PRODUCT MONOGRAPH

Pr DALACIN® C

Clindamycin hydrochloride capsules USP
(as clindamycin 150 mg, 300 mg)

Antibiotic

Pfizer Canada ULC
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Kirkland, Quebec H9J 2M5

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PrDALACIN C®

clindamycin hydrochloride

PART I: HEALTH PROFESSIONAL INFORMATION

SUMMARY PRODUCT INFORMATION

Route of Administration	Dosage Form / Strength	Clinically Relevant Nonmedicinal Ingredients
oral	capsule 150mg, 300mg clindamycin	150 mg: 256 mg lactose and FD&C Yellow No. 5 (tartrazine) 300 mg: 294 mg lactose *For a complete listing see Dosage Forms, Composition and Packaging section.*

INDICATIONS AND CLINICAL USE

DALACIN C (clindamycin hydrochloride) is indicated in the treatment of serious infections due to sensitive anaerobic bacteria, such as *Bacteroides* species, *Peptostreptococcus*, anaerobic streptococci, *Clostridium* species and microaerophilic streptococci.

DALACIN C is also indicated in serious infections due to sensitive gram-positive aerobic organisms (staphylococci, including penicillinase-producing staphylococci, streptococci and pneumococci) when the patient is intolerant of, or the organism is resistant to other appropriate antibiotics.

DALACIN C is indicated for the treatment of the *Pneumocystis jiroveci* pneumonia in patients with AIDS. Clindamycin in combination with primaquine may be used in patients who are intolerant to, or fail to respond to conventional therapy.

DALACIN C is indicated for prophylaxis against alpha-hemolytic (viridans group) streptococci before dental, oral and upper respiratory tract surgery.

a) The prophylaxis of bacterial endocarditis in patients allergic to penicillin with any of the following conditions: congenital cardiac malformations, rheumatic and other acquired valvular dysfunction, prosthetic heart valves, previous history of bacterial endocarditis, hypertrophic cardiomyopathy, surgically constructed systemic-pulmonary shunts, mitral valve prolapse with

valvular regurgitation or mitral valve prolapse without regurgitation but associated with thickening and/or redundancy of the valve leaflets.

b) Patients taking oral penicillin for prevention or recurrence of rheumatic fever should be given another agent such as clindamycin, for prevention of bacterial endocarditis.

Geriatrics (> 65 years of age):
Clinical studies of clindamycin did not include sufficient numbers of patients age 65 and over to determine whether they respond differently from younger patients.

Pediatrics (over one month of age):
It is not known if use of clindamycin in pediatric patients is associated with differences in safety or effectiveness compared with adult patients.

To reduce the development of drug-resistant bacteria and maintain the effectiveness of DALACIN C and other antibacterial drugs, DALACIN C should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria. When culture and susceptibility information are available, they should be considered in selecting or modifying antibacterial therapy. In the absence of such data, local epidemiology and susceptibility patterns may contribute to the empiric selection of therapy.

CONTRAINDICATIONS

DALACIN C (clindamycin hydrochloride) is contraindicated in patients with a known hypersensitivity to clindamycin or lincomycin or to any ingredient in the formulation or component of the container.

Until further clinical experience is obtained DALACIN C is not indicated in the newborn (infant below 30 days of age). For a complete listing, see **DOSAGE FORMS, COMPOSITION AND PACKAGING**).

WARNINGS AND PRECAUTIONS

General
In patients with G-6-PD deficiency, the combination of clindamycin with primaquine may cause hemolytic reactions. Routine blood examinations should be done during therapy with primaquine to monitor potential hematologic toxicities. Reference should also be made to the primaquine product monograph for other possible risk groups for other hematologic reactions (see **ADVERSE REACTIONS**).

If patients should develop serious hematologic adverse effects, reducing the dosage regimen of primaquine and/or DALACIN C capsule should be considered (see **DOSAGE and ADMINSTRATION**).

DALACIN C (clindamycin hydrochloride) should be prescribed with caution in atopic individuals.

DALACIN C does not diffuse adequately into cerebrospinal fluid and thus should not be used in the treatment of meningitis.

The 150 mg capsules contain FD&C yellow no. 5 (tartrazine), which may cause allergic-type reactions (including bronchial asthma) in certain susceptible individuals. Although the overall incidence of FD&C yellow no. 5 (tartrazine) sensitivity in the general population is low, it is frequently seen in patients who also have acetylsalicylic acid hypersensitivity.

The use of antibiotics occasionally results in overgrowth of non-susceptible organisms - particularly yeasts. Should super-infections occur, appropriate measures should be taken as dictated by the clinical situation.

Care should be exercised when treating patients with multiple medications (see **DRUG INTERACTIONS**).

Gastrointestinal
DALACIN C should be prescribed with caution in patients with a history of gastrointestinal disease, particularly colitis, inflammatory bowel disease (including regional enteritis and ulcerative colitis), or a history of antibiotic-associated colitis (including pseudomembranous colitis).

***Clostridium difficile*-associated disease (CDAD):**
Clostridium difficile-associated disease (CDAD) has been reported with use of many antibacterial agents, including DALACIN C (clindamycin hydrochloride). CDAD may range in severity from mild diarrhea to fatal colitis. It is important to consider this diagnosis in patients who present with diarrhea, or symptoms of colitis, pseudomembranous colitis, toxic megacolon, or perforation of colon subsequent to the administration of any antibacterial agent. CDAD has been reported to occur over 2 months after the administration of antibacterial agents.

Treatment with antibacterial agents may alter the normal flora of the colon and may permit overgrowth of *Clostridium difficile*. *C. difficile* produces toxins A and B, which contribute to the development of CDAD. CDAD may cause significant morbidity and mortality. CDAD can be refractory to antimicrobial therapy.

If the diagnosis of CDAD is suspected or confirmed, appropriate therapeutic measures should be initiated. Mild cases of CDAD usually respond to discontinuation of antibacterial agents not directed against *Clostridium difficile*. In moderate to severe cases, consideration should be given to management with fluids and electrolytes, protein supplementation, and treatment with an antibacterial agent clinically effective against *Clostridium difficile*. Surgical evaluation should be instituted as clinically indicated; as surgical intervention may be required in certain severe cases (see **ADVERSE REACTIONS**).

Hepatic/Biliary/Pancreatic
In patients with moderate to severe liver disease, prolongation of the half-life of clindamycin has been found. However, it was postulated from studies that when given every eight hours, accumulation of clindamycin should rarely occur. Therefore, dosage reduction in liver disease is not generally considered necessary. Periodic liver enzyme determinations should be made when treating patients with severe liver disease.

Immune
Serious hypersensitivity reactions, including anaphylactoid reactions, severe skin reactions such as drug reaction with eosinophilia and systemic symptoms (DRESS), and dermatological reactions including Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN) and acute generalized exanthematous pustulosis (AGEP) have been reported in patients on clindamycin therapy. If a hypersensitivity reaction occurs clindamycin should be discontinued and appropriate therapy should be initiated (see **CONTRAINDICATIONS, ADVERSE REACTIONS**).

