

WARNING: EMBRYO-FETAL TOXICITY, HEMATOLOGIC TOXICITY, and VENOUS and ARTERIAL HROMBOEMBOLISM

I HRUMBUEMBULISM

See full prescribing information for complete boxed warning.

EMBRYO-FETAL TOXICITY

Lenalidomide, a thalidomide analogue, caused limb abnormalities in a developmental monkey study similar to birth defects caused by thalidomide in humans. If lenalidomide is used during pregnancy, it may cause birth defects or embryo-fetal death.

Pregnancy must be excluded before start of treatment. Prevent pregnancy during treatment by the use of two reliable methods of contraception (5.1). ide is available only through a restricted distribution program, called the Lenalidomide REMS program (5.2, 17). HEMATOLOGIC TO program (5.2, 17).

HEMATOLOGIC TOXICITY. Lenalidomide can cause significant neutropenia and thrombocytopenia (5.3).

VENOUS AND AFTERIAL THROMBOEMBOLISM

Significantly increased risk of deep vein thrombosis (DVT) and pulmonary embolism (PE), as well as risk of myocardial infarction and stroke in patients with multiple myeloma receiving lenalidomide with dexamethasone. Anti-thrombotic prophylaxis is recommended (5.4).

----RECENT MAJOR CHANGES--Warnings and Precautions (5.1, 5.11)

Warnings and Precautions (5.1, 5.11)

5/2022

Lenalidomide is a thalidomide analogue indicated for the treatment of adult patients with:

Multiple myeloma (MM), in combination with dexamethasone (1.1).

MM, as maintenance following autologous hematopoietic stem cell transplantation (auto-HSCT) (1.1).

Transfusion-dependent anemia due to low- or intermediate-1-risk myelodysplastic syndromes (MDS) associated with a deletion 5q abnormality with or without additional cytogenetic abnormalities (1.2).

Mantle cell lymphoma (MCL) whose disease has relapsed or progressed after two prior therapies, one of which included bortezomib (1.3).

Previously treated follicular lymphoma (FL), in combination with a rituximab product (1.4).

Previously treated marginal zone lymphoma (MZL), in combination with a rituximab product (1.5).

5/2022

Limitations of Use:

• Lenalidomide capsules are not indicated and are not recommended for the treatment of patients with chronic lymphocytic leukemia (CLL) outside of controlled clinical trials (1.4).

MM combination therapy: 25 mg once daily orally on Days 1 to 21 of repeated 28-day cycles. (2.1).

MM maintenance therapy following auto-HSCT: 10 mg once daily continuously on Days 1 to 28 of repeated 28-day cycles (2.1).

MDS: 10 mg once daily (2.2).

MCL: 25 mg once daily orally on Days 1 to 21 of repeated 28-day cycles (2.3).

FL or MZL: 20 mg once daily orally on Days 1 to 21 of repeated 28-day cycles for up to 12 cycles (2.4).

Renal impairment: Adjust starting dose based on the creatinine clearance value (2.6).

For concomitant therapy doses, see Full Prescribing Information (2.1, 2.4, 14.1, 14.4).

FULL PRESCRIBING INFORMATION: CONTENTS*
WARNING: EMBRYO-FETAL TOXICITY, HEMATOLOGIC TOXICITY, and VENOUS and ARTERIAL THROMBOEMBOLISM
1 INDICATIONS AND USAGE
1.1 Multiple Meabors

1.6 Limifations of Use

DOSAGE AND ADMINISTRATION
2.1 Recommended Dosage for Multiple Myeloma
2.2 Recommended Dosage for Myelodyspiastic Syndromes
2.3 Recommended Dosage for Mantle Cell Lymphoma
2.4 Recommended Dosage for Mantle Cell Lymphoma or Marginal Zone Lymphoma
2.5 Dosage Modifications for Non-Hematologic Adverse Reactions
2.6 Recommended Dosage for Patients with Renal Impairment
2.7 Administration

DOSAGE FORMS AND STRENGTHS CONTRAINDICATIONS ARNINGS AND PRECAUTIONS

bryo-Fetal Toxicity alidomide_REMS Program 5.3 Hematologic Toxicity
5.4 Venous and Arterial Thromboembolism
5.5 Increased Mortality in Patients with CLL
5.6 Second Primary Malignancies
6.7 Increased Mortality in Patients with MM When Pembrolizumab Is Added to a Thalidomide Analogue and

5.8 Hepatotoxicity 5.9 Severe Cutaneous Reactions 5.10 Tumor Lysis Syndrome 5.11 Tumor Flare Reaction 5.12 Impaired Stem Cell Mobilization 5.13 Thyroid Disorders

FULL PRESCRIBING INFORMATION WARNING: EMBRYO-FETAL TOXICITY, HEMATOLOGIC TOXICITY, and VENOUS and ARTERIAL THROMBO-**EMBOLISM**

EMBOLISM

Embryo-Fetal Toxicity

Do not use lenalidomide during pregnancy. Lenalidomide, a thalidomide analogue, caused limb abnormalities in a developmental monkey study. Thalidomide is a known human teratogen that causes severe life-threatening human birth defects. If lenalidomide is used during pregnancy, it may cause birth defects or embryo-fetal death. In females of reproductive potential, obtain 2 negative pregnancy tests before starting lenalidomide treatment. Females of reproductive potential must use 2 forms of contraception or continuously abstain from heterosexual sex during and for 4 weeks after lenalidomide treatment [see Warnings and Precautions (5.1), and Medication Guide (17)]. To avoid embryo-fetal exposure to lenalidomide, lenalidomide is only available through a restricted distribution program, the Lenalidomide REMS program (5.2). Information about the Lenalidomide REMS program is available at www.lenalidorcalling the REMS Call Center at 1-888-423-5436. Hemalologic Toxicity (Neutropenia and Thrombocytopenia)

Lenalidomide can cause significant neutropenia and thrombocytopenia. Eighty percent of patients with del 5q myelodysplastic syndromes had to have a dose delay/reduction during the major study. Thirty-four percent of patients had to have a second dose delay/reduction. Grade 3 or 4 hematologic toxicity was seen

percent of patients nad to have a second dose detay/reduction. Charles of the helicitoristic syndromes should have their complete blood counts monitored weekly for the first 8 weeks of therapy and at least monthly thereafter. Patients may require dose interruption and/or reduction. Patients may require use of blood thereafter. Patients may require dose interruption and/or reduction. Patients product support and/or growth factors [see Dosage and Administration (2.2)]. Venous and Arterial Thromboembolism Lenalidomide has demonstrated a significantly increased risk of deep vein thrombosis (DVT) and pulmonary embolism (PE), as well as risk of myocardial infarction and stroke in patients with multiple myeloma who were treated with lenalidomide and dexamethasone therapy. Monitor for and advise patients about signs and symptoms of thromboembolism. Advise patients to seek immediate medical care if they develop symptoms such as shortness of breath, chest pain, or arm or leg swelling. Thromboprophylaxis is recommended and the choice of regimen should be based on an assessment of the patient's underlying risks (see Warnigns and Precaptions 16 Al)

INDICATIONS AND USAGE 1.1 Multiple Myeloma
 Lenalidomide capsules in combination with dexamethasone are indicated for the treatment of adult patients with multiple myeloma (MM).
 index capsules are indicated as maintenance therapy in adult patients with MM following autologous oletic stem cell transplantation (auto-HSCT). 1.2 Myelodysplastic Syndromes
Lenalidomide capsules are indicated for the treatment of adult patients with transfusion-dependent anemia due

to low- or intermediate-1-risk myelodysplastic syndromes (MDS) associated with a deletion 5q cytogenetic abnormality with or without additional cytogenetic abnormalities. 1.3 Mantle Cell Lymphoma
Lenalidomide capsules are indicated for the treatment of adult patients with mantle cell lymphoma (MCL) whose disease has relapsed or progressed after two prior therapies, one of which included bortezomib. 1.4 Follicular Lymphoma mide capsules in combination with a rituximab product, is indicated for the treatment of adult patients with previously treated follicular lymphoma (FL)

1.5 Marginal Zone Lymphoma
Lenalidomide capsules in combination with a rituximab product, is indicated for the treatment of adult patients with previously treated marginal zone lymphoma (MZL). 1.6 Limitations of Use .6 Limitations or use enalidomide capsules are not indicated and are not recommended for the treatment of patients with CLL outside f controlled clinical trials [see Warnings and Precautions (5.5)]. DOSAGE AND ADMINISTRATION 2.1 Recommended Dosage for Multiple Myeloma

Lenalidomide Capsules Combination Therapy
The recommended starting dose of lenalidomide capsules are 25 mg orally once daily on Days 1 to 21 of repeated
28-day cycles in combination with dexamethasone. Refer to Section 14.1 for specific dexamethasone dosing.
For patients greater than 75 years old, the starting dose of dexamethasone may be reduced [see Clinical Studies] (14.1)]. Treatment should be continued until disease progression or unacceptable toxicity.
In patients who are not eligible for auto-HSCT, treatment should continue until disease progression ccentable toxicity. For patients who are auto-HSCT-eligible, hematopoietic stem cell mobilization should occur within 4 cycles of a lenalidomide-containing therapy less Warnings and Precautions (5.12)].

