma concentrations correlate with effect in both young and elderly patients. The magnitude of reduction in blood pressure with NORVASC is also correlated with the height of pretreatment elevation; thus, individuals with moderate hypertension (diastolic pressure 105–114 mmHg) had about a 50% greater response than patients with mild hypertension (diastolic pressure 90–104 mmHg). Normotensive subjects experienced no clinically significant change in blood pressures (+1/–2 mmHg).

In hypertensive patients with normal renal function, therapeutic doses of NORVASC resulted in a decrease in renal vascular resistance and an increase in glomerular filtration rate and effective renal plasma flow without change in filtration fraction or proteinuria.

As with other calcium channel blockers, hemodynamic measurements of cardiac function at rest and during exercise (or pacing) in patients with normal ventricular function treated with NORVASC have generally demonstrated a small increase in cardiac index without significant influence on dP/dt or on left ventricular end diastolic pressure or volume. In hemodynamic studies, NORVASC has not been associated with a negative inotropic effect when administered in the therapeutic dose range to intact animals and man, even when co-administered with beta-blockers to man. Similar findings, however, have been observed in normal or well-compensated patients with heart failure with agents possessing significant negative inotropic effects.

Electrophysiologic Effects: NORVASC does not change sinoatrial nodal function or atrioventricular conduction in intact animals or man. In patients with chronic stable angina, intravenous administration of 10 mg did not significantly alter A-H and H-V conduction and sinus node recovery time after pacing. Similar results were obtained in patients receiving NORVASC and concomitant beta-blockers. In clinical studies in which NORVASC was administered in combination with beta-blockers to patients with either hypertension or angina, no adverse effects on electrocardiographic parameters were observed. In clinical trials with angina patients alone, NORVASC therapy did not alter electrocardiographic intervals or produce higher degrees of AV blocks.

Drug interactions

Sildenafil: When amlodipine and sildenafil were used in combination, each agent independently exerted its own blood pressure lowering effect *[see Drug Interactions (7.1)]*.

12.3 Pharmacokinetics

After oral administration of therapeutic doses of NORVASC, absorption produces peak plasma concentrations between 6 and 12 hours. Absolute bioavailability has been estimated to be between 64 and 90%. The bioavailability of NORVASC is not altered by the presence of food.

Amlodipine is extensively (about 90%) converted to inactive metabolites via hepatic metabolism with 10% of the parent compound and 60% of the metabolites excreted in the urine. *Ex vivo* studies have shown that approximately 93% of the circulating drug is bound to plasma proteins in hypertensive patients. Elimination from the plasma is biphasic with a terminal elimination half-life of about 30–50 hours. Steady-state plasma levels of amlodipine are reached after 7 to 8 days of consecutive daily dosing.

The pharmacokinetics of amlodipine are not significantly influenced by renal impairment. Patients with renal failure may therefore receive the usual initial dose.

Elderly patients and patients with hepatic insufficiency have decreased clearance of amlodipine with a resulting increase in AUC of approximately 40–60%, and a lower initial dose may be required. A similar increase in AUC was observed in patients with moderate to severe heart failure.

Drug interactions

In vitro data indicate that amlodipine has no effect on the human plasma protein binding of digoxin, phenytoin, warfarin, and indomethacin.

Impact of other drugs on amlodipine

Co-administered cimetidine, magnesium-and aluminum hydroxide antacids, sildenafil, and grapefruit juice have no impact on the exposure to amlodipine.

CYP3A inhibitors: Co-administration of a 180 mg daily dose of diltiazem with 5 mg amlodipine in elderly hypertensive patients resulted in a 60% increase in amlodipine systemic exposure. Erythromycin co-administration in healthy volunteers did not significantly change amlodipine systemic exposure. However, strong inhibitors of CYP3A (e.g., itraconazole, clarithromycin) may increase the plasma concentrations of amlodipine to a greater extent *[see Drug Interactions (7.1)]*.

Impact of amlodipine on other drugs

Amlodipine is a weak inhibitor of CYP3A and may increase exposure to CYP3A substrates.

Co-administered amlodipine does not affect the exposure to atorvastatin, digoxin, ethanol and the warfarin prothrombin response time.