Renal
DALACIN C dose modification may not be necessary in patients with renal disease. The serum half-life of clindamycin is increased slightly in patients with markedly reduced renal function.

Susceptibility/Resistance

Development of drug-resistant bacteria:
Prescribing DALACIN C in the absence of a proven or strongly suspected bacterial infection is unlikely to provide benefit to the patient and risks the development of drug-resistant bacteria.

Special Populations
Pregnant Women: There are no adequate and well-controlled studies in pregnant women. Safety for use in pregnancy has not been established.

Clindamycin should not be used in pregnancy unless clearly needed and unless the expected benefits to the mother outweigh any potential risks to the fetus.

Clindamycin crosses the placenta in humans. After multiple doses, amniotic fluid concentrations were approximately 30% of maternal blood concentrations. Clindamycin was widely distributed in fetal tissues with the highest concentration found in liver.

Reproduction studies have been performed in rats and mice using subcutaneous and oral doses of clindamycin ranging from 20 to 600 mg/kg/day and have revealed no evidence of impaired fertility or harm to the fetus due to clindamycin except at doses that caused maternal toxicity. In one mouse strain, cleft palates were observed in treated fetuses; this response was not produced in other mouse strains or in other species, and therefore may be a strain specific effect. Oral and subcutaneous reproductive toxicity studies in rats and rabbits revealed no evidence of impaired

fertility or harm to the fetus due to clindamycin, except at doses that caused maternal toxicity. Animal reproduction studies are not always predictive of human response.

Nursing Women: Clindamycin has been reported to appear in human breast milk in ranges from <0.5 to 3.8 mcg/mL.

Clindamycin has the potential to cause adverse effects on the breastfed infant's gastrointestinal flora such as diarrhea or blood in the stool, or rash. Because of the potential for serious adverse reactions in nursing infants, if clindamycin is required by a nursing mother, it is not a reason to discontinue breastfeeding, but an alternate drug may be preferred. If DALACIN C is used by a nursing mother, monitor the infant for possible adverse effects on the gastrointestinal flora, such as diarrhea, candidiasis (thrush, diaper rash) or blood in the stool indicating possible antibiotic-associated colitis.

The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for DALACIN C and any potential adverse effects on the breastfed child from DALACIN C or from the underlying maternal condition.

Geriatrics (> 60 years of age): Experience has demonstrated that antibiotic-associated colitis may occur more frequently and with increased severity among elderly and debilitated patients. These patients should be carefully monitored for the development of diarrhea.

Monitoring and Laboratory Tests
Routine blood examinations should be done during concomitant therapy with primaquine to monitor potential hematologic toxicities.

Periodic liver and kidney function tests and blood counts should be performed during prolonged therapy when treating patients with severe liver disease.

As with all antibiotics, perform culture and sensitivity studies in conjunction with drug therapy.

ADVERSE REACTIONS

Clinical Trial Adverse Drug Reactions

> *Because clinical trials are conducted under very specific conditions the adverse reaction rates observed in the clinical trials may not reflect the rates observed in practice and should not be compared to the rates in the clinical trials of another drug. Adverse drug reaction information from clinical trials is useful for identifying drug-related adverse events and for approximating rates*.

Adverse drug reaction frequencies for the three clindamycin formulations (clindamycin capsules, clindamycin granules for oral solution and clindamycin injection) are based on the clinical data

sources from the original drug submission and on the total number of patients enrolled in the clinical trials (N=1787).

Adverse drug reactions that were considered causally related to clindamycin and observed in ≥ 1% of patients are presented below in **Table 1**. They are listed according to MedDRA system organ class.

Table 1. Adverse Drug Reactions Occurring in ≥ 1% of Patients treated with clindamycin within the Original Clinical Trials

Adverse Reaction **System Organ Class** / Preferred Term	**clindamycin** **Total N=1787[1]** **n (%)**
Gastrointestinal disorders	
Diarrhea	26 (1.45)
Investigations	
Liver function test abnormal	66 (3.7)
Skin and subcutaneous tissue disorders	
Rash maculopapular	21 (1.18)

[1]**clindamycin hydrochloride capsules N=851; clindamycin granules for oral solution N=340; clindamycin phosphate injection N=596**

Less common adverse drug reactions that were considered causally related to clindamycin and observed in < 1% of patients are listed below

Blood and lymphatic system disorders: Eosinophilia.
Gastrointestinal disorders: Nausea, abdominal pain and vomiting.
General disorders and administration site conditions: Local irritation, pain, abscess formation have been seen with IM injection.
Nervous system disorders: Dysgeusia.
Skin and subcutaneous tissue disorders: Urticaria, erythema multiforme and pruritus.

Post-Market Adverse Drug Reactions

Additional adverse events which have been reported in temporal association with DALACIN C formulations (clindamycin capsules, clindamycin granules for oral solution and clindamycin injection) since market introduction are listed below. Because they are reported voluntarily from a population of unknown size, estimates of frequency cannot be established.

Blood and lymphatic system disorders: Agranulocytosis, leucopenia, neutropenia and thrombocytopenia. In clindamycin/primaquine combination studies, serious hematologic

toxicities (grade III, grade IV neutropenia or anemia, platelet counts < 50 x 10^9/L, or methemoglobin levels of 15% or greater) have been observed.

Cardiac disorders: Cardio-respiratory arrest and hypotension have been seen with rapid intravenous administration.

Gastrointestinal disorders: Colitis and pseudomembranous colitis. *Clostridium difficile*-associated disease (CDAD) has been observed and may manifest as a range of symptoms varying from watery diarrhea to fatal colitis, the onset of which may occur during or after antibacterial treatment (see **WARNINGS and PRECAUTIONS**). Esophagitis and esophageal ulcer have been reported with the oral formulations.

General disorders and administration site conditions: Injection site irritation and thrombophlebitis. These reactions can be minimized by deep IM injection and avoidance of indwelling intravenous catheters.

Hepatobiliary disorders: Jaundice.

Immune system disorders: Generalized mild to moderate morbilliform-like skin rashes, anaphylactic shock, anaphylactoid reactions, anaphylactic reactions, hypersensitivity, and drug reaction with eosinophilia and systemic symptoms (DRESS).

Infections and infestations: *Clostridium difficile* colitis.

Musculoskeletal: Polyarthritis.

Renal and urinary disorders: Renal dysfunction as evidenced by azotemia, oliguria and/or proteinuria.

Skin and subcutaneous tissue disorders: Toxic epidermal necrolysis (TEN), Stevens-Johnson syndrome (SJS), erythema multiforme, dermatitis exfoliative, dermatitis bullous, dermatitis vesiculobullous, rash morbilliform, vaginal infection, vaginitis, acute generalized exanthematous pustulosis (AGEP), angioedema.