Dose Adjustments for Hematologic Toxicities During MM Treatment
Dose modification guidelines, as summarized in Table 1 below, are recommended to manage Grade 3 or 4

tropenia or thrombocytopenia or other Grade 3 or 4 toxicity judged to be related to lenalido Table 1: Dose Adjustments for Hematologic Toxicities for MM Platelet counts Thrombocytonenia in MM Recommended Course

	Days 1 to 21 of repeated 28-day cycle			
	Interrupt lenalidomide capsules treatment, follow CBC weekly Resume lenalidomide capsules at next lower dose. Do not dose below 2.5 mg daily			
	Interrupt lenalidomide capsules treatment Resume lenalidomide capsules at next lower dose. Do not dose below 2.5 mg c			
Absolute Neutrophil counts (ANC) Ne	utropenia in MM			
When Neutrophils	Recommended Course Days 1 to 21 of repeated 28-day cycle			
Fall below 1,000/mcL Return to at least 1,000/mcL and neutropenia is the only toxicity	Interrupt lenalidomide capsules treatment, follow CBC weekly Resume lenalidomide capsules at 25 mg daily or initial starting dose			
Return to at least 1,000/mcL and if other toxicity	Resume lenalidomide capsules at next lower dose. Do not dose below 2.5 mg daily			

Following auto-HSCT, initiate lenalidomide capsules maintenance therapy after adequate hematologic recove (ANC at least 1,000/mcL). The recommended starting dose lenalidomide capsules are 10 mg once daily continuously (Days 1-28 of repeated 28-day cycles) until disea progression or unacceptable toxicity. After 3 cycles of maintenance therapy, the dose can be increased to 15 m capsules are 10 mg once daily continuously (Days 1-28 of repeated 28-day cycles) until disea Once adjustments for Hematologic Toxicities During MM Treatment

Dose Modification guidelines, as summarized in Table 2 below, are recommended to manage Grade 3 or 4 neutropenia or thrombocytopenia or other Grade 3 or 4 toxicity judged to be related to lenalidomide capsules.

Table 2: Dose Adjustments for Hematologic Toxicities for MM Platelet counts Thrombocytopenia in MM When Platelets Recommended Course Fall below 30,000/mcL Interrupt lenalidomide capsules treatment, follow CBC weekly Resume lenalidomi Return to at least 30,000/mcL apsules at next lower dose, continuously for Days 1-28 of repeated 28-day cycle If at the 5 mg daily dose. For a mide capsules treatment. Do not dose below 5 mg daily for Day 1 to 21 of 28 day cycle Resume lenalic 21of 28-day cycle. Do not dose below 5 mg daily for Day 1 to 21 of 28 day cycle Return to at least 30.000/mcL Absolute Neutrophil counts (ANC) Neutropenia in MM When Neutrophils Recommended Course

Fall below 500/mcL Interrupt lenalidomide capsules treatment, follow CBC weekly Resume lenalidomide capsules at next lower dose, continuously for Days 1 to 28 of repeated 28-day cycle Return to at least 500/mc rupt lenalidomide capsules treatment. Do not dose below 5 mg daily for Days 1 If at 5 mg daily dose, For a subseque to 2-1 or 28-day cycle
Resume lenalidomide capsules at 5 mg daily for Days 1 to 21 of 28-day cycle. Do no dose below 5 mg daily for Days 1 to 21 of 28-day cycle 2.2 Recommended Dosage for Myelodysplastic Syndromes
The recommended starting dose of lenalidomide capsules are 10 mg daily. Treatment is continued or modified

based upon clinical and laboratory findings. Continue treatment until disease progression or unacceptable toxicity <u>Dose Adjustments for Hematologic Toxicities During MDS Treatment</u> Patients who are dosed initially at 10 mg and who experience thrombocy ence thrombocytopenia should have their dosage adjusted Platelet counts

If thrombocytopenia develops WITHIN 4 weeks of starting treatment at 10 mg daily in MDS If baseline is at least 100.000/mcL When Platelets Fall below 50.000/mcL Interrupt lenalidomide capsules treatment Resume lenalidomide capsules at 5 mg daily Return to at least 50,000/mcl If baseline is below 100,000/mcL When Platelets Fall to 50% of the baseline valu Interrupt lenalidomide capsules treatmen If baseline is at least 60.000/mcL and returns to at least 50.000/mcL Resume lenalidomide capsules at 5 mg daily If baseline is below 60,000/mcl, and returns to at least 30,000/mcl.

Resume lenalidomide cansules at 5 mg daily. If thrombocytonenia develops AFTER 4 weeks of starting treatment at 10 mg daily in MDS

When Platelets Recommended Course Fall below 30,000/mcL or below 50,000/mcL with platelet transfusions | Interrupt lenalidomide capsules treatment Return to at least 30,000/mcL (without hemostatic failure)

Resume lenalidomide capsules at 5 mg daily Patients who experience thrombocytopenia at 5 mg daily should have their dosage adjusted as follows: If thrombocytopenia develops during treatment at 5 mg daily in MDS Fall below 30,000/mcL or below 50,000/mcL with platelet transfusions Interrupt lenalidomide capsules treatment Return to at least 30,000/mcL (without hemostatic failure) Resume lenalidomide capsules at 2.5 mg daily

Patients who are dosed initially at 10 mg and experience neutropenia should have their dosage adjusted as follow

Absolute Neutrophil counts (ANC)
If neutropenia develops WITHIN 4 weeks of starting treatment at 10 mg daily in MDS If baseline ANC is at least 1,000/mcL If baseline ANC is below 1,000/mcL When Neutrophils **Recommended Course** Fall below 500/mcL Interrupt legalidomide capsules treatment mide cansules at 5 mg daily Return to at least 500/mc If neutropenia develops AFTER 4 weeks of starting treatment at 10 mg daily in MDS When Neutrophil Fall below 500/mcL for at least 7 days or below 500/mcL Interrupt lenalidomide capsules treatmer ociated with fever (at least 38.5°C) Return to at least 500/mcL Resume lenalidomide capsules at 5 mg daily

Recommended Course When Neutrophils Fall below 500/mcL for at least 7 days or below 500/mcL | Interrupt lenalidomide capsules treatment Return to at least 500/mcL 2.3 Recommended Dosage for Mantle Cell Lymphoma

The recommended starting dose of lenalidomide capsules are 25 mg/day orally on Days 1 to 21 of repeated 28-day cycles for relapsed or refractory mantle cell lymphoma. Treatment should be continued until disease progression capsules or the continued or unacceptable toxicity.

Treatment is continued, modified or discontinued based upon clinical and laboratory findings.

Dose Adjustments for Hematologic Toxicities During MCL Treatment

Dose modification guidelines as summarized below are recommended to manage Grade 3 or 4 neutropenia or thrombocytopenia or other Grade 3 or 4 toxicities considered to be related to lenalidomide capsules.

nould have their dosage adjusted as follows: If neutropen

Thrombocytopenia during treatment in MCL When Platelets Recommended Course Interrupt lenalidomide capsules treatment and follow CBC weekly Fall below 50,000/mcL Return to at least 50,000/mcL Resume lenalidomide capsules at 5 mg less than the previous dose. Do not dose belo Absolute Neutrophil counts (ANC) Neutropenia during treatment in MCL

Fall below 1,000/mcL for at least 7 days Falls below 1,000/mcL with an associated temperature at least 38.5°C Falls below 500/mcL Resume lenalidomide capsules at 5 mg less than the previous dose. Do not dose below 5 mg daily Return to at least 1,000/mcL 2.4 Recommended Dosage for Follicular Lymphoma or Marginal Zone Lymphoma 2.4 Recommended starting dose of lenalidomide capsules are 20 mg orally once daily on Days 1 to 21 of repeated 28-day cycles for up to 12 cycles of treatment in combination with a rituximab-product. Refer to Section 14.4 for specific rituximab dosing from the AUGMENT trial. For dose adjustments due to toxicity with rituximab, refer to

Dose Adjustments for Hematologic Toxicities during FL or MZL Treatment
Dose modification guidelines, as summarized below, are recommended to manage Grade 3 or 4 neutropenia or thrombocytopenia or other Grade 3 or 4 toxicity judged to be related to lenalidomide capsules.

Platelet counts

Thrombocytopenia during treatment in FL or MZL Recommended Course When Platelets

Return to at least 50 000/mcl. If natient starting dose was 20 mg daily, resume lenglidomide cansules at 5 mg less than the previous dose. Do not dose below 5 mg daily.

If patient starting dose was 10 mg daily, resume at 5 mg less than previous dose. Do not dose below 2.5 mg daily Absolute Neutrophil counts (ANC) Neutropenia during treatment in FL or MZL

When Neutrophils Recommended Course Fall below 1,000/mcL for at least 7 days Interrupt lenalidomide capsules treatment and follow Falls below 1,000/mcL with an associated temperature at least 38.5°C Falls below 500 /mcL

-- DOSAGE FORMS AND STRENGTHS--

-- CONTRAINDICATIONS-Pregnancy (Boxed Warning, 4.1, 5.1, 8.1).

Demonstrated severe hypersensitivity to lenalidomide (4.2, 5.9, 5.15).

Second Primary Malignancies (SPM): Higher incidences of SPM were observed in controlled trials of patients with MM receiving lenalidomide (5.6). Increased Mortality: Observed in patients with MM when pembrolizumab was added to dexamethasone and Hepatotoxicity: Hepatic failure including fatalities; monitor liver function. Stop lenalidomide and evaluate if

hepatotoxicity: nepato failure including fatalities, inclinion liver function. Stup reliabloshing and evaluate in hepatotoxicity is suspected (5.8). Severe Cutaneous Reactions: Discontinue lenalidomide for severe reactions (5.9). Tumor lysis syndrome (TLS) including fatalities: Monitor patients at risk of TLS (i.e., those with high tumor burden) and take appropriate precautions (5.10). Including fatal reactions, have occurred during investigational use of lenalidograph for scheroid superposed is hydrogen and hydrogen (5.11). tional use of lenalidomide for chronic lymphocytic leukemia and lymphoma (5.11). Impaired Stem Cell mobilization: A decrease in the number of CD34+ cells collected after treatment (> 4 cycles) with lenalidomide has been reported. Consider early referral to transplant center (5.12). Early mortality in MCL: Higher rate of early deaths have occurred in patients with MCL (5.14). Hypersensitivity: Monitor patients for potential hypersensitivity. Discontinue lenalidomide for angioedema and anaphylaxis (5.15).

and anapnylaxis (5.15).