Simvastatin: Co-administration of multiple doses of 10 mg of amlodipine with 80 mg simvastatin resulted in a 77% increase in exposure to simvastatin compared to simvastatin alone *[see Drug Interactions (7.2)]*.

Cyclosporine: A prospective study in renal transplant patients (N=11) showed on an average of 40% increase in trough cyclosporine levels when concomitantly treated with amlodipine *[see Drug Interactions (7.2)]*.

Tacrolimus: A prospective study in healthy Chinese volunteers (N=9) with CYP3A5 expressers showed a 2.5- to 4-fold increase in tacrolimus exposure when concomitantly administered with amlodipine compared to tacrolimus alone. This finding was not observed in CYP3A5 non-expressers (N= 6). However, a 3-fold increase in plasma exposure to tacrolimus in a renal transplant patient (CYP3A5 non-expresser) upon initiation of amlodipine for the treatment of post-transplant hypertension resulting in reduction of tacrolimus dose has been reported. Irrespective of the CYP3A5 genotype status, the possibility of an interaction cannot be excluded with these drugs *[see Drug Interactions (7.2)]*.

12.4 Pediatric Patients

Sixty-two hypertensive patients aged 6 to 17 years received doses of NORVASC between 1.25 mg and 20 mg. Weight-adjusted clearance and volume of distribution were similar to values in adults.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Rats and mice treated with amlodipine maleate in the diet for up to two years, at concentrations calculated to provide daily dosage levels of 0.5, 1.25, and 2.5 amlodipine mg/kg/day, showed no evidence of a carcinogenic effect of the drug. For the mouse, the highest dose was, on a mg/m^2 basis, similar to the maximum recommended human dose of 10 mg amlodipine/day.[3] For the rat, the highest dose was, on a mg/m^2 basis, about twice the maximum recommended human dose.[3]

Mutagenicity studies conducted with amlodipine maleate revealed no drug related effects at either the gene or chromosome level.

There was no effect on the fertility of rats treated orally with amlodipine maleate (males for 64 days and females for 14 days prior to mating) at doses up to 10 mg amlodipine/kg/day (8 times the maximum recommended human dose[3] of 10 mg/day on a mg/m^2 basis).

[3] Based on patient weight of 50 kg

14 CLINICAL STUDIES

14.1 Effects in Hypertension

Adult Patients

The antihypertensive efficacy of NORVASC has been demonstrated in a total of 15 double-blind, placebo-controlled, randomized studies involving 800 patients on NORVASC and 538 on placebo. Once daily administration produced statistically significant placebo-corrected reductions in supine and standing blood pressures at 24 hours postdose, averaging about 12/6 mmHg in the standing position and 13/7 mmHg in the supine position in patients with mild to moderate hypertension. Maintenance of the blood pressure effect over the 24-hour dosing interval was observed, with little difference in peak and trough effect. Tolerance was not demonstrated in patients studied for up to 1 year. The 3 parallel, fixed dose, dose response studies showed that the reduction in supine and standing blood pressures was dose-related within the recommended dosing range. Effects on diastolic pressure were similar in young and older patients. The effect on systolic pressure was greater in older patients, perhaps because of greater baseline systolic pressure. Effects were similar in black patients and in white patients.

Pediatric Patients

Two hundred sixty-eight hypertensive patients aged 6 to 17 years were randomized first to NORVASC 2.5 or 5 mg once daily for 4 weeks and then randomized again to the same dose or to placebo for another 4 weeks. Patients receiving 2.5 mg or 5 mg at the end of 8 weeks had significantly lower systolic blood pressure than those secondarily randomized to placebo. The magnitude of the treatment effect is difficult to interpret, but it is probably less than 5 mmHg systolic on the 5 mg dose and 3.3 mmHg systolic on the 2.5 mg dose. Adverse events were similar to those seen in adults.