Vascular disorders: Thrombophlebitis has been seen with rapid intravenous administration.

DRUG INTERACTIONS

Overview

Clindamycin is metabolized predominantly by CYP3A4, and to a lesser extent CYP3A5, to the major metabolite clindamycin sulfoxide and minor metabolite, N-desmethylclindamycin. Therefore inhibitors of CYP3A4 and CYP3A5 may reduce clindamycin clearance and inducers of these isoenzymes may increase clindamycin clearance. In the presence of strong CYP3A4 inducers such as rifampin, monitor for loss of effectiveness.

In vitro studies indicate that clindamycin does not inhibit CYP1A2, CYP2C9, CYP2C19, CYP2E1, or CYP2D6 and only moderately inhibits CYP3A4. Therefore, clinically important interactions between clindamycin and coadministered drugs metabolized by these CYP enzymes are unlikely.

Clindamycin has been shown to have neuromuscular blocking properties and potential antagonism with erythromycin and aminoglycosides (see **Table 2**).

In a clindamycin/primaquine combination study, serious hematologic toxicities have been observed, but the contribution of clindamycin, if any, is unknown (see **ADVERSE REACTIONS**).

Drug-Drug Interactions
The drugs listed in this table are based on either drug interaction case reports or studies, or potential interactions due to the expected magnitude and seriousness of the interaction.

Table 2 - Established or Potential Drug-Drug Interactions

Proper name	Ref	Effect	Clinical comment
Neuromuscular blocking agents Examples include: atracurium, doxacurium, pancuronium, vecuronium	CS	Clindamycin has been shown to have neuromuscular blocking properties that may enhance the action of other neuromuscular blocking agents.	Use with caution in patients receiving these agents concurrently.
aminoglycosides	T	Clindamycin is reported to antagonize bactericidal activity of aminoglycosides in vitro. In vivo antagonism has not been demonstrated.	
erythromycin	T	Antagonism has been demonstrated between clindamycin and erythromycin *in vitro*. Clindamycin and erythromycin may compete for the same protein binding site in bacteria.	Due to possible clinical significance the two drugs should not be administered concurrently.
Inhibitors of CYP3A4, CYP3A5	T	Clearance of clindamycin may be reduced.	

Inducers of CYP3A4, CYP3A5	T	Clearance of clindamycin may be increased.	Monitor for loss of effectiveness.
Strong inducers of CYP3A4 such as rifampin	CS and CT	Rifampin appears to dramatically decrease the serum clindamycin concentration.	Serum clindamycin levels and effectiveness should be carefully monitored. A clinically relevant effect of clindamycin on rifampin concentrations is not expected.

Legend: CS = Case Study; CT = Clinical Trial; T = Theoretical

Drug-Food Interactions
Interactions with food have not been established.

Drug-Herb Interactions
Efficacy of clindamycin should be closely monitored in patients using concomitant St. John's wort, a CYP3A4 inducer.

Drug-Laboratory Interactions
Interactions with laboratory tests have not been established.

DOSAGE AND ADMINISTRATION

Dosing Considerations
DALACIN C dose modification may not be necessary in patients with renal disease. DALACIN C dosage modification is not necessary in patients with hepatic insufficiency. Dosage adjustments are not necessary in the elderly with normal hepatic function and normal (age-adjusted) renal function.

Recommended Dose and Dosage Adjustment
Adults: 150 mg every 6 hours.
Moderately severe infections: 300 mg every 6 hours.
Severe infections: 450 mg every 6 hours.

Children (over one month of age and able to swallow capsules):
One of the following two dosage ranges should be selected depending on the severity of the infection:

1. 8-16 mg/kg/day (4-8 mg/lb/day) divided into 3 or 4 equal doses.
2. 16-20 mg/kg/day (8-10 mg/lb/day) divided into 3 or 4 equal doses.

DALACIN C capsules are not suitable for children who are unable to swallow them whole. The capsules do not provide exact mg/kg doses therefore it may be necessary to use the clindamycin granules for oral solution in some cases.

***Pneumocystis jiroveci* pneumonia in patients with AIDS**
DALACIN C (clindamycin hydrochloride) 300-450 mg may be given orally every 6 hours in combination with 15-30 mg of primaquine for 21 days. Alternatively, DALACIN C PHOSPHATE (clindamycin phosphate) 600-900 mg (IV) may be given every 6 hours or 900 mg (IV) every 8 hours in combination with oral daily dose of 15-30 mg of primaquine. If patients should develop serious hematologic adverse effects, reducing the dosage regimen of primaquine and/or DALACIN C capsule should be considered.

For prevention of endocarditis

Adults:	300 mg orally 1 hour before procedure; then 150 mg 6 hours after initial dose.
Children:	10 mg/kg (not to exceed adult dose) orally 1 hour before procedure; then 5 mg/kg 6 hours after initial dose.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

Missed Dose
If a dose is missed, it should be taken as soon as remembered unless it is almost time for the next dose. The dose should not be doubled to make up for a missed dose.

Administration
Absorption of DALACIN C is not appreciably modified by ingestion of food and the capsules may be taken with meals.

To avoid the possibility of esophageal irritation, DALACIN C capsules should be taken with a full glass of water.

OVERDOSAGE

Activated charcoal may be administered to aid in the removal of unabsorbed drug. General supportive measures are recommended.

No cases of overdosage have been reported. It would be expected however, that should overdosage occur, gastrointestinal side effects including abdominal pain, nausea, vomiting and diarrhea might be seen. During clinical trials one 3-year old child was given 100 mg/kg of DALACIN C (clindamycin hydrochloride) for five days and showed mild abdominal pain and diarrhea. One 13-year old patient was given 75 mg/kg for five days with no side effects. In both cases laboratory values remained normal.

Hemodialysis and peritoneal dialysis are not effective means of removing the compound from the blood. No specific antidote is known.

The average biological half-life of clindamycin is 2.4 hours.

For management of a suspected drug overdose, contact your regional Poison Control Centre.

ACTION AND CLINICAL PHARMACOLOGY

Mechanism of Action

Clindamycin is a lincosamide antibiotic that inhibits bacterial protein synthesis. It binds to the 50S ribosomal subunit and affects both ribosome assembly and the translation process. At usual doses, clindamycin exhibits bacteriostatic activity *in vitro*.

The mechanism of action of clindamycin in combination with primaquine on *Pneumocystis jiroveci* is not known.

Pharmacodynamics

(see **MICROBIOLOGY**)

Pharmacokinetics

Absorption:

Clindamycin is rapidly and almost completely (90%) absorbed from the gastrointestinal tract in man and peak serum levels are seen in about 45 minutes. The average peak serum level following a single 150 mg dose in adults is 2.74 mcg/mL. Therapeutically effective average levels of 0.73 mcg/mL are found at 6 hours after a 150 mg dose.