***ADVERSEREACTIONS**

MM: Most common adverse reactions (≥20%) include diarrhea, fatigue, anemia, constipation, neutropenia, leukopenia, peripheral edema, insomnia, muscle cramp/spasms, abdominal pain, back pain, nausea, asthenia, pyrexia, upper respiratory tract infection, bronchitis, nasopharyngitis, gastroenteritis, cough, rash, dyspnea, dizziness, decreased appetite, thrombocytopenia, and tremor (6.1).

MDS: Most common adverse reactions (>15%) include thrombocytopenia, neutropenia, diarrhea, pruritus, rash, fatigue, constipation, nausea, nasopharyngitis, arthralgia, pyrexia, back pain, peripheral edema, cough, dizziness, headache, muscle cramp, dyspnea, pharyngitis, and epistaxis (6.1).

Non-Hodgkin's Lymphoma (NHL: MCL; FL or MZL): Most common adverse reactions (≥15%) included neutropenia, thrombocytopenia, anemia, leukopenia, diarrhea, constipation, nausea, fatigue, pyrexia, cough, upper respiratory tract infection, and rash (6.1).

To report SUSPECTED ADVERSE REACTIONS contact Hetero Labs Limited at 1-866-495-1995 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch. DRUG INTERACTIONS

Digoxin: Monitor digoxin plasma levels periodically due to increased C_{max} and AUC with concomitant lenalidomide therapy (7.1).

Concomitant use of erythropoietin stimulating agents or estrogen containing therapies with lenalidomide may increase the risk of thrombosis (7.2).

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide

5.14 Early Mortality in Patients with MCL

ADVERSE REACTIONS
6.1 Clinical Trials Experier DRUG INTERACTIONS

1 Digoxin 2 Concomitant Therapies That May Increase the Risk of Thrombosis USE IN SPECIFIC POPULATIONS

8.2 Lactation
8.3 Females and Males of Reproductive Potential
8.4 Pediatric Use
8.5 Geriatric Use
8.6 Renal Impairment
OVERDOSAGE
DESCRIPTION
CLINICAL PHARMACOLOGY
12.1 Mechanism of Action
12.2 Pharmacodynamics

13 NONCLINICAL TOXICOLOGY , Mutagenesis, Impairment of Fertility

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

14 CLINICAL STÜDIES

14.1 Multiple Myeloma

14.2 Myelodysplastic Syndromes (MDS) with a Deletion 5q Cytogenetic Abnormality

14.3 Mantle Cell Lymphoma

14.4 Follicular and Marginal Zone Lymphoma

15. BFEFRECES REFERENCES
HOW SUPPLIED/STORAGE AND HANDLING

Table 3: Dose Adjustments for Patients with Renal Impairment

Pharmacology (12.3)1.

17 PATIENT COUNSELING INFORMATION *Sections or subsections omitted from the full prescribing information are not listed.

If patient starting dose was 20 mg daily, resume lenalidomide capsules at 5 mg less than the previous dose. Do not dose below 5 mg daily. If patient starting dose was 10 mg daily, resume at 5 mg less than previous dose. Do not dose below 2.5 mg daily. Return to at least 1,000/mcL 2.5 Dosage Modifications for Non-Hematologic Adverse Reactions
For non-hematologic Grade 3/4 toxicities judged to be related to lenalidomide capsules, hold treatment and restart at the physician's discretion at next lower dose level when toxicity has resolved to Grade 2 or below. Permanently discontinue lenalidomide capsules for angioedema, anaphylaxis, Grade 4 rash, skin exfoliation, bullae, or any other severe dermatologic reactions (see Warnings and Precautions (5.9, 5.15)). 2.6 Recommended Dosage for Patients with Renal Impairment
The recommendations for dosing patients with renal impairment are shown in the following table [see Clinical

Renal Function (Cockcroft-Gault)	Dose in Lenalidomide Capsules Combination Therapy for MM and MCL	Dose in Lenalidomide Capsules Combination Therapy for FL and MZL	Dose in Lenalidomide Capsules Maintenance Therapy Following Auto- HSCT for MM and for MDS
CLcr 30 to 60 mL/min	10 mg once daily	10 mg once daily	5 mg once daily
CLcr below 30 mL/ min (not requiring dialysis)	15 mg every other day	5 mg once daily	2.5 mg once daily
CLcr below 30 mL/ min (requiring dialysis)	5 mg once daily. On dialysis days, administer the dose following dialysis.	5 mg once daily. On dialysis days, administer the dose following dialysis.	2.5 mg once daily. On dialysis days, administer the dose following dialysis.
to 15 mg after 2 cycles if Lenalidomide Capsules	the patient tolerates the 10 Maintenance Therapy Folle e capsules dose increase	mg dose of lenalidomide wowing Auto-HSCT for MM	min, consider escalating the dos vithout dose-limiting toxicity. I and for MCL and MDS: Bas patient treatment tolerance [se

Dosage and Administration (2.1 - 2.3)]. enalidomide Capsules Combination Therapy for FL or for MZL: For patients with CLcr of 30 to 60 mL/min, after cycles, the lenalidomide capsules dose may be increased to 15 mg orally if the patient has tolerated therapy. 2.7 Administration e patients to take lenalidomide capsules orally at about the same time each day, either with or without food. Advise patients to swallow lenalidomide capsules whole with water and not to open, break, or chew them

DOSAGE FORMS AND STRENGTHS 2.5 mg: Pink opaque cap and white opaque body, size '4' hard gelatin capsules imprinted with 'H' on cap and L1' on body, filled with off white to pale yellow color powder. 5 mg: White opaque cap and white opaque body, size '2' hard gelatin capsules imprinted with 'H' on cap and 'L2' on body, filled with off white to pale yellow color powder.

10 mg: Orange opaque cap and white opaque body, size '0' hard gelatin capsules imprinted with 'H' on cap and 'L4' on body, filled with off white to pale yellow color powder. 15 mg: Red opaque cap and white opaque body, size '0' hard gelatin capsules imprinted with 'H' on cap and 'L5' on body, filled with off white to pale yellow color powde 20 mg: Brown opaque cap and white opaque body, size '0' hard gelatin capsules imprinted with 'H' on cap and 'L6' on body, filled with off white to pale yellow color powder. 25 mg: White opaque cap and white opaque body, size '0' hard gelatin capsules imprinted with 'H' on cap and 'L7' on body, filled with off white to pale yellow color powder.

4.1 Pregnancy
Lenalidomide capsules can cause fetal harm when administered to a pregnant female. Limb abnormalities were seen in the offspring of monkeys that were dosed with lenalidomide during organogenesis. This effect was seen at all doses tested. Due to the results of this developmental monkey study, and lenalidomide's structural similarities to thalidomide, a known human teratogen, lenalidomide is contraindicated in females who are pregnant [see Boxed Warning]. If this drug is used during pregnancy or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential risk to a fetus [see Warnings and Precautions (5.1, 5.2), Use in Special Populations (8.1, 8.31). ecial Populations (8.1, 8.3)].

4.2 Severe Hypersensitivity Reactions
Lenalidomide capsules are contraindicated in patients who have demonstrated severe hypersensitivity (e.g., angioedema, Stevens-Johnson syndrome, toxic epidermal necrolysis) to lenalidomide [see Warnings and Precautions (5.9, 5.15)]. WARNINGS AND PRECAUTIONS

5.1 Embryo-Fetal Toxicity
Lenalidomide is a thalidomide analogue and is contraindicated for use during pregnancy. Thalidomide is a known Lenalioninue is a maniorimue analogue and is contramidicate for use outing pregnancy. Inandominue is a known human teratogen that causes life-threatening human birth defects or embryo-fetal death [see Use in Specific Populations (8.1)]. An embryo-fetal development study in monkeys indicates that lenalidomide produced malformations in the offspring of female monkeys who received the drug during pregnancy, similar to birth defects observed in humans following exposure to thalidomide during pregnancy.

Lenalidomide is only available through the Lenalidomide REMS program [see Warnings and Precautions (5.2)]. Lenalidomide is only available through the **Lenalidomide REMS** program (see Warnings and Precautions (5.2)). Females of Reproductive Potential Females of reproductive potential must avoid pregnancy for at least 4 weeks before beginning lenalidomide therapy, during therapy, during dose interruptions and for at least 4 weeks after completing therapy. Females must commit either to abstain continuously from heterosexual sexual intercourse or to use two methods of reliable birth control, beginning 4 weeks prior to initiating treatment with lenalidomide, during therapy, during dose interruptions and continuing for 4 weeks following discontinuation of lenalidomide therapy. Two negative pregnancy tests must be obtained prior to initiating therapy. The first test should be performed within 10 to 14 days and the second test within 24 hours prior to prescribing lenalidomide therapy and then weekly during the first month, then monthly thereafter in females with regular menstrual cycles or every 2 weeks in females with irregular menstrual cycles (see Use in Specific Populations (8.3)).

Males
Lenalidomide is present in the semen of patients receiving the drug. Therefore, males must always use a latex or synthetic condom during any sexual contact with females of reproductive potential while taking lenalidomide and for up to 4 weeks after discontinuing lenalidomide, even if they have undergone a successful vasectomy. Male patients taking lenalidomide must not donate sperm and for up to 4 weeks after discontinuing lenalidomide [see Use in Specific Populations (8:3)].

ients must not donate blood during treatment with lenalidomide and for 4 weeks following di

of the drug because the blood might be given to a pregnant female patient whose fetus must not be exposed to | Security REMS requirements.

Patients must sign a Patient-Physician agreement form and comply with the REMS requirements. In particular, female patients of reproductive potential who are not pregnant must comply with the pregnancy testing and contraception requirements [see Use in Specific Populations (8.3)] and males must comply with contraception requirements [see Use in Specific Populations (8.3)]. Pharmacies must be certified with the Lenalidomide REMS program, must only dispense to patients who are authorized to receive lenalidomide acomply with PEMS requirements.

outhorized to receive lenalidomide and comply with REMS requirements.

er information about the Lenalidomide REMS program is available at www.lenalidomiderems.com or by ephone at 1-888-423-5436 telephone at 1-888-423-5436.