14.2 Effects in Chronic Stable Angina

The effectiveness of 5–10 mg/day of NORVASC in exercise-induced angina has been evaluated in 8 placebo-controlled, double-blind clinical trials of up to 6 weeks duration involving 1038 patients (684 NORVASC, 354 placebo) with chronic stable angina. In 5 of the 8 studies, significant increases in exercise time (bicycle or treadmill) were seen with the 10 mg dose. Increases in symptom-limited exercise time averaged 12.8% (63 sec) for NORVASC 10 mg, and averaged 7.9% (38 sec) for NORVASC 5 mg. NORVASC 10 mg also increased time to 1 mm ST segment deviation in several studies and decreased angina attack rate. The sustained efficacy of NORVASC in angina patients has been demonstrated over long-term dosing. In patients with angina, there were no clinically significant reductions in blood pressures (4/1 mmHg) or changes in heart rate (+0.3 bpm).

14.3 Effects in Vasospastic Angina

In a double-blind, placebo-controlled clinical trial of 4 weeks duration in 50 patients, NORVASC therapy decreased attacks by approximately 4/week compared with a placebo decrease of approximately 1/week ($p<0.01$). Two of 23 NORVASC and 7 of 27 placebo patients discontinued from the study due to lack of clinical improvement.

14.4 Effects in Documented Coronary Artery Disease

In PREVENT, 825 patients with angiographically documented coronary artery disease were randomized to NORVASC (5–10 mg once daily) or placebo and followed for 3 years. Although the study did not show significance on the primary objective of change in coronary luminal diameter as assessed by quantitative coronary angiography, the data suggested a favorable outcome with respect to fewer hospitalizations for angina and revascularization procedures in patients with CAD.

CAMELOT enrolled 1318 patients with CAD recently documented by angiography, without left main coronary disease and without heart failure or an ejection fraction <40%. Patients (76% males, 89% Caucasian, 93% enrolled at US sites, 89% with a history of angina, 52% without PCI, 4% with PCI and no stent, and 44% with a stent) were randomized to double-blind treatment with either NORVASC (5–10 mg once daily) or placebo in addition to standard care that included aspirin (89%), statins (83%), beta-blockers (74%), nitroglycerin (50%), anti-coagulants (40%), and diuretics (32%), but excluded other calcium channel blockers. The mean duration of follow-up was 19 months. The primary endpoint was the time to first occurrence of one of the following events: hospitalization for angina pectoris, coronary revascularization, myocardial infarction, cardiovascular death, resuscitated cardiac arrest, hospitalization for heart failure, stroke/TIA, or peripheral vascular disease. A total of 110 (16.6%) and 151 (23.1%) first events occurred in the NORVASC and placebo groups, respectively, for a hazard ratio of 0.691 (95% CI: 0.540–0.884, $p = 0.003$). The primary endpoint is summarized in Figure 1 below. The outcome of this study was largely derived from the prevention of hospitalizations for angina and the prevention of revascularization procedures (see Table 1). Effects in various subgroups are shown in Figure 2.

In an angiographic substudy (n=274) conducted within CAMELOT, there was no significant difference between amlodipine and placebo on the change of atheroma volume in the coronary artery as assessed by intravascular ultrasound.

Figure 1 - Kaplan-Meier Analysis of Composite Clinical Outcomes for NORVASC versus Placebo