The absorption of clindamycin is not appreciably affected by food intake. Peak serum levels following a single 250 mg oral dose of clindamycin with the patient in the fasting state were 3.1 mcg/mL at 45 minutes whereas the same dose administered with food gave a peak level of 2.4 mcg/mL. A 250 mg dose administered one hour after food gave a peak level of 2.8 mcg/mL but this peak did not occur until two hours after administration of the medication. A 250 mg dose with the patient in a fasting state and with food administered one hour after the medication resulted in peak levels of 3.1 mcg/mL at 12 hours.

Distribution:

Clindamycin binds primarily to alpha-1-acid glycoprotein. Protein binding is concentration dependent, ranging from 60% to 94% at therapeutic serum concentrations.

In three patients following the administration of 150 mg of clindamycin serum levels reached 2.25 mcg/mL in 2 hours and declined to 1.5 mcg/mL at 4 hours. During this period antibiotic synovial fluid levels were 1 mcg/mL at 2 hours and remained unchanged for the next and last 2 hours of observation.

Clindamycin is widely distributed in body fluids and tissues. Serum levels are rapidly attained as noted above. Tissue levels of clindamycin have been determined in various tissues in adult patients undergoing surgical procedures as noted in Table 3.

Clindamycin does not cross the blood-brain-barrier even in the presence of inflamed meninges.

TABLE 3

Specimen	No. of Specimens	Average Serum Level	Average Fluid Level mcg/mL	Tissue Level mcg/gm
Pancreatic fluid (C6-264)	4	1.15	45.1	
Bile (C6-264)	19	3.35	52.45	
Gall Bladder (C6-24)	16	0.81		4.33
Liver (C6-265)	1	42.35		3.80
Kidney (C6-265)	1	1.50		9.07
Bone (C4-390)	2	2.44		9.91

Metabolism:
In vitro studies in human liver and intestinal microsomes indicated clindamycin is predominantly oxidized by CYP3A4, with minor contribution from CYP3A5, to form clindamycin sulfoxide and a minor metabolite, N-desmethylclindamycin.

Excretion:
The average elimination half-life is 2.4 hours. After oral administration of clindamycin hydrochloride, elimination half-life is increased to approximately 4.0 hours (range 3.4 –5.1 h) in the elderly compared to 3.2 hours (range 2.1 - 4.2 h) in younger adults.

The 48 hour urinary excretion of clindamycin in adults following a single dose of 150 mg represented 10.9% of the administered dose (range 4.8% to 12.8%). These measurements were made by bio-assay and both the percent recovered and the urinary concentration are quite variable. The urinary concentration following a single 50 mg dose of clindamycin in the first 24 hours ranged from 8 to 25 mcg/mL of urine.

Fecal excretion of clindamycin has also been determined. Patients on a three week study when administered 1 gram of clindamycin per day had an average of 283 mcg/gm of stool. Patients on lincomycin 2 grams per day under the same conditions showed 3980 mcg/gm of stool. In single dose studies following administration of 250 mg of clindamycin, only 2.7% of the dose was excreted in the feces in 48-96 hours.

Special Populations and Conditions

Geriatrics: Pharmacokinetic studies with clindamycin have shown no clinically important differences between young and elderly subjects with normal hepatic function and normal (age-adjusted) renal function after oral or intravenous administration.

STORAGE AND STABILITY

Temperature:
DALACIN C (clindamycin hydrochloride) should be stored at controlled room temperature (15-30ºC).

Other:
Keep in a safe place out of the reach and sight of children.

SPECIAL HANDLING INSTRUCTIONS

There are no special handling instructions.

DOSAGE FORMS, COMPOSITION AND PACKAGING

150 mg: Each hard gelatin capsule with maroon cap and lavender body, branded "Upjohn 225", contains: clindamycin HCl hydrate equivalent to 150 mg of clindamycin base. Nonmedicinal ingredients: cornstarch, lactose (256 mg), magnesium stearate and talc. Sodium: <1 mmol (0.3 mg). Gluten-free. Bottles of 100 and 500.

300 mg: Each hard gelatin capsule with light blue cap and body branded, "Upjohn 395" contains: clindamycin HCl hydrate equivalent to 300 mg of clindamycin base. Nonmedicinal ingredients: cornstarch, lactose (294 mg), magnesium stearate and talc. Sodium: <1 mmol. Gluten-free. Bottle of 100.

PART II: SCIENTIFIC INFORMATION

PHARMACEUTICAL INFORMATION

Drug Substance

Proper name: clindamycin hydrochloride

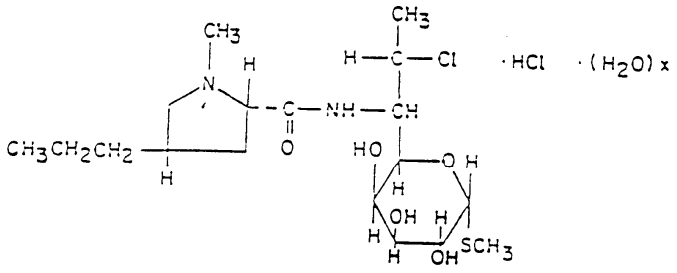
Chemical name:

1. (2S-*trans*)-methyl 7-chloro-6,7,8-trideoxy-6-[[(1-methyl-4-propyl-2-pyrrolidinyl)carbonyl]amino]-1-thio-L-*threo*-α-D-*galacto*-octopynranoside monohydrochloride
2. methyl 7-chloro-6,7,8-trideoxy-6-(1-methyl-*trans*-4-propyl-L-2 pyrrolidinecarboxamido)-1-thio-L-*threo*-*α*-D-*galacto*-octopyranoside monohydrochloride

Molecular formula: $C_{18}H_{33}ClN_2O_5S.HCl$ (anhydrous)

Molecular mass: 461.44 (anhydrous), 479.46 (monohydrate)

Structural formula:



Physicochemical properties: Clindamycin hydrochloride is the hydrated hydrochloride salt of clindamycin, a substance produced by the chlorination of lincomycin and is a yellow, amorphous solid. It is soluble in water, pyridine, ethanol and DMF (N,N-dimethlyformamide). Clindamycin hydrochloride has a pH of 4.4, a pKa of 7.6, a partition coefficient of 185 and a melting point of 141-143ºC.

CLINICAL TRIALS

The authorized indications were based on safety and efficacy clinical trials which were conducted with DALACIN C.

DETAILED PHARMACOLOGY

Three large multiple dose tolerance studies were conducted in normal volunteers.

One group of 216 volunteers took 1 gram per day or 2 grams per day of clindamycin for 4 weeks. The most frequent side effect noted was diarrhea in some volunteers, particularly at the 2 gram per day dose which is more than 3 times the recommended daily dose. With the exception of one patient who developed infectious hepatitis during the study, laboratory tests showed no significant aberrations considered drug related. Occasional patients developed elevated serum transaminase and serum alkaline phosphatase.