5.3 Hematologic Toxicity
Lenalidomide can cause significant neutropenia and thrombocytopenia. Monitor patients with neutropenia for signs of infection. Advise patients to observe for bleeding or bruising, especially with use of concomitant medication that may increase risk of bleeding. Patients taking lenalidomide should have their complete blood counts assessed periodically as described below (see Dosage and Administration (2.1, 2.2, 2.3)). Monitor complete blood counts (CBC) in patients taking lenalidomide in combination with dexamethasone or as lenalidomide maintenance therapy for MM every 7 days (weekly) for the first 2 cycles, on Days 1 and 15 of Cycle 3, and every 28 days (4 weeks) thereafter. A dose interruption and/or dose reduction may be required [see Dosage and Administration (2.1)]. In the MM maintenance therapy trials, Grade 3 or 4 neutropenia was reported in up to 59% of lenalidomide-treated patients [see Adverse Reactions (6.1)].

Monitor complete blood counts (CBC) in patients taking lenalidomide for MDS weekly for the first 8 weeks and at least monthly thereafter. Grade 3 or 4 hematologic toxicity was seen in 80% of patients enrolled in the MDS study.

least monthly thereafter. Grade 3 or 4 hematologic toxicity was seen in 80% of patients enrolled in the MDS study. In the 48% of patients who developed Grade 3 or 4 neutropenia, the median time to onset was 42 days (range, 14 to 411 days), and the median time to documented recovery was 17 days (range, 2 to 170 days). In the 54% of patients who developed Grade 3 or 4 thrombocytopenia, the median time to onset was 28 days (range, 8 to 290 days), and the median time to documented recovery was 22 days (range, 5 to 224 days) [see Boxed Warning and Oosage and Administration (2.2)1. Monitor complete blood counts (CBC) in patients taking lenalidomide for MCL weekly for the first cycle (28) days), every 2 weeks during cycles 2-4, and then monthly thereafter. Patients may require dose interruption and/ or dose reduction. In the MCL trial, Grade 3 or 4 neutropenia was reported in 43% of the patients. Grade 3 or 4 Intromocytopenia was reported in 28% of the patients. Monitor complete blood counts (CBC) in patients taking lenalidomide for FL or MZL weekly for the first 3 weeks of Oycle 1 (28 days), every 2 weeks during Cycles 2 to 4, and then monthly thereafter. Patients may require dose interruption and/or dose reduction. In the AUGMENT and MAGNIFY trials, Grade 3 or 4 neutropenia was reported in 50% and 33%, respectively, of patients in the lenalidomide /rituximab arm. Grade 3 or 4 thrombocytopenia was reported in 2% and 8%, respectively, of patients in the lenalidomide /rituximab arm [see Adverse Reactions (6.1)]. bocytopenia was reported in 28% of the patients.

5.4 Venous and Arterial Thromboembolism
Venous thromboembolic events (VTE (DVT and PE)) and arterial thromboembolic events (ATE, myocardial infarction and stroke) are increased in patients treated with lenalidomide.

A significantly increased risk of DVT (7.4%) and of PE (3.7%) occurred in patients with MM after at least one prior therapy who were treated with lenalidomide and dexamethasone therapy compared to patients treated in the placebo and dexamethasone group (3.1% and 0.9%) in clinical trials with varying use of anticoagulant therapies. In the newly diagnosed multiple myeloma (NDMM) study in which nearly all patients received antithrombotic relation between the design of the state of Rd18, and MPT Arms, respe Reactions (6.1)1. Myocardial infarction (1.7%) and stroke (CVA) (2.3%) are increased in natients with MM after at least one

Reactions (6.1)1.

Myocardial infarction (1.7%) and stroke (CVA) (2.3%) are increased in patients with MM after at least one prior therapy who were treated with lenalidomide and dexamethasone therapy compared to patients treated with placebo and dexamethasone (0.6%, and 0.9%) in clinical trials. In the NDMM study, myocardial infarction (including acute) was reported as a serious adverse reaction (2.3%, 0.6%, and 1.1%) in the Rd Continuous, Rd18, and MPT Arms, (3.8%, 0.6%, and 0.6%, respectively). See Adverse Reactions (6.1)1. Patients with known risk factors, including prior thrombosis, may be at greater risk and actions should be taken to try to minimize all modifiable factors (e.g. hyperlipidemia, hypertension, smoking). In controlled clinical trials that did not use concomitant thromboprophylaxis, 21.5% overall thrombotic events (Standardized MedDRA Query Embolic and Thrombotic events) occurred in patients with refractory and relapsed MM who were treated with lenalidomide and dexamethasone compared to 8.3% thrombosis in patients treated with placebo and dexamethasone. The median time to first thrombosis event was 2.8 months. In the NDMM study in which nearly all patients received antithrombotic prophylaxis, the overall frequency of thrombotic events was 17.4% in patients in the combined Rd Continuous and Rd18 Arms. In the NDMM study in which nearly all patients received antithrombotic prophylaxis, the overall frequency of thrombotic events was 11.6% in the MPT Arm. The median time to first thrombosis event was 4.3 months in the combined Rd Continuous and Rd18 Arms.

In the AUGMENT trial, the incidence of VTE (including DVT and PE) in FL or MZL patients was 3.4% in the lenalidomide /rituximab arm [see Adverse Reactions (6.1)].

Thromboprophylaxis is recommended. The regimen of thromboprophylaxis should be based on an assessment of the patient's underlying risks. Instruct patients to report immediately any signs and symptoms suggestive of thrombotic awants FS6.8 and astronagena further increase the risks of th of the patient's underlying risks. Instruct patients to report immediately any signs and symptoms suggestive of thrombotic events. ESAs and estrogens may further increase the risk of thrombosis and their use should be based on a benefit-risk decision in nationts receiving lenalidomide (see Drug Interactions (7.2)).

In a prospective randomized (1:1) clinical trial in the first line treatment of patients with chronic lymphocytic leukemia, single agent tenalidomide therapy increased the risk of death as compared to single agent chlorambucil. In an interim analysis, there were 34 deaths among 210 patients on the lenalidomide treatment arm compared to 18 deaths among 211 patients in the chlorambucil treatment arm, and hazard ratio for overall survival was 1.92 [95% Ci: 1.08 to 3.41], consistent with a 92% increase in the risk of death. The trial was halted for safety in July 2013. Serious adverse cardiovascular reactions, including atrial fibrillation, myocardial infarction, and cardiac failur

occurred more frequently in the lenalidomide treatment arm. Lenalidomide is not indicated and not recom for use in CLL outside of controlled clinical trials. 5.6 Second Primary Malignancies
In clinical trials in patients with MM receiving lenalidomide, an increase of hematologic plus solid tumor second primary malignancies (SPM) notably AML and MDS have been observed. An increase in hematologic SPM including AML and MDS occurred in 5.3% of patients with NDMM receiving lenalidomide in combination with the second with 1.3% of patients receiving melohalan without lenalidomide. The frequency of AML oral melphalan compared with 1.3% of patients receiving melphalan without lenalidomide. The frequency of AMI and MDS cases in patients with NDMM treated with lenalidomide in combination with dexamethasone withou

melphalan was 0.4%. In patients receiving lenalidomide maintenance therapy following high dose intravenous melphalan and auto-HSCT, hematologic SPM occurred in 7.5% of patients compared to 3.3% in patients receiving placebo. The incidence of hematologic plus solid tumor (excluding squamous cell carcinoma and basal cell carcinoma) SPM was 14.9%, compared to 8.8% in patients receiving placebo with a median follow-up of 91.5 months. Non-melanoma skin cancer SPM, including squamous cell carcinoma and basal cell carcinoma, occurred in 3.9% of patients receiving lenalidomide maintenance, compared to 2.6% in the placebo arm. In patients with relapsed or refractory MM treated with lenalidomide/dexamethasone, the incidence of hematologic plus solid tumor (excluding squamous cell carcinoma and basal cell carcinoma) SPM was 2.3% versus 0.6% in the dexamethasone alone arm. Non-melanoma skin cancer SPM, including squamous cell carcinoma and basal cell carcinoma, occurred in 3.1% of patients receiving lenalidomide/dexamethasone, compared to 0.6% in the dexamethasone alone arm. dexamethasone alone arm. Patients who received lenalidomide-containing therapy until disease progression did not show a higher incidence Patients with received retailubilities containing interapy until obease progression and not show a figure incommon financial progression and not show a figure incommon financial progression and the shown at the fixed duration lenalidomide-containing arms. Monitor patients for the development of second primary malignancies. Take into account both the potential benefit of lenalidomide and the risk of second primary malignancies when considering treatment with lenalidomide. risk of second primary malignancies when considering treatment with lenalidomide.

In the AUGMENT trial with FL or MZL patients receiving lenalidomide /rituximab therapy, hematologic plus solid tumor SPMs, notably AML, have been observed. In the AUGMENT trial, hematologic SPM of AML occurred in 0.6% of patients with FL or MZL receiving lenalidomide /rituximab therapy. The incidence of hematologic plus solid tumor SPMs (excluding nonmelanoma skin cancers) was 1.7% in the lenalidomide /rituximab arm with a median follow-up of 29.8 months (range 0.5 to 51.3 months) (see Adverse Reactions (6.1)). Monitor patients for the development of second primary malignancies. Take into account both the potential benefit of lenalidomide and the risk of second primary malignancies when considering treatment with lenalidomide.