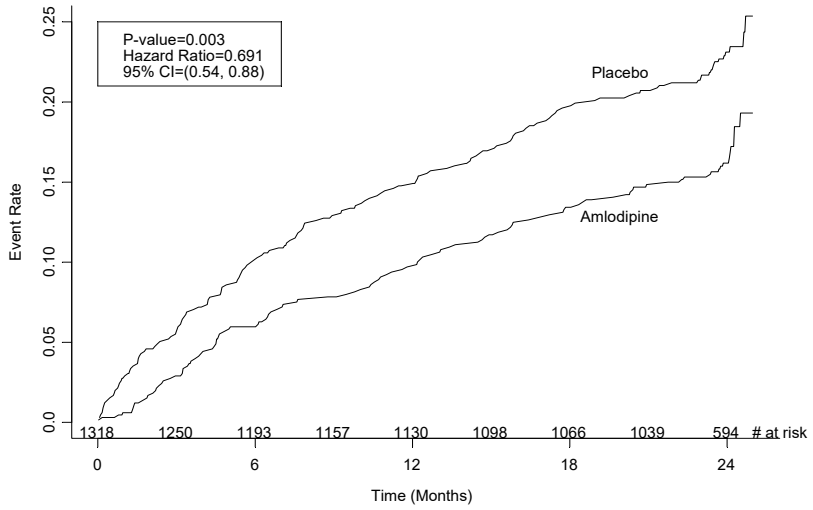
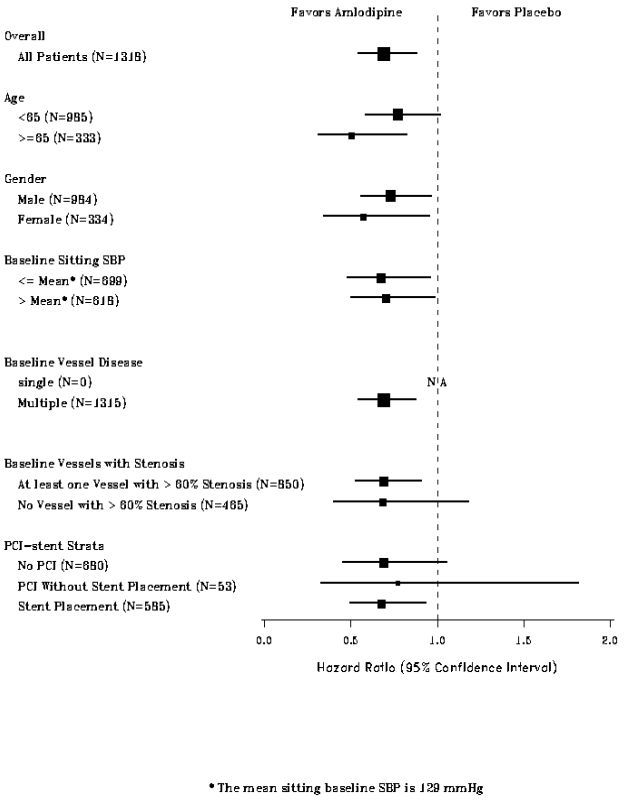


Figure 2 – Effects on Primary Endpoint of NORVASC versus Placebo across Sub-Groups



* The mean sitting baseline SBP is 129 mmHg

Table 1 below summarizes the significant composite endpoint and clinical outcomes from the composites of the primary endpoint. The other components of the primary endpoint including cardiovascular death, resuscitated cardiac arrest, myocardial infarction,

hospitalization for heart failure, stroke/TIA, or peripheral vascular disease did not demonstrate a significant difference between NORVASC and placebo.

Table 1. Incidence of Significant Clinical Outcomes for CAMELOT

Clinical Outcomes N (%)	NORVASC (N=663)	Placebo (N=655)	Risk Reduction (p-value)
Composite CV Endpoint	**110 (16.6)**	**151 (23.1)**	**31% (0.003)**
Hospitalization for Angina*	51 (7.7)	84 (12.8)	42% (0.002)
Coronary Revascularization*	78 (11.8)	103 (15.7)	27% (0.033)

* Total patients with these events

14.5 Studies in Patients with Heart Failure

NORVASC has been compared to placebo in four 8–12 week studies of patients with NYHA Class II/III heart failure, involving a total of 697 patients. In these studies, there was no evidence of worsened heart failure based on measures of exercise tolerance, NYHA classification, symptoms, or left ventricular ejection fraction. In a long-term (follow-up at least 6 months, mean 13.8 months) placebo-controlled mortality/morbidity study of NORVASC 5–10 mg in 1153 patients with NYHA Classes III (n=931) or IV (n=222) heart failure on stable doses of diuretics, digoxin, and ACE inhibitors, NORVASC had no effect on the primary endpoint of the study which was the combined endpoint of all-cause mortality and cardiac morbidity (as defined by life-threatening arrhythmia, acute myocardial infarction, or hospitalization for worsened heart failure), or on NYHA classification, or symptoms of heart failure. Total combined all-cause mortality and cardiac morbidity events were 222/571 (39%) for patients on NORVASC and 246/583 (42%) for patients on placebo; the cardiac morbid events represented about 25% of the endpoints in the study.

Another study (PRAISE-2) randomized patients with NYHA Class III (80%) or IV (20%) heart failure without clinical symptoms or objective evidence of underlying ischemic disease, on stable doses of ACE inhibitors (99%), digitalis (99%), and diuretics (99%), to placebo (n=827) or NORVASC (n=827) and followed them for a mean of 33 months. There was no statistically significant difference between NORVASC and placebo in the primary endpoint of all-cause mortality (95% confidence limits from 8% reduction to 29% increase on NORVASC). With NORVASC there were more reports of pulmonary edema.