A second group of 150 volunteers was similarly treated and laboratory determinations were essentially normal. Audiograms were performed before, during and up to 90 days after treatment and showed no drug related changes.

A third group of 172 volunteers was evaluated in a comparison of lincomycin 500 mg q.i.d., ampicillin 250 mg q.i.d., clindamycin 150 mg q.i.d., and placebo. Subjects receiving ampicillin showed a peak incidence of moderate to mild diarrhea second only to lincomycin and greater than clindamycin during the first week of therapy, then demonstrated a drop in the incidence to placebo levels or below during the second and third week. Meanwhile, the incidence of diarrhea in both the lincomycin and the clindamycin groups remained slightly above that reported for the placebo group during the second and third weeks of therapy. One patient on lincomycin and one on clindamycin developed a rash. No drug related laboratory test abnormalities were noted.

Five volunteers were evaluated before and after treatment with clindamycin 500 mg q.i.d., for 10 days with reference to true or pseudo-cholinesterase levels. No abnormalities in these levels were noted.

MICROBIOLOGY

Efficacy is related to the time period over which the agent level is above the minimum inhibitory concentration (MIC) of the pathogen (%T/MIC).

Resistance

Resistance to clindamycin is most often due to mutations at the rRNA antibiotic binding site or methylation of specific nucleotides in the 23S RNA of the 50S ribosomal subunit. These alterations can determine *in vitro* cross resistance to macrolides and streptogramins B (MLS_B phenotype). Resistance is occasionally due to alterations in ribosomal proteins. Resistance to clindamycin may be inducible by macrolides in macrolide-resistant bacterial isolates. Inducible

resistance can be demonstrated with a disk test (D-zone test) or in broth. Less frequently encountered resistance mechanisms involve modification of the antibiotic and active efflux. There is complete cross resistance between clindamycin and lincomycin. As with many antibiotics, the incidence of resistance varies with the bacterial species and the geographical area. The incidence of resistance to clindamycin is higher among methicillin-resistant staphylococcal isolates and penicillin-resistant pneumococcal isolates than among organisms susceptible to these agents.

Breakpoints

The prevalence of acquired resistance may vary geographically and with time for selected species and local information on resistance is desirable, particularly when treating severe infections. As necessary, expert advice should be sought when the local prevalence of resistance is such that the utility of the agent in at least some types of infections is questionable.

Particularly in severe infections or therapy failure microbiological diagnosis with verification of the pathogen and its susceptibility to clindamycin is recommended.

Resistance is usually defined by susceptibility interpretive criteria (breakpoints) established by Clinical and Laboratory Standards Institute (CLSI) or European Committee on Antimicrobial Susceptibility Testing (EUCAST) for systemically administered antibiotics.

In order to assess the significance of *in vitro* antibiotic activity against bacterial species, it is necessary to compare the organism's minimum inhibitory concentration (MIC) to the defined susceptibility interpretive breakpoints for the antibiotic. **Table 4** identifies the currently-accepted MIC interpretative breakpoints for clindamycin**.**

The *in vitro* activity of clindamycin in combination with primaquine has not been determined.

Clinical and Laboratory Standards Institute (CLSI) breakpoints for relevant organisms are listed below.

Table 4. CLSI Susceptibility Interpretive Criteria for Clindamycin

Pathogen	**Minimal Inhibitory Concentrations (MIC in mcg/mL)**			**Disk Diffusion (Zone Diameters in mm)[a]**		
Staphylococcus spp.	**S** ≤ 0.5	**I** 1–2	**R** ≥4	**S** ≥21	**I** 15–20	**R** ≤14
Streptococcus pneumoniae and other *Streptococcus* spp.	≤0.25	0.5	≥1	≥19	16–18	≤15
Anaerobic Bacteria[b]	≤2	4	≥8	NA	NA	NA

NA = not applicable

[a]Disk content 2 micrograms of clindamycin

[b]MIC ranges for anaerobes are based on agar dilution methodology.

A report of "Susceptible" (S) indicates that the pathogen is likely to be inhibited if the antimicrobial compound in the blood reaches the concentrations usually achievable. A report of "Intermediate" (I) indicates that the result should be considered equivocal, and, if the microorganism is not fully susceptible to alternative, clinically feasible drugs, the test should be repeated. This category implies possible clinical applicability in body sites where the drug is physiologically concentrated or in situations where high dosage of drug can be used. This category also provides a buffer zone that prevents small, uncontrolled technical factors from causing major discrepancies in interpretation. A report of "Resistant"(R) indicates that the pathogen is not likely to be inhibited if the antimicrobial compound in the blood reaches the usually achievable concentrations; other therapy should be selected.

The reported clindamycin MIC_{90} value (i.e., the concentration of clindamycin that inhibits 90% of test isolates) was utilized as the most descriptive measure of clindamycin activity. Where the data from more than one study are summarized, the weighted average MIC_{90} value was calculated to account for differences in the number of strains in each study.

Standardized susceptibility test procedures require the use of laboratory controls to monitor and ensure the accuracy and precision of the supplies and reagents used in the assay, and the techniques of the individuals performing the test. Standard clindamycin powder should provide the MIC ranges in Table 5 For the disk diffusion technique using the 2 mcg clindamycin disk the criteria provided in Table 5 should be achieved.

Table 5. CLSI Acceptable Quality Control (QC) Ranges for Clindamycin to be Used in Validation of Susceptibility Test Results

QC Strain	Minimum Inhibitory Concentration Range (mcg/mL)	Disk Diffusion Range (Zone Diameters in mm)
Staphylococcus aureus ATCC 29213	0.06–0.25	NA
Staphylococcus aureus ATCC 25923	NA	24–30
Streptococcus pneumoniae ATCC 49619	0.03–0.12	19–25
Bacteroides fragilis ATCC 25285	0.5–2[a]	NA
Bacteroides thetaiotaomicron ATCC 29741	2–8[a]	NA
Eggerthella lenta ATCC 43055	0.06–0.25[a]	NA

NA=Not applicable.
ATCC® is a registered trademark of the American Type Culture Collection
[a]MIC ranges for anaerobes are based on agar dilution methodology.

The European Committee on Antimicrobial Susceptibility Testing (EUCAST) breakpoints are presented below.

Table 6. EUCAST Susceptibility Interpretive Criteria for Clindamycin

	MIC breakpoints (mg/L)		Zone diameter breakpoints (mm)[a]	
Organism	**S ≤**	**R >**	**S ≥**	**R <**
Staphylococcus spp.	0.25	0.5	22	19
Streptococcus Groups A, B, C and G	0.5	0.5	17	17
Streptococcus pneumoniae	0.5	0.5	19	19
Viridans group streptococci	0.5	0.5	19	19
Gram-positive anaerobes	4	4	NA	NA
Gram-negative anaerobes	4	4	NA	NA
Corynebacterium spp.	0.5	0.5	20	20

[a]Disk content 2 µg of clindamycin
NA=not applicable; S=susceptible; R=resistant

EUCAST QC ranges for MIC and disk zone determinations are in the table below.