5.7 Increased Mortality in Patients with MM When Pembrolizumab Is Added to a Thalidomide Analogue an andomized clinical trials in patients with MM, the addition of pembrolizumab to a thalidomide analogu two failuronized unliked and patients with miw, the adultion of perindiculated to a findicated, included an acceptance and so dexamethasone, a use for which no PD-1 or PD-L1 blocking antibody is indicated, resulted in increase retailty. Treatment of patients with MM with a PD-1 or PD-L1 blocking antibody in combination with lidomide analogue plus dexamethasone is not recommended outside of controlled clinical trials.

patic failure, including fatal cases, has occurred in patients treated with lenalidomide in combination with Hepatic failure, including tatal cases, has occurred in patients treated with lenalidomide in combination with dexamethasone. In clinical trials, 15% of patients experienced hepatotoxicity (with hepatocellular, cholestatic and mixed characteristics); 2% of patients with MM and 1% of patients with myelodysplasia had serious hepatotoxicity events. The mechanism of drug-induced hepatotoxicity is unknown. Pre-existing viral liver disease, elevated baseline liver enzymes, and concomitant medications may be risk factors. Monitor liver enzyme speriodically. Stop lenalidomide upon elevation of liver enzymes. After return to baseline values, treatment at a lower dose may 5.9 Severe Cutaneous Reactions

5.9 Severe cutaneous neactions Severe cutaneous neactions severe cutaneous reactions including Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), and drug reaction with eosinophilia and systemic symptoms (DRESS) have been reported. DRESS may present with a cutaneous reaction (such as rash or exfoliative dermatitis), eosinophilia, fever, and/or lymphadenopathy with systemic complications such as hepatitis, nephritis, pneumonitis, myocarditis, and/or pericarditis. These events can be fatal. Patients with a prior history of Grade 4 rash associated with thalidomide treatment should not receive lenalidomide. Consider lenalidomide interruption or discontinuation for Grade 2 to 3 skin rash. Permanentl discontinue lenalidomide for Grade 4 rash, exfoliative or bullous rash, or for other severe cutaneous reaction such as SJS, TEN or DRESS [see Dosage and Administration (2.5)]

such as SJS, TEN Or DHESS (See Dosage and Administration (2.57).

5.10 Tumor Lysis Syndrome
Fatal instances of tumor lysis syndrome (TLS) have been reported during treatment with lenalidomide. The patients at risk of TLS are those with high tumor burden prior to treatment. Monitor patients at risk closely and take appropriate preventive approaches. In the AUGMENT trial in FL or MZL patients, TLS occurred in 2 patients (1.1%) in the lenalidomide /rituximab arm. TLS occurred in 1 patient (0.5%) in the MAGNIFY trial during the lenalidomide /rituximab induction period; the event was a serious, Grade 3 adverse reaction. 5.11 Tumor Flare Reaction Tumor flare reaction (TFR), including fatal reactions, have occurred during investigational use of lenalidomide for CLL and lymphoma, and is characterized by tender lymph node swelling, low grade fever, pain and rash Lenalidomide is not indicated and not recommended for use in CLL outside of controlled clinical trials. Monitoring and evaluation for TFR is recommended in patients with MCL, FL, or MZL. Tumor flare reaction may

Monitoring and evaluation for TFR is recommended in patients with MCL, FL, or MZL. Tumor flare reaction may mimic progression of disease (PD). In the MCL trial, 13/134 (10%) of subjects experienced TFR; all reports were Grade 1 or 2 in severity. All of the events occurred in Cycle 1 and one patient developed TFR again in Cycle 11. In the AUGMENT trial in FL or MZL patients, TFR was reported in 19/176 (10.8%) of patients in the lenalidomide /rituximab arm experienced a Grade 3 TFR. In the MAGNIFY trial, 9/222 (4.1%) of patients experienced TFR; all reports were Grade 1 or 2 in severity in lenalidomide with rituximab arm; one patient in the lenalidomide /rituximab arm experienced a Grade 3 TFR. In the MAGNIFY trial, 9/222 (4.1%) of patients experienced TFR; all reports were Grade 1 or 2 in severity all of the Authority of the Aut

physician's discretion. Patients with Grade 1 and 2 TFR may also be treated with corticosteroids, non-steroidal anti-inflammatory drugs (NSAIDs) and/or narcotic analgesics for management of TFR symptoms. In patients with Grade 3 or 4 TFR, it is recommended to withhold treatment with lenalidomide until TFR resolves to \leq Grade 1. Patients with Grade 3 or 4 TFR may be treated for management of symptoms per the guidance for treatment of Grade 1 and 2 TFR.

Grade Fariu 2 Frn.

5.12 Impaired Stem Cell Mobilization

A decrease in the number of CD34+ cells collected after treatment (> 4 cycles) with lenalidomide has been reported. In patients who are auto-HSCT candidates, referral to a transplant center should occur early in treatment of optimize the timing of the stem cell collection. In patients who received more than 4 cycles of a lenalidomide-containing treatment or for whom inadequate numbers of CD 34+ cells have been collected with G-CSF alone, G-CSF with cyclophosphamide or the combination of GCSF with a CXCR4 inhibitor may be considered. 5.13 Thyroid Disorders Both hypothyroidism and hyperthyroidism have been reported [see Adverse Reactions (6.2)]. Measure thyroid function before start of lenalidomide treatment and during therapy.

5.14 Early Mortality in Patients with MCL In another MCL study, there was an increase in early deaths (within 20 weeks), 12.9% in the entaildomide arm versus 7.1% in the control arm. On exploratory multivariate analysis, risk factors for early deaths include high tumor burden, MIPI score at diagnosis, and high WBC at baseline (≥ 10 x 10%L). 5.15 Hypersensitivity

3.13 hypersensiumy Hypersensitivity, including angioedema, anaphylaxis, and anaphylactic reactions to lenalidomide has been reported. Permanently discontinue lenalidomide for angioedema and anaphylaxis [see Dosage and Administration ADVERSE REACTIONS

following clinically significant adverse reactions are described in detail in other sections of the prescribing Embryo-Fetal Toxicity [see Boxed Warning, Warnings and Precautions (5.1, 5.2)] Hematologic Toxicity [see Boxed Warning, Warnings and Precautions (5.3)]
Venous and Arterial Thromboembolism [see Boxed Warning, Warnings and Precautions (5.4)]
Increased Mortality in Patients with CLL [see Warnings and Precautions (5.5)]

Second Primary Malignancies [see Warnings and Precautions (5.6)] Increased Mortality in Patients with MM When Pembrolizumab Is Added to a Thalidomide Analogue and Dexamethasone [see Warnings and Precautions (5.7)]
Hepatotoxicity [see Warnings and Precautions (5.8)] Severe Cutaneous Reactions (see Warnings and Precautions (5.9)]

Tumor Lysis Syndrome [see Warnings and Precautions (5.10)]
Tumor Flare Reactions [see Warnings and Precautions (5.11)]

Impaired Stem Cell Mobilization [see Warnings and Precautions (5.12)]

Thyroid Disorders [see Warnings and Precautions (5.13)]
Early Mortality in Patients with MCL [see Warnings and Precautions (5.14)]
Hypersensitivity [see Warnings and Precautions (5.15)] 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.

Newly Diagnosed MM – Lenalidomide Combination Therapy:

Data were evaluated from 1613 patients in a large phase 3 study who received at least one dose of lenalidomide with low dose dexamethasone (Rd) given for 2 different durations of time (i.e., until progressive disease [Arm Rd Continuous; N=532] or for up to eighteen 28-day cycles [72 weeks, Arm Rd18; N=540] or who received melphalan, prednisone and thalidomide (Arm MPT; N=541) for a maximum of twelve 42-day cycles [72 weeks).

The median treatment duration is the PG Continuous and the progressive of 3 to 465 (134 mostles). The median treatment duration in the Rd Continuous arm was 80.2 weeks (range 0.7 to 246.7) or 18.4 months (range 0.16 to 56.7).

(range 0.16 to 56.7).

In general, the most frequently reported adverse reactions were comparable in Arm Rd Continuous and Arm Rd18, and included diarrhea, anemia, constipation, peripheral edema, neutropenia, fatigue, back pain, nausea, asthenia, and insomnia. The most frequently reported Grade 3 or 4 reactions included neutropenia, anemia, thrombocytopenia, pneumonia, asthenia, fatigue, back pain, hypokalemia, rash, cataract, lymphopenia, dyspnea, DVT, hyperglycemia, and leukopenia. The highest frequency of infections occurred in Arm Rd Continuous (75%) compared to Arm MPT (56%). There were more grade 3 and 4 and serious adverse reactions of infection in Arm Rd Continuous from the most common adverse reactions leading to dose interruption of legalidomide were In the Rd Continuous arm, the most common adverse reactions leading to dose interruption of lenalidomide were infection events (28.8%); overall, the median time to the first dose interruption of lenalidomide was 7 weeks. The most common adverse reactions leading to dose reduction of lenalidomide in the Rd Continuous arm were hematologic events (10.7%); overall, the median time to the first dose reduction of lenalidomide was 16 weeks. In the Rd Continuous arm were hematologic events (10.7%); overall, the median time to the first dose reduction of lenalidomide was 16 weeks. In the Rd Continuous arm, the most common adverse reactions leading to discontinuation of lenalidomide were infection average (2.4%). ction events (3.4%).