15 HOW SUPPLIED/STORAGE AND HANDLING

5 mg Tablets

NORVASC – 5 mg Tablets (6.944 mg amlodipine besylate equivalent to 5 mg of amlodipine per tablet) are white, flat, emerald shape tablet with VLE engraved on one side and NVC 5 on the other and supplied as follows: Carton box contains 1, 2 or 3 (Al/opaque PVC/PVDC) blisters each contains 10 tablets and an inner leaflet

10 mg Tablets

NORVASC – 10 mg Tablets (13.888 mg amlodipine besylate equivalent to 10 mg of amlodipine per tablet) are white, round, biconvex tablet with VLE engraved on one side and NVC 10 on the other and supplied as follows: Carton box contains 2 or 3 (Al/opaque PVC/PVDC) blisters each contains 5 tablets and an inner leaflet

Storage

Store in a temperature not exceeding 30°C in a dry place.

Keep out of the sight and reach of children.

Shelf Life

Do not use **Norvasc** after the expiry date which is stated on the carton / Blister label after EXP:. The expiry date refers to the last day of that month.

Medicines should not be disposed of via wastewater or household waste. Ask your pharmacist how to dispose of medicines no longer required. These measures will help to protect the environment.

FURTHER INFORMATION

MARKETING AUTHORISATION HOLDER
Upjohn UK Limited, Ramsgate Road, Sandwich, Kent, CT 13 9NJ, United Kingdom

Manufactured, Packed and released by:
Viatris Egypt

Label Revision date: October 2017

To report any side effects:

Egypt:
Pharmacovigilance center, Viatris Egypt Company: pv.egypt@viatris.com
Egyptian Pharmacovigilance center (EPVC), EDA: pv.followup@edaegypt.gov.eg

THIS IS A MEDICAMENT

- Medicament is a product which affects your health and its consumption contrary to instructions is dangerous for you.
- Follow strictly the doctor's prescription, the method of use and the instructions of the Pharmacist who sold the medicament.
- The doctor and the Pharmacist are experts in medicines, their benefits and risks.
- Do not by yourself interrupt the period of treatment prescribed.
- Do not repeat the same prescription without consulting your doctor.

Keep all medicaments out of reach and sight of children

Council of Arab Health Ministers
Union of Arabic Pharmacists

النشرة باللغة الانجليزية

نشرة العبوة: معلومات للمريض
نورڤاسك ٥ مجم
نورڤاسك ١٠ مجم
اقراص
بيسيلات أملوديبين

المادة الفعالة:
يحتوي كل قرص نورڤاسك ٥ مجم علي بيسيلات أملوديبين بما يعادل ٥ مجم من أملوديبين.
يحتوي كل قرص نورڤاسك ١٠ مجم علي بيسيلات أملوديبين بما يعادل ١٠ مجم من أملوديبين.

المواد الغير فعالة هي: ثنائي فوسفات الكالسيوم اللامائي؛ سليولوز دقيق التبلور؛ ستيارات المغنيسيوم؛ جليكولات نشا الصوديوم

تُرجى قراءة هذه المعلومات بحرص قبل البدء في تناول نورڤاسك وفي كل مرة تعيد فيها صرفه. فقد توجد معلومات جديدة. لا تحل هذه المعلومات محل التحدث إلى طبيبك. إذا كانت لديك أي أسئلة حول نورڤاسك، فاسأل طبيبك. سيعلم طبيبكِ إذا ما كان نورڤاسك ملائمًا لك.

ما هو نورڤاسك؟
نورڤاسك هو نوع من الأدوية التي تُعرف باسم حاصرات قنوات الكالسيوم. وهو يُستخدم لعلاج ارتفاع ضغط الدم ونوع من ألم الصدر يُطلق عليه اسم الذبحة. ويمكن استخدامه بمفرده أو مع أدوية أخرى لعلاج هذه الحالات.