Table 7. EUCAST Acceptable Quality Control (QC) Ranges for Clindamycin to be Used in Validation of Susceptibility Test Results

QC Strain	Minimum Inhibitory Concentration Range (mcg/mL)	Disk Diffusion Range (Zone Diameters in mm)
Staphylococcus aureus ATCC 29213	0.06–0.25	23-29
Streptococcus pneumoniae ATCC 49619	0.03–0.125	22-28

ATCC® is a registered trademark of the American Type Culture Collection

The *in vitro* susceptibility of clinical isolates to clindamycin is presented in **Table 8** (gram-positive aerobic bacteria), **Table 9** (gram-negative aerobic bacteria), **Table 10** (gram-positive anaerobic bacteria), **Table 11** (gram-negative anaerobic bacteria) and **Table 12** (*Chlamydia* spp and *Mycoplasma* spp).

Table 8: *In vitro* activity of clindamycin against gram-positive aerobic bacteria[a]			
Organism	**N[b]**	**MIC_{90} Range[c]**	**MIC_{90}[d]**
Bacillus cereus	46	1	1
Corynebacterium diphtheriae	192	0.1	0.1
Listeria monocytogenes	218	1-8	2.22
Staphylococcus aureus (methicillin-susceptible)	286	0.12-2	0.50
Staphylococcus saprophyticus	57	0.12-0.25	0.16
Streptococcus agalactia	59	≤ 0.06-0.50	0.15
Streptococcus bovis	22	0.04	0.04
Streptococcus pneumonia (penicillin-susceptible)	660	0.03-0.25	0.23
Streptococcus pyogenes	141	0.13-0.25	0.08
Streptococcus spp, *Group B*	38	≤ 0.12-0.25	0.15
Streptococcus spp, *Group C*	30	≤ 0.12-0.50	0.22
Streptococcus spp, *Group G*	34	0.06-0.50	0.31
Streptococcus spp, viridans Group (penicillin-susceptible)	67	≤ 0.06-1.6	0.53

[a] clinical efficacy has not been established for some of these species
[b] N, total number of isolates
[c] Range of reported MIC_{90} values
[d] MIC_{90} for single study or weighted average MIC_{90} for two or more studies

Table 9: *In vitro* activity of clindamycin against gram-negative aerobic bacteria[a]			
Organism	**N[b]**	**MIC_{90} Range[c]**	**MIC_{90}[d]**
Campylobacter jejuni	449	0.39-8	1.7
Campylobacter fetus	41	1-1.6	1.2
Campylobacter coli	31	0.50	0.50
Gardnerella vaginalis	156	≤ 0.06-0.39	0.3
Helicobacter pylori	47	2-3.1	2.6
Neisseria gonorrhoeae (β-lactamase-negative)	77	4	4
Neisseria gonorrhoeae (β-lactamase-positive)	54	2	2

[a] clinical efficacy has not been established for some of these species
[b] N, total number of isolates
[c] Range of reported MIC_{90} values
[d] MIC_{90} for single study or weighted average MIC_{90} for two or more studies

Table 10: *In vitro* activity of clindamycin against gram-positive anaerobic bacteria[a]			
Organism	**N[b]**	**MIC_{90} Range[c]**	**MIC_{90}[d]**
Actinomyces israelii	46	0.12	0.12
Actinomyces spp	38	0.50-1	0.8
Clostridium botulinum	224	4	4
Clostridium difficile	191	4->256	57.7
Clostridium novyi	18	2	2
Clostridium perfringens	386	0.25-8	3.4
Clostridium ramosum	98	4-12.5	8.3
Eubacterium spp	45	0.4-2	1.1
Lactobacillus spp	88	0.50-1	0.8
Peptostreptococcus anaerobes	283	0.25-0.50	0.4
Peptostreptococcus asaccharolyticus	268	0.25-2	1.5
Peptostreptococcus magnus	90	2	2
Peptostreptococcus prevotii	87	0.12-4	2.9
Peptostreptococcus tetradius	28	0.5	0.5
Anaerobic gram-positive cocci	247	0.5-1	0.9
Propionibacterium acnes	267	0.10-0.25	0.2
Propionibacterium spp	71	0.12-0.20	0.16

[a] clinical efficacy has not been established for some of these species
[b] N, total number of isolates
[c] Range of reported MIC_{90} values
[d] MIC_{90} for single study or weighted average MIC_{90} for two or more studies

Table 11: *In vitro* activity of clindamycin against gram-negative anaerobic bacteria[a]			
Organism	**N[b]**	**MIC_{90} Range[c]**	**MIC_{90}[d]**
Bacteroides fragilis group	4,284	0.5-8	2.45
Bacteroides fragilis	2,002	≤ 0.20-4	2.22
Bacteroides melaninogenicus	224	≤ 0.03-0.50	0.07
Bacteroides spp	141	≤ 0.06-0.50	0.31
Bacteroides bivius	155	≤ 0.03-≤ 0.05	≤ 0.11
Bacteroides disiens	33	≤ 0.03-≤ 0.06	≤ 0.05
Fusobacterium spp	330	≤ 0.10-2	0.85
Mobiluncus mulieris	10	0.06	0.06
Mobiluncus curtisii	12	0.12	0.12
Veillonella spp	38	0.06-0.25	0.20

[a] clinical efficacy has not been established for some of these species
[b] N, total number of isolates
[c] Range of reported MIC_{90} values
[d] MIC_{90} for single study or weighted average MIC_{90} for two or more studies

Clindamycin has demonstrated *in vitro* activity against *Chlamydia trachomatis* and *Mycoplasma* spp (see **Table 12**). For *Chlamydia trachomatis*, the MIC_{90} for clindamycin is reached at 2.3 µg/mL; *in vitro* synergism with gentamicin has also been demonstrated.

Table 12: *In vitro* activity of clindamycin against *Chlamydia* spp and *Mycoplasma* spp [a]			
Organism	**N[b]**	**MIC_{90} Range[c]**	**MIC_{90}[d]**
Chlamydia trachomatis	84	0.5-5.9	2.3
Mycoplasma hominis	106	0.25-0.8	0.58
Mycoplasma pneumoniae	9	4	4

[a] clinical efficacy has not been established for some of these species
[b] N, total number of isolates
[c] Range of reported MIC_{90} values
[d] MIC_{90} for single study or weighted average MIC_{90} for two or more studies

Development of resistance to clindamycin by staphylococci is slow and stepwise rather than rapid and streptomycin-like. Clindamycin, like lincomycin, participates in the dissociated cross-resistance phenomenon with erythromycin. Clindamycin is not cross-resistant with penicillin, ampicillin, tetracycline or streptomycin. It is, however, cross-resistant with lincomycin.