In both Rd arms, the frequencies of onset of adverse reactions were generally highest in the first 6 months of treatment and then the frequencies decreased over time or remained stable throughout treatment, except for cataracts. The frequency of onset of cataracts increased over time with 0.7% during the first 6 months and up to 9.6% by the 2nd year of treatment with Rd Continuous. Table 4 summarizes the adverse reactions reported for the Rd Continuous, Rd18, and MPT treatment arms

Table 4: All Adverse Reactions in \geq 5% and Grade 3/4 Adverse Reactions in \geq 1% of Patients with MM in the Rd Continuous or Rd18 Arms* Grade 3/4 Adverse Reactions^b All Adverse Reactions^a | Rd Continuous | Rd18 | MPT | Rd Continuous | Rd18 | MPT | (N = 532) | (N = 540) | (N = 541) | (N = 532) | (N = 540) | (N = 541) | 173 (33) 177 (33) 154 (28) 39 (7) 46 (9) 31 (6) 150 (28) 123 (23) 124 (23) 41 (8) 33 (6) 32 (6) Asthenia 114 (21) 102 (19) 76 (14) 13 (2) 7 (1) 7 (1) Non-cardiac chest pain¹ 29 (5) 31(6) 18 (3) <1% <1% <1% astrointestinal disorders
 242 (45)
 208 (39)
 89 (16)
 21 (4)
 18 (3)
 8 (1)

 109 (20)
 78 (14)
 60 (11)
 7 (1)
 9 (2)
 <1%</td>
 Musculoskeletal and co Back pain c Muscle spasms 1 71 (13) 66 (12)

57 (11) 28 (5) 36 (7) <1% <1% 0(0) 170 (32) 145 (27) 116 (21) 37 (7) 34 (6) 28 (5) 109 (20) 102 (19) 61 (11) <1% <1% <1% 9 (2) 8 (1) 8(1)
 87 (16)
 77 (14)
 62 (11)
 16 (3)
 15 (3)
 14 (3)

 79 (15)
 66 (12)
 61 (11)
 8 (2)
 8 (1)
 7 (1)

 67 (13)
 59 (11)
 36 (7)
 <1%</td>
 <1%</td>
 <1%</td>
 60 (11) 51 (9) 39 (7) 6 (1) <1% <1% 43 (8) 35 (6) 29 (5) <1% 8 (1) <1% uloskeletal chest pair Muscular weakness 1 40 (8) 19 (4) 10 (2) <1% <1% <1% Neck pain 1 Infections and infestations 90 (17) 59 (11) 43 (8) 9 (2) 6 (1) < 1% 80 (15) 54 (10) 33 (6) 0 (0) 0 (0) 0 (0) 76 (14) 63 (12) 41 (8) 8(2) 8(1) <1% 69 (13) 53 (10) 31(6) <1% 8(1) <1% 93 (17) 87 (16) 56 (10) 60 (11) 57 (11) 41 (8) 35 (7) 25 (5) 21 (4) 7 (1) < 1% < 1% spiratory tract infection 23 (4) 15 (3) < 1% < 1% 0 (0) 33 (6) 32 (6) 17 (3) 13 (2) 0 (0) < 1% < 1% 29 (5) 14 (3) 16 (3) 10 (2) ower respiratory tract infection 29 (5) 24 (4) 14 (3) 0 (0) 0 (0) 0 (0) < 5% < 5% 8 (2) < 1% 33 (6) 26 (5) 18 (3) 26 (5) 20 (4) 13 (2) ervous system disorders 75 (14) 52 (10) 56 (10) < 1% < 1% < 1% 39 (7) 45 (8) 22 (4) < 1% 0 (0.0) < 1% Blood and lymphatic system d 233 (44) 193 (36) 229 (42) 97 (18) 85 (16) 102 (19) 178 (33) 328 (61) 148 (28) 143 (26) 243 (45) 104 (20) 100 (19) 135 (25) 44 (8) 43 (8) 60 (11) 7 (1) 17 (3) 15 (3) 6 (1) 16 (3) 14 (3) < 1% 6 (1) 7 (1) < 1% < 1% < 1% rile neutropenia cytopenia piratory, thoracic and mediastinal disorders 121 (23) 94 (17) 68 (13) < 1% < 1% < 1% 117 (22) 89 (16) 113 (21) 30 (6) 22 (4) 18 (3) 31 (6) 17 (3) < 1% 30 (6) 22 (4) 14 (3) 0 (0) 0 (0) 0 (0) pharyngeal pain 27 (5) 29 (5) <5% 6 (1) <1% 0 (0) spnea exertional e abolism and nutrition disor 123 (23) 115 (21) 72 (13) 14 (3) 7 (1) < 1% 91 (17) 62 (11) 38 (7) 35 (7) 20 (4) 11 (2) ased appetite 62 (12) 52 (10) 19 (4) 28 (5) 23 (4) 9 (2) 56 (10) 31 (6) 23 (4) 25 (5) 29 (5) 17 (3) 8 (2) 13 (2) 9 (2) < 5% < 5% < 5% 8 (2) 0 (0) 0 (0) <5% <5% <5% 8(2) <1% <1% <1% <5% <5% 7(1) <1% <1% betes mellitus% < 5% < 5% 13 (2) 6 (1) < 5% 7 (1) Skin and subcutaneou 47 (9) 49 (9) 24 (4) <1% <1% <1% sychiatric disorders 58 (11) 46 (9) 30 (6) 10 (2) < 1% < 1% cular disorders 55 (10) 39 (7) 22 (4) 30 (6) 20 (4) 15 (3) 51 (10) 35 (6) 36 (7) 11 (2) 8 (1) 6 (1) Injury, Poisoning, and I 43 (8) 25 (5) 25 (5) <1% 6 (1) 6 (1) 33 (6) 24 (4) 15 (3) <1% <1% 0 (0) Eve disorders 73 (14) 31 (6) < 1% 31 (6) 14 (3) < 1% < 5% < 5% < 5% 7 (1) 0 (0) 0 (0) 72 (14) 78 (14) 48 (9) 11 (2) < 1% < 1% 37 (7) 25 (5) 25 (5) 13 (2) 9 (2) 6 (1) trial fibrillation^c Myocardial infarction (including < 5% < 5% < 5% 10 (2) < 1% Renal and Urinary disorder enal failure (including acute)^{o0,1} 49 (9) 54 (10) 37 (7) 28 (5) 33 (6) 29 (5) eoplasms benign, malignant and unspecified (Including cysts and polyps) mous cell carcinoma^{c e} < 5% < 5% < 5% 8 (2) < 1% 0 (0) <5% <5% <1% <1% 0 (0)

Note: A subject with multiple occur ^aAll treatment-emergent adverse events in at least 5% of subjects in the Rd Continuous or Rd18 Arms and at least a 2% higher frequency (%) in either the Rd Continuous or Rd18 Arms compared to the MPT Arm ^a All grade 3 or 4 treatment-emergent adverse events in at least 1% of subjects in the Rd Continuous or Rd18 Arms and at least a 1% higher frequency (%) in either the Rd Continuous or Rd18 Arms compared to the MPT Arm.

^c Serious treatment-emergent adverse events in at least 1% of subjects in the Rd Continuous or Rd18 Arms and at least a 1% higher frequency (%) in either the Rd Continuous or Rd18 Arms compared to the MPT Arm ^d Preferred terms for the blood and lymphatic system disorders body system were included by medical judgment as known adverse reactions for Rd Continuous/Rd18, and have also been reported as serious. Footnote "a" not applicable.

- adverse reactions in which at least one resulted in a fatal outcome. erse reactions in which at least one was considered to be life threatening (if the outcome of the reaction was death, it is included with death cases). *Adverse reactions included in combined adverse reaction terms:

Abdominal Pain: Abdominal pain, abdominal pain upper, abdominal pain lower, gastrointestinal pain Pneumonias: Pneumonia, lobar pneumonia, pneumonia pneumococcal, bronchopneumonia, pneumocystis jiroveci pneumonia, pneumonia legionella, pneumonia staphylococcal, pneumonia klebsiella, atypical pneumonia, pneumonia bacterial, pneumonia escherichia, pneumonia streptococcal, pneumonia viral <u>Sepsis</u>: Sepsis, septic shock, urosepsis, escherichia sepsis, neutropenic sepsis, pneumococci staphylococcal sepsis, bacterial sepsis, meningococcal sepsis, enterococcal sepsis, klebsielli pseudomonal sepsis Rash, Rash, rash pruritic, rash erythematous, rash maculo-papular, rash generalized, rash papular, exfoliative rash, rash follicular, rash macular, drug rash with eosinophilia and systemic symptoms, erythema multiforme, Deep Vein Thrombosis: Deep vein thrombosis, venous thrombosis limb, venous thrombosis

Newly Diagnosed MM - Lenalidomide Maintenance Therapy Following Auto-HSCT: Data were evaluated from 1018 patients in two randomized trials who received at least one dose of lenalidomide 10 mg daily as maintenance therapy after auto-HSCT until progressive disease or unacceptable toxicity. The mean treatment duration for lenalidomide treatment was 30.3 months for Maintenance Study 1 and 24.0 months for tenance Study 2 (overall range across both studies from 0.1 to 108 months). As of the cut-off date of 1 Mai 2015, 48 patients (21%) in the Maintenance Study 1 lenalidomide arm were still on treatment and none of the patients in the Maintenance Study 2 lenalidomide arm were still on treatment at the same cut-off date patients in the Maintenance Study 2 lenalidomide arm were still on treatment at the same cut-off date. The adverse reactions listed from Maintenance Study 1 included events reported post-transplant (completion of high-dose meliphalian /auto-HSCT), and the maintenance treatment period. In Maintenance Study 2, the adverse reactions were from the maintenance treatment period only. In general, the most frequently reported adverse reactions (more than 20% in the lenalidomide arm) across both studies were neutropenia, thrombocytopenia, leukopenia, anemia, upper respiratory tract infection, bronchitis, nasopharyngitis, cough, gastroenteritis, diarrhea, rash, fatigue, asthenia, muscle spasm and pyrexia. The most frequently reported Grade 3 or 4 reactions (more than 20% in the lenalidomide arm) included neutropenia, thrombocytopenia, and leukopenia. The serious adverse reactions lung infection and neutropenia (more than 4.5%) occurred in the lenalidomide arm. For lenalidomide, the most common adverse reactions leading to dose interruption were hematologic events (29.7%, data available in Maintenance Study 2 only). The most common adverse reaction leading to dose reduction of lenalidomide were hematologic events (17.7%, data available in Maintenance Study 2 only). The most common adverse reaction leading to discontinuation of lenalidomide were thrombocytopenia (2.7%) in Maintenance Study 1 and neutropenia (2.4%) in Maintenance Study 2. The frequencies of onset of adverse reactions were generally highest in the first 6 months of treatment and then the frequencies decreased over time or remained stable throughout treatment.