ارتفاع ضغط الدم
يحدث ارتفاع ضغط الدم نتيجة ضغط الدم على جدران الأوعية الدموية بقوة كبيرة. يعمل نورڤاسك على إرخاء أوعيتك الدموية، مما يسمح للدم بالتدفق بسهولة أكبر كما يساعد على خفض ضغط الدم. تساعد الأدوية المخصصة لخفض ضغط الدم على الحد من خطر الإصابة بسكتة دماغية أو أزمة قلبية.

الذبحة
الذبحة عبارة عن ألم أو شعور بعدم الراحة يعاود الشخص باستمرار عندما لا يحصل جزء من القلب على ما يكفيه من الدم. تشبه الذبحة الشعور بألم ضاغط أو معتصر، والذي عادةً ما يحدث في الصدر أسفل عظم القص. ويمكنك أحيانًا الشعور بالألم في كتفيك أو ذراعيك أو رقبتك أو عظام الفك أو الظهر. يمكن لنورڤاسك أن يخفف هذا الألم.

من الذي ينبغي عليه عدم استخدام نورڤاسك؟
لا تستخدم نورڤاسك إذا كنت تعاني من الحساسية تجاه أملوديبين (المكون الفعال في نورڤاسك) أو تجاه المكونات غير الفعالة. يمكن أن يعطيك طبيبك أو الصيدلي قائمة بهذه المكونات.

ما الذي ينبغي علي أن أخبر به طبيبي قبل أن أتناول نورڤاسك؟
أخبر طبيبك بشأن أي أدوية تتناولها بوصفة أو دون وصفة طبية، بما في ذلك العلاجات الطبيعية أو العشبية.
أخبر طبيبك إذا كنت:
- قد أُصِبت بمرض قلبي في أي وقتٍ مضى
- قد أُصِبت بمشكلات في الكبد في أي وقتٍ مضى
- حاملًا أو تخططين للحمل. سيقرر طبيبك إذا ما كان نورڤاسك هو العلاج الأنسب لك.
- تُرضعين رضاعة طبيعية. يمر نورڤاسك إلى لبن الثدي

كيف ينبغي عليَّ أن أتناول نورڤاسك؟
- تناوَل نورڤاسك مرة واحدة في اليوم، مع الطعام أو دونه.
- قد يكون من الأسهل عليك تناول جرعتك إذا تناولتها في الوقت نفسه كل يوم، مثل تناولها مع الإفطار أو العشاء أو قبل النوم. لا تتناول أكثر من جرعة واحدة من نورڤاسك في كل مرة.
- إذا نسيت تناول إحدى الجرعات، فتناولها بمجرد أن تتذكرها. لا تتناول جرعة نورڤاسك الفائتة إذا ما مر أكثر من ١٢ ساعة منذ أن نسيت تناولها. انتظر وتناول الجرعة التالية في الوقت المحدد لها.
- الأدوية الأخرى: يمكنك استخدام النيتروجليسرين ونورڤاسك معًا. إذا كنت تتناول النيتروجلسرين لعلاج الذبحة، فلا تتوقف عن تناوله أثناء تناولك نورڤاسك.
- لا تتوقف عن تناول الأدوية الأخرى الموصوفة لك، بما في ذلك أي أدوية أخرى متعلقة بضغط الدم، أثناء تناولك نورڤاسك دون استشارة طبيبك.
- إذا تناولت كمية كبيرة جدًا من نورڤاسك، فاتصل فورًا بطبيبك أو بمركز مكافحة السموم أو توجه إلى غرفة الطوارئ بأقرب مستشفى.

ما الذي ينبغي عليّ تجنبه أثناء تناول نورڤاسك؟

- لا تبدأ تناول أي أدوية أو مكملات جديدة سواء تلك التي تُصرف بوصفة أو دون وصفة طبية إلا بعد أن تستشير طبيبك أولًا.

ما هي الآثار الجانبية المحتملة لنورڤاسك؟
يمكن أن يتسبب نورڤاسك في حدوث الآثار الجانبية التالية. تكون أغلب الآثار الجانبية خفيفة أو متوسطة.