Resistance to clindamycin may occur by one of several mechanisms. Resistance does not appear to be caused by reduced drug uptake but rather is generally due to alterations in the bacterial target site (50S ribosomal subunit). Resistance can result from either changes in a ribosomal protein at the receptor site or a change in the 23S ribosomal RNA by methylation of adenine. Rare isolates of staphylococci and some veterinary isolates of streptococci may enzymatically inactivate clindamycin by adenylation. Plasmid-mediated transferable resistance to clindamycin (and erythromycin) in *B. fragilis* was reported in 1979. Despite the existence of multiple resistance mechanisms, the reported incidence of clindamycin resistance in the *B. fragilis* group has remained relatively low (averaging 5.3% from 1970-1987 in over 7,600 isolates). Susceptibility of isolates to clindamycin should be assessed by individual MIC determinations.

TOXICOLOGY

Animal

The results of acute toxicity studies are shown in Table 13:

TABLE 13

Animal LD_{50} Results		
Species	**Route**	LD_{50} (mg/kg)
Adult mouse	IP	262
Adult mouse	IV	143
Adult rat	Oral	2714
Adult rat	SC	2618
Newborn rat	SC	245

The following subacute and chronic animal toxicology was performed:

5 Day Oral Tolerance Study in Rats
500 mg/kg was administered to rats with no drug related toxicity noted except that all rats developed diarrhea at this dose level.

5 Day Oral Tolerance Study in the Dog
Doses of 113 mg/kg and 500 mg/kg were administered. The higher dose was vomited 1-2 hours after administration but otherwise no abnormalities of a drug related nature were noted.

6 Month Subacute Oral Toxicity in the Rat
Clindamycin, at doses of 30, 100 and 300 mg/kg, was given to groups of 20 rats daily for 6 months. Data obtained after one month were normal. Similarly, data at the end of 6 months showed no drug related effects. A fourth group of 20 rats received a dose of 600 mg/kg for 3 months and also showed the drug to be well tolerated by male and female rats without any drug related effects.

1 Month Subacute Oral Toxicity in the Dog
Clindamycin, at doses of 30, 100 and 300 mg/kg, was given to 3 groups of 6 dogs with a comparable group of 6 dogs as a control. All dogs were healthy and all dose levels well tolerated.

Fluctuations in the serum glutamic pyruvic transaminase values were seen in the 300 mg/kg group after 2 weeks therapy. Less fluctuation was seen in the SGOT levels and other tests of hepatic function did not reflect the adaptive metabolic change which these elevated transaminase values are believed to show. Two dogs in each group were sacrificed and no drug related lesions were found upon complete necropsy and microscopic observations on these dogs.

1 Year Chronic Oral Toxicity in the Rat
Doses of 0, 30, 100 and 300 mg/kg were administered daily to rats for one year and 600 mg/kg for 6 months. As expected, mortality did occur due to coincidental disease and the group at 600 mg/kg had a higher mortality rate although no definitive drug related findings were noted.

1 Year Chronic Oral Toxicity in the Dog
Dogs were administered clindamycin at doses of 0, 30, 100 and 300 mg/kg for 1 year. Some dose related elevations of serum glutamic pyruvic transaminase values were seen during the 7th to 9th month of this study, but periodic liver biopsies examined by light and electron microscopy did not disclose any hepatic cell damage. All other data noted no drug related changes.

Teratogenic and Reproductive Studies in the Rat and Rabbit
Teratology evaluation of 20-day rat foetuses was made and no evidence of teratogenic effect was noted. Treated rat dams gave birth to normal litters and no evidence was obtained that clindamycin affected the fecundity of the dam or the development of the offspring.
Oral and subcutaneous reproductive toxicity studies in rats and rabbits revealed no evidence of impaired fertility or harm to the fetus due to clindamycin, except at doses that caused maternal toxicity.

In oral embryo fetal development studies in rats and subcutaneous embryo fetal development studies in rats and rabbits, no developmental toxicity was observed except at doses that produced maternal toxicity.

Teratogenic and Reproductive Studies in the Mouse

Clindamycin, in doses of 20, 50 and 200 mg/kg, was administered to pregnant mice from day 6 through day 15 of gestation. At the 200 mg/kg level there was pronounced expected toxicity associated with a 40% mortality. Similarly, at this toxic level there was increased foetal loss. Litter size, litter weight and mean pup weight were significantly reduced. At the 200 mg/kg level there was an increased incidence of major malformations which is thought to be due to malnutrition of the dam as a result of this toxic dose of the drug.

Carcinogenesis

Long term studies in animals have not been performed with clindamycin to evaluate carcinogenic potential.

Mutagenesis

Genotoxicity tests performed included a rat micronucleus test and an Ames Salmonella reversion test. Both tests were negative.

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PART III: PATIENT MEDICATION INFORMATION

[Pr]DALACIN® C
(Clindamycin Hydrochloride Capsules)
clindamycin 150 mg, 300 mg

Read this carefully before you start taking DALACIN C and each time you get a refill. This leaflet is a summary and will not tell you everything about this drug. Talk to your healthcare professional about your medical condition and treatment and ask if there is any new information about DALACIN C.

Antibacterial drugs like DALACIN C treat only bacterial infections. They do not treat viral infections such as the common cold. Although you may feel better early in treatment, DALACIN C should be taken exactly as directed. Misuse or overuse of DALACIN C could lead to the growth of bacteria that will not be killed by DALACIN C (resistance). This means that DALACIN C may not work for you in the future. Do not share your medicine.

What DALACIN C is used for?
DALACIN C is used:
- To treat serious infections caused by germs (bacteria).
- To help prevent serious infections during and after surgery.

How does DALACIN C work?
DALACIN C prevents the growth of germs causing your infection.

What are the ingredients in DALACIN C?
Medicinal ingredients: Clindamycin hydrochloride.
Non-medicinal ingredients:
- **150 mg:** cornstarch, lactose (256 mg), magnesium stearate, talc and sodium (0.3 mg). Gluten-free.
- **300 mg:** cornstarch, lactose (294 mg), magnesium stearate, talc and sodium (<1 mmol). Gluten-free.