Table 5 summarizes the adverse reactions reported for the lenalidomide and placebo maintenance treatment arms Table 5: All Adverse Reactions in Lenalidomide Vs Placebo Arms* Maintenance Study 1 Maintenance Study 2 Grade 3/4 Adverse Grade 3/4 Advers

Body System	Reactio	ins ^a	Reactio	ns ^b	Reactio	ns ^a	Reactio	ns ^b	
Adverse Reaction	Lenalidomide (N=224) n (%)	Placebo (N=221) n (%)	Lenalidomide (N=224) n (%)	Placebo (N=221) n (%)	Lenalidomide (N=293) n (%)	Placebo (N=280) n (%)	Lenalidomide (N=293) n (%)	Place (N=2 n (%	
Blood and lymphati		. ,	11 (70)	11 (70)	11 (70)	11 (70)	(/ 0 /	(
Neutropenia **	177 (79)	94 (43)	133 (59)	73 (33)	178 (61)	33 (12)	158 (54)	21 (
Thrombocytopenia	162 (72)	101 (46)	84 (38)	67 (30)	69 (24)	29 (10)	38 (13)	8 (3	
Leukopenia ^c	51 (23)	25 (11)	45 (20)	22 (10)	93 (32)	21 (8)	71 (24)	5 (2	
Anemia	47 (21)	27 (12)	23 (10)	18 (8)	26 (9)	15 (5)	11 (4)	3 (
Lymphopenia	40 (18)	29 (13)	37 (17)	26 (12)	13 (4)	3 (1)	11 (4)	< 1	
Pancytopenia ° d %	< 1%	0 (0)	0 (0)	0 (0)	12 (4)	< 1%	7 (2)	<1	
Febrile neutropenia ^c	39 (17)	34 (15)	39 (17)	34 (15)	7 (2)	< 1%	5 (2)	< 1	
Infections and infes	tations*								
Upper respiratory tract infection e	60 (27)	35 (16)	7 (3)	9 (4)	32 (11)	18 (6)	< 1%	0 (0	
Neutropenic infection	40 (18)	19 (9)	27 (12)	14 (6)	0 (0)	0 (0)	0 (0)	0 (0	
Pneumonias* c%	31 (14)	15 (7)	23 (10)	7 (3)	50 (17)	13 (5)	27 (9)	5 (2	
Bronchitis ^c	10 (4)	9 (4)	< 1%	5 (2)	139 (47)	104 (37)	4 (1)	< 1	
Nasopharyngitis ^e	5 (2)	< 1%	0 (0)	0 (0)	102 (35)	84 (30)	< 1%	0 (0	
Gastroenteritis c	0 (0)	0 (0)	0 (0)	0 (0)	66 (23)	55 (20)	6 (2)	0 (0	
Rhinitis e	< 1%	0 (0)	0 (0)	0 (0)	44 (15)	19 (7)	0 (0)	0 (0	
Sinusitis ^e	8 (4)	3 (1)	0 (0)	0 (0)	41 (14)	26 (9)	0 (0)	<1	
Influenza ^c	8 (4)	5(2)	< 1%	< 1%	39 (13)	19 (7)	3 (1)	0 (
Lung infection ^c	21 (9)	< 1%	19 (8)	< 1%	9 (3)	4 (1)	< 1%	0 (0	
Lower respiratory tract infection ^e	13 (6)	5 (2)	6 (3)	4 (2)	4 (1)	4 (1)	0 (0)	< 1	
Infection c	12 (5)	6 (3)	9 (4)	5 (2)	17 (6)	5 (2)	0 (0)	0 (
Urinary tract infection cde	9 (4)	5 (2)	4 (2)	4 (2)	22 (8)	17 (6)	< 1%	0 (
Lower respiratory tract infection bacterial ^d	6 (3)	< 1%	4 (2)	0 (0)	0 (0)	0 (0)	0 (0)	0 (
Bacteremia ^d	5 (2)	0 (0)	4 (2)	0 (0)	0 (0)	0 (0)	0 (0)	0 (
Herpes zoster ^{c d}	11 (5)	10 (5)	3 (1)	< 1%	29 (10)	25 (9)	6 (2)	< 1	
Sepsis* cd@	< 1%	< 1%	0 (0)	0 (0)	6 (2)	< 1%	4 (1)	< 1	
Gastrointestinal dis	orders								
Diarrhea	122 (54)	83 (38)	22 (10)	17 (8)	114 (39)	34 (12)	7 (2)	0 (
Nausea ^e	33 (15)	22 (10)	16 (7)	10 (5)	31 (11)	28 (10)	0 (0)	0 (0	
Vomiting	17 (8)	12 (5)	8 (4)	5 (2)	16 (5)	15 (5)	< 1%	0 (
Constipation e	12 (5)	8 (4)	0 (0)	0 (0)	37 (13)	25 (9)	< 1%	0 (
Abdominal pain ^e	8 (4)	7 (3)	< 1%	4 (2)	31 (11)	15 (5)	< 1%	< 1	
Abdominal pain upper ^e	0 (0)	0 (0)	0 (0)	0 (0)	20 (7)	12 (4)	< 1%	0 (0	
General disorders a									
Asthenia	0 (0)	< 1%	0 (0)	0 (0)	87 (30)	53 (19)	10 (3)	< 1	
Fatigue	51 (23)	30 (14)	21 (9)	9 (4)	31 (11)	15 (5)	3 (1)	0 (
Pyrexia e	17 (8)	10 (5)	< 1%	< 1%	60 (20)	26 (9)	< 1%	0 (0	
Skin and subcutane	ous tissue diso	rders							

Body System	All Adv Reactio		Grade 3/4 / Reactio		All Adverse R	eactions ^a	Grade 3/4 A Reactio	
Adverse Reaction	Lenalidomide (N=224) n (%)	Placebo (N=221) n (%)	Lenalidomide (N=224) n (%)	Placebo (N=221) n (%)	Lenalidomide (N=293) n (%)	Placebo (N=280) n (%)	Lenalidomide (N=293) n (%)	Placebo (N=280) n (%)
Skin and subcutane	ous tissue disc	rders						
Rash	71 (32)	48 (22)	11 (5)	5 (2)	22 (8)	17 (6)	3 (1)	0 (0)
Pruritus	9 (4)	4 (2)	3 (1)	0 (0)	21 (7)	25 (9)	< 1%	0 (0)
Nervous system dis	orders							
Paresthesia e	< 1%	0 (0)	0 (0)	0 (0)	39 (13)	30 (11)	< 1%	0 (0)
Peripheral neuropathy* e	34 (15)	30 (14)	8 (4)	8 (4)	29 (10)	15 (5)	4 (1)	< 1%
Headache d	11 (5)	8 (4)	5 (2)	< 1%	25 (9)	21 (8)	0 (0)	0 (0)
Investigations						'		
Alanine aminotransferase increased	16 (7)	3 (1)	8 (4)	0 (0)	5 (2)	5 (2)	0 (0)	< 1%
Aspartate aminotransferase increased	13 (6)	5 (2)	6 (3)	0 (0)	< 1%	5 (2)	0 (0)	0 (0)
Metabolism and nu	trition disorder	s				'		
Hypokalemia	24 (11)	13 (6)	16 (7)	12 (5)	12 (4)	< 1%	< 1%	0 (0)
Dehydration	9 (4)	5 (2)	7 (3)	3 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Hypophospha temia ^d	16 (7)	15 (7)	13 (6)	14 (6)	0 (0)	< 1%	0 (0)	0 (0)
Musculoskeletal an	d connective ti	ssue disord	lers					
Muscle spasms e	0 (0)	< 1%	0 (0)	0 (0)	98 (33)	43 (15)	< 1%	0 (0)
Myalgia ^e	7 (3)	8 (4)	3 (1)	5 (2)	19 (6)	12 (4)	< 1%	< 1%
Musculoskeletal pain ^e	< 1%	< 1%	0 (0)	0 (0)	19 (6)	11 (44)	0 (0)	0 (0)
Hepatobiliary disor	ders							
Hyperbilirubinemia e	34 (15)	19 (9)	4 (2)	< 1%	4 (1)	< 1%	< 1%	0 (0)
Respiratory, thorac	ic and mediast	inal disorde	ers					
Cough ^e	23 (10)	12 (5)	3 (1)	< 1%	80 (27)	56 (20)	0 (0)	0 (0)
Dyspnea ce	15 (7)	9 (4)	8 (4)	4 (2)	17 (6)	9 (3)	< 1%	0 (0)
Rhinorrhea e	0 (0)	3 (1)	0 (0)	0 (0)	15 (5)	6 (2)	0 (0)	0 (0)
Pulmonary embolism ^{cde}	0 (0)	0 (0)	0 (0)	0 (0)	3 (1)	0 (0)	< 1%	0 (0)
Vascular disorders								
Deep vein thrombosis*cd%	8 (4)	< 1%	5 (2)	< 1%	7 (2)	< 1%	4 (1)	< 1%
Neoplasms benign,	malignant and	unspecifie	d (including cy	sts and pol	yps)			
Myelodysplastic syndrome cde	5 (2)	0 (0)	< 1%	0 (0)	3 (1)	0 (0)	< 1%	0 (0)
lote: Adverse Eve nultiple occurrence Reaction. All treatment-eme higher frequency (1 All grade 3 or 4 tr	es of an adve ergent AEs in %) than the Pl eatment-emer	erse reacti at least 5 lacebo Ma gent AEs i	on is counted of patients intenance grown in at least 1%	d only ond in the lenup. of patients	ce under the a alidomide Mai s in the lenalid	applicable intenance	Body System group and at	/Adverse least 2%

Maintenance Study 1

All grade 3 or 4 treatment-emergent AEs in at least 1% of patients in the lenalidomide Maintenance group and at least 1% higher frequency (%) than the Placebo Maintenance group.
 All serious treatment-emergent AEs in at least 1% of patients in the lenalidomide Maintenance group and at least 1% higher frequency (%) than the Placebo Maintenance group.
 Footnote "a" not applicable for either study
 Footnote "b" not applicable for either study
 Footnote "b" not applicable for either study
 ADRs where at least one resulted in a fatal outcome
 ADRs where at least one was considered to be Life Threatening (if the outcome of the event was death, it is included with death cases)
 All adverse reactions under Body System of Infections and Infestation except for rare infections of Public Health interest will be considered listed
 *Adverse Reactions for combined ADR terms (based on relevant TEAE PTs included in Maintenance Studies 1