- تورم الساقين أو الكاحلين
- التعب، النعاس الشديد
- ألم المعدة، الغثيان
- الدوار
- توهج (إحساس بسخونة أو دفء في الوجه)
- عدم انتظام ضربات القلب (ضربات قلب غير منتظمة)
- خفقان القلب (سرعة شديدة في ضربات القلب)
- الصمل العضلي، الرعاش و/أو الحركة غير الطبيعية للعضلات

إنه أمر نادر، ولكنك قد تُصاب بأزمة قلبية أو قد تتفاقم حالة الذبحة التي تعاني منها عندما تبدأ في تناول نورڤاسك لأول مرة أو تقوم بزيادة جرعتك. إذا حدث ذلك، فاتصل بطبيبك على الفور أو اذهب مباشرةً إلى غرفة الطوارئ في أي مستشفى.

أخبر طبيبك إذا كنت تشعر بالقلق إزاء أي آثار جانبية تتعرض لها. لا تقتصر الآثار الجانبية المحتملة لنورڤاسك على هذه الآثار. للحصول على قائمة كاملة بالآثار الجانبية المحتملة، اسأل طبيبك أو الصيدلي.

الإبلاغ عن الآثار الجانبية:
إذا أصبت بأي آثار جانبية، فتحدث إلى طبيبك أو الصيدلي. يتضمن هذا أي آثار جانبية محتملة غير مدرجة في هذه النشرة. يمكنك أيضًا الإبلاغ عن الآثار الجانبية مباشرة عبر نظام الإبلاغ القومي. بالإبلاغ عن الآثار الجانبية يمكنك المساعدة في توفير المزيد من المعلومات حول سلامة هذا الدواء.

كيف أقوم بتخزين نورڤاسك؟
احتفظ بنورڤاسك بعيدًا عن الأطفال.
لظروف التخزين: يحفظ في درجة حرارة لا تزيد عن ٣٠ درجة مئوية في مكان جاف
صلاحية المستحضر:أنظر العبوة الخارجية

كيفية التوريد

نورڤاسك ٥ مجم:
عبوة كرتون تحتوي علي ١ او ٢ او٣ شرائط (ألومينيوم/ بي في سي معتم/ بي في دي سي)، كل شريط يحتوي علي ١٠ اقراص و نشرة داخلية .
والشكل الفيزيائي له كالتالي:-قرص أبيض مسطح له شكل زمردي وعلي أحد الوجهين نقش **VLE** وعلي الوجه الأخر **NVC5**
نورڤاسك ١٠ مجم :
عبوة كرتون تحتوي علي ٢ او٣ شرائط (ألومينيوم/ بي في سي معتم/ بي في دي سي)، كل شريط يحتوي علي ٥ اقراص و نشرة داخلية.
والشكل الفيزيائي له كالتالي:-قرص أبيض دائري محدب الوجهين وعلي أحد الوجهين نقش **VLE** وعلي الوجه الأخر **NVC10**

توجيهات عامة حول نورڤاسك

سيقوم الأطباء في بعض الأحيان بوصف دواء لحالة غير تلك المذكورة في نشرات معلومات المرضى. استخدم نورڤاسك فقط بالطريقة التي أخبرك بها طبيبك. لا تعطِ نورڤاسك لأشخاص آخرين، حتى وإن كانوا يعانون من نفس الأعراض التي تعاني منها. فقد يسبب لهم الضرر.
يمكنك سؤال الصيدلي الخاص بك أو طبيبك حول أي معلومات تتعلق بنورڤاسك.

مالك حق التسويق

Upjohn UK Limited, Ramsgate Road, Sandwich, Kent, CT 13 9NJ, United Kingdom

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تاريخ آخر مراجعة:

مارس/آذار ٢٠١٧

للإبلاغ عن أي آثار جانبية:

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إن هذا دواء

- إن الدواء منتج يؤثر على صحتك واستهلاكه خلافًا للتعليمات يعرضك للخطر.
- اتبع بدقة وصفة الطبيب وطريقة الاستخدام وتعليمات الصيدلي الذي قام بصرف الدواء.
- الطبيب والصيدلي خبيران في الأدوية ومنافعها ومخاطرها.
- لا تقطع مدة العلاج المحددة لك من تلقاء نفسك.
- لا تكرر صرف نفس الدواء دون استشارة طبيبك.

تُحفظ جميع الأدوية بعيدًا عن متناول ومرأى الأطفال

مجلس وزراء الصحة العرب
اتحاد الصيادلة العرب