DALACIN C comes in the following dosage forms:
150 mg and 300 mg capsules

Do not use DALACIN C if:
- You are allergic (hypersensitive) to
  - Clindamycin
  - Lincomycin
  - Other ingredients in the product (see list of non-medicinal ingredients)

To help avoid side effects and ensure proper use, talk to your healthcare professional before you take DALACIN C. Talk about any health conditions or problems you may have, including if:

- You have a history of intestinal disorders such as colitis (inflammation of the colon), or inflammatory bowel disease.
- You have diarrhea or usually get diarrhea when you take antibiotics or have ever suffered from problems with your stomach or intestines (e.g. bowel disease, colitis).
- You suffer from problems with your kidneys or liver.
- You have glucose-6-phosphate dehydrogenase (G-6-PD) deficiency and taking primaquine. You need to have routine blood tests while taking DALACIN C with primaquine to monitor for potential blood cell changes.
- You are pregnant or planning to become pregnant. Clindamycin passes to the human fetus.
- You are breastfeeding or planning to breastfeed.
- You have intolerance to some milk sugars. DALACIN C capsules contain lactose.

Other warnings you should know about:
Long term use of DALACIN C
If you have to take Dalacin for a long time, your doctor may arrange regular liver, kidney and blood tests. Do not miss these check-ups with your doctor. Long term use can also make you more likely to get other infections that do not respond to Dalacin treatment.

Taking DALACIN C with primaquine
Patients with G-6-PD deficiency taking the combination of clindamycin and primaquine should have routine blood examinations during therapy with primaquine to monitor for potential blood cell changes.

Breastfeeding
If you are breastfeeding or planning to breastfeed while taking DALACIN C, talk to your doctor. DALACIN C will pass through your breast milk to your baby. Your doctor will decide if you should take this medicine while breastfeeding. If your doctor has told you that you can take DALACIN C while breastfeeding, monitor your baby for possible side effects such as: diarrhea, mouth infection (thrush: white lesions in your baby's mouth), diaper rash or blood in their stool. If your baby shows any signs, talk to your doctor and to your baby's doctor.

REMEMBER: This medication is for YOU. Never give it to others. It may harm them even if their symptoms are the same as yours.

Tell your healthcare professional about all the medicines you take, including any drugs, vitamins, minerals, natural supplements or alternative medicines.

The following may interact with DALACIN C:
• Erythromycin (an antibiotic)
• Rifampin (an antibiotic)
• Muscle relaxants used for operations
• Aminoglycosides (a class of antibiotics)
• Primaquine (antimalarial)
• St. John's Wort (*Hypericum perforatum*)

Tell your doctor if you are taking or being administered any other topical or oral medication, including erythromycin or neuromuscular blocking agents.

How to take DALACIN C:
Take your medicine (or give the medicine to your child) as your doctor has told you. If you are not sure, ask your doctor or pharmacist.

The capsules should be taken with a full glass of water to avoid throat irritation. The capsules can be taken with or without food.

Usual dose:
Treatment of infection:
Adult dose:
150 mg to 450 mg by mouth every 6 hours depending on the severity of infection.

Child dose (over 1 month of age and able to swallow capsules):
2 mg to 5 mg per kg every 6 hours depending on the severity of the infection.

Keep taking this medicine for the full time of treatment, even if you (or your child) begin to feel better after a few days.

Prevention of infection (patients undergoing surgery):
Adult dose:
300 mg by mouth at 1 hour before procedure; then 150 mg at 6 hours after the first dose.

Child dose (over 1 month of age and able to swallow capsules):
10 mg per kg by mouth at 1 hour before procedure; then 5 mg/kg at 6 hours after the first dose.

If you stop taking DALACIN C
If you stop taking the medicine too soon your infection may come back again or get worse.
Do not stop taking **DALACIN C** unless your doctor tells you to.
If you have any further questions on how to take this product, ask your doctor or pharmacist.

Overdose:

If you think you have taken too much DALACIN C, contact your healthcare professional, hospital emergency department or regional Poison Control Centre immediately, even if there are no symptoms.

Missed Dose:
If you missed a dose of this medication, take it as soon as you remember. This will help to keep a constant amount of medication in your blood. But, if it is almost time for your next dose, skip the missed dose and continue with your next scheduled dose. Do not take two doses at the same time.

What are possible side effects from using DALACIN C?

DALACIN C can cause side effects such as:

- skin reddening, rash, itching, hives
- feeling sick, vomiting, diarrhea, stomach pain
- sore throat, throat sores
- low red blood cells (anemia) with symptoms such as bruising, bleeding
- low white blood cells (neutropenia) which can lead to more infections
- vaginal infection or vaginitis (inflamed vagina)

Contact your doctor immediately if the following happens:

- You have a severe allergic reaction with symptoms such as:
    - sudden wheeziness
    - difficulty in breathing
    - swelling of eyelids, face or lips
    - rash or itching (especially affecting the whole body)
- Blistering and peeling of large areas of skin
- Fever
- Cough
- Feeling unwell
- Swelling of the gums, tongue or lips
- You have liver problems with symptoms such as:
    - yellowing of the skin and whites of the eyes (jaundice).
- You have *Clostridium difficile colitis* (bowel inflammation) with symptoms such as:
    - severe, persistent watery or bloody diarrhea (watery or bloody) with or without
        - abdominal pain
        - nausea
        - fever
        - vomiting

    This may happen months after the last dose of medication. If this occurs, stop taking the medication and contact your doctor right away.

Serious side effects and what to do about them			
Symptom / effect	Talk to your healthcare professional		Stop taking drug and get immediate medical help
	Only if severe	In all cases	
VERY COMMON Liver problem		√	√
COMMON Diarrhea Rash		√ √	
RARE Nausea, abdominal pain Vomiting Skin reactions : itching Signs of a severe allergic reaction such as sudden wheeziness, difficulty in breathing, swelling of eyelids, face or lips, rash or itching (especially affecting the whole body)	√	√ √	√
NOT KNOWN ***Clostridium difficile colitis*** (bowel inflammation) with symptoms such as severe or persistent diarrhea, abdominal pain, nausea and vomiting.			√

If you have a troublesome symptom or side effect that is not listed here or becomes bad enough to interfere with your daily activities, talk to your health care professional.

Reporting Side Effects

You can report any suspected side effects associated with the use of health products to Health Canada by:

- Visiting the Web page on Adverse Reaction Reporting (https://www.canada.ca/en/health-canada/services/drugs-health-products/medeffect-canada/adverse-reaction-reporting.html) for information on how to report online, by mail or by fax; or
- Calling toll-free at 1-866-234-2345.

NOTE: Contact your health professional if you need information about how to manage your side effects. The Canada Vigilance Program does not provide medical advice.

Storage:

Keep in a safe place out of the reach and sight of children.
Store at room temperature (15°C to 30°C), away from heat and direct light.
Do not store in the fridge or freezer.
Do not store in the bathroom as moisture and heat can cause damage.

If you want more information about DALACIN C:

- Talk to your healthcare professional
- Find the full product monograph that is prepared for healthcare professionals and includes this Patient Medication Information by visiting the Health Canada website https://www.canada.ca/en/health-canada.html; the manufacturer's website (http://www.pfizer.ca), or by calling Pfizer Canada ULC at 1-800-463-6001.

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