*Adverse Reactions for combined ADR terms (based on relevant TEAE PTs included in Maintenance Studies 1 and 2 [per MedDRA v 15.11]:
Prejumpning Reachessand and 2 (per MedDRA v 15.1)):

Pneumonias Bronchopneumonia, Lobar pneumonia, Pneumocystis jiroveci pneumonia, Pneumonia Nebsiella, Pneumonia streptococcal, Pneumonia viral, Lung disorder, Pneumonitis

Sepsis: Bacterial sepsis, Pneumococcal sepsis, Sepsis, Septic shock, Staphylococcal sepsis

Peripheral neuropathy: Neuropathy peripheral, Peripheral motor neuropathy, Peripheral sensory neuropathy, Polyneuropathy Deep vein thrombosis: Deep vein thrombosis, Thrombosis, Venous thrombosis

After At Least One Prior Therapy for MM:
Data were evaluated from 703 patients in two studies who received at least one dose of lenalidomide/
dexamethasone (353 patients) or placebo/dexamethasone (350 patients). dexamethasone (359 patients) or placebo/dexamethasone (350 patients). In the lenalidomide/dexamethasone treatment group, 269 patients (76%) had at least one dose interruption with or without a dose reduction of lenalidomide compared to 199 patients (57%) in the placebo/dexamethasone treatment group. Of these patients who had one dose interruption with or without a dose reduction, 50% in the lenalidomide/dexamethasone treatment group had at least one additional dose interruption with or without a dose reduction compared to 21% in the placebo/dexamethasone treatment group. Most adverse reactions and Grade 3/4 adverse reactions were more frequent in patients who received the combination of lenalidomide/dexamethasone compared to placebo/dexamethasone.

Tables 6, 7, and 8 summarize the adverse reactions reported for lenalidomide/dexamethasone and placebo/dexamethasone groups.

Body System Adverse Reaction	Lenalidomide/Dex (N=353) n (%)	Placebo/Dex (N=350) n (%)	
Blood and lymphatic system disorders			
Neutropenia [%]	149 (42)	22 (6)	
Anemia [®]	111 (31)	83 (24)	
Thrombocytopenia®	76 (22)	37 (11)	
Leukopenia	28 (8)	4 (1)	
Lymphopenia	19 (5)	5 (1)	
General disorders and administration site conditions			
Fatigue	155 (44)	146 (42)	
Pyrexia	97 (27)	82 (23)	
Peripheral edema	93 (26)	74 (21)	
Chest pain	29 (8)	20 (6)	
Lethargy	24 (7)	8 (2)	
Gastrointestinal disorders			
Constipation	143 (41)	74 (21)	
Diarrhea®	136 (39)	96 (27)	
Nausea®	92 (26)	75 (21)	
Vomiting®	43 (12)	33 (9)	
Abdominal pain®	35 (10)	22 (6)	
Dry mouth	25 (7)	13 (4)	
Musculoskeletal and connective tissue disorders			
Muscle cramp	118 (33)	74 (21)	
Back pain	91 (26)	65 (19)	
Bone pain	48 (14)	39 (11)	
Pain in limb	42 (12)	32 (9)	
Nervous system disorders			
Dizziness	82 (23)	59 (17)	
Tremor	75 (21)	26 (7)	
Dysgeusia	54 (15)	34 (10)	
Hypoesthesia	36 (10)	25 (7)	
Neuropathy ^a	23 (7)	13 (4)	
Respiratory, thoracic and mediastinal disorders			
Dyspnea	83 (24)	60 (17)	
Nasopharyngitis	62 (18)	31 (9)	
Pharyngitis	48 (14)	33 (9)	
Bronchitis	40 (11)	30 (9)	
Infections ^b and infestations	27 (27)		
Upper respiratory tract infection	87 (25)	55 (16)	
Pneumonia®	48 (14)	29 (8)	
Urinary tract infection	30 (8)	19 (5)	
Sinusitis	26 (7)	16 (5)	
Skin and subcutaneous system disorders	75 (04)	00 (0)	
Rash ^c	75 (21)	33 (9)	
Sweating increased	35 (10)	25 (7)	
Dry skin	33 (9)	14 (4)	
Pruritus	27 (8)	18 (5)	
Metabolism and nutrition disorders	EE /40\	24 /40\	
Anorexia	55 (16)	34 (10)	
Hypokalemia	48 (14)	21 (6)	
Hypocalcemia Appetite degreesed	31 (9)	10 (3)	
Appetite decreased	24 (7)	14 (4)	
Dehydration	23 (7)	15 (4)	
Hypomagnesemia	24 (7)	10 (3)	
Investigations	20 (05)	EA	
Weight decreased	69 (20)	52 (15)	
Eye disorders	04 ::=:		
Blurred vision	61 (17)	40 (11)	
Vascular disorders	96.00		
Deep vein thrombosis%	33 (9)	15 (4)	
Hypertension	28 (8)	20 (6)	

25 (7) 15 (4) Table 7: Grade 3/4 Adverse Reactions Reported in ≥2% Patients and with a ≥1% Difference in Proportion of Placebo/Dex (N=350) n (%)

118 (33)

43 (12)

35 (10)

12 (3)

22 (6)

20 (6)

Blood and lymphatic system disorders

Thrombocytopenia

Anemia	35 (10)	20 (6)
Leukopenia	14 (4)	< 1%
Lymphopenia	10 (3)	4 (1)
Febrile neutropenia [%]	8 (2)	0 (0)
General disorders and administration site conditions		
Fatigue	23 (7)	17 (5)
Vascular disorders	'	
Deep vein thrombosis%	29 (8)	12 (3)
Infections and infestations	'	
Pneumonia [®]	30 (8)	19 (5)
Urinary tract infection	5 (1)	< 1%
Metabolism and nutrition disorders	'	
Hypokalemia	17 (5)	5 (1)
Hypocalcemia	13 (4)	6 (2)
Hypophosphatemia	9 (3)	0 (0)
Respiratory, thoracic and mediastinal disorders		
Pulmonary embolism®	14 (4)	< 1%
Respiratory distress®	4 (1)	0 (0)
Musculoskeletal and connective tissue disorders	. (.)	0 (0)
Muscle weakness	20 (6)	10 (3)
Gastrointestinal disorders	20 (0)	10 (0)
Diarrhea®	11 (3)	4 (1)
Constipation	7 (2)	< 1%
Nausea®	6 (2)	< 1%
Cardiac disorders	0 (2)	V 170
Atrial fibrillation®	13 (4)	4 (1)
Tachycardia	6 (2)	< 1%
Cardiac failure congestive®	1,7	< 1%
Nervous system disorders	5 (1)	< 176
Syncope	10 (3)	< 1%
Dizziness	7 (2)	< 1%
Eye disorders	1 (2)	V 170
Cataract	6 (2)	< 1%
Cataract unilateral		
	5 (1)	0 (0)
Psychiatric disorder	10 (0)	0 (0)
Depression able 8: Serious Adverse Reactions Reported in ≥1% P atients with MM between the Lenalidomide/dexametha	10 (3) Patients and with a ≥1% I Sone and Placebo/dexamo	6 (2) Difference in Proportion ethasone Groups
Body System Adverse Reaction	Lenalidomide/Dex (N=353) n (%)	Placebo/Dex (N=350) n (%)
Blood and lymphatic system disorders		
Febrile neutropenia%	6 (2)	0 (0)
Vascular disorders		
Deep vein thrombosis%	26 (7)	11 (3)
Infections and infestations		
Pneumonia [®]	33 (9)	21 (6)
Respiratory, thoracic, and mediastinal disorders		
Pulmonary embolism®	13 (4)	< 1%
Cardiac disorders		1
Atrial fibrillation®	11 (3)	< 1%
Cardiac failure congestive®	5 (1)	0 (0)
Nervous system disorders		
Cerebrovascular accident [®]		< 1%
Gastrointestinal disorders	7 (2)	V 170
Disarbas @		
Diarrhea®	6 (2)	<1%
Diarrhea ^o Musculoskeletal and connective tissue disorders Bone pain		

For Tables 6, 7 and 8 above:

a diverse reactions in which at least one resulted in a fatal outcome.

a adverse reactions in which at least one was considered to be life threatening (if the outcome of the reaction was death, it is included with death cases).

Median duration of exposure among patients treated with lenalidomide/dexamethasone was 44 weeks while median duration of exposure among patients treated with placebo/dexamethasone was 23 weeks. This should be taken into consideration when comparing frequency of adverse reactions between two treatment groups lenalidomide/dexamethasone vs. placebo/dexamethasone.

Venous and Aterial Thromboembolism (see Bryed Warning Warnings and Precautions (5.4)) <u>Venous and Arterial Thromboembolism [see Boxed Warning, Warnings and Precautions (5.4)]</u>
VTE and ATE are increased in patients treated with lenalidomide.

For Tables 6, 7 and 8 above

Venous and Arterial Thromboembolism *Isee Boxed Warning, Warnings and Precautions (5.4)*VTE and ATE are increased in patients treated with lenalidomide.

Deep vein thrombosis (DVT) was reported as a serious (7.4%) or severe (8.2%) adverse drug reaction at a higher rate in the lenalidomide/dexamethasone group compared to 3.1 % and 3.4% in the placebo/dexamethasone group, respectively in the 2 studies in patients with at least 1 prior therapy with discontinuations due to DVT adverse reactions reported at comparable rates between groups. In the NDMM study, DVT was reported as an adverse reaction (all grades: 10.3%, 7.2%, 4.1%), as a serious adverse reaction (3.6%, 2.0%, 1.7%), and as Grade 3/4 adverse reaction (5.6%, 3.7%, 2.8%) in the Rd Continuous, Rd18, and MPT Arms, respectively. Discontinuations and dose reductions due to DVT adverse reactions were reported at comparable rates between the Rd Continuous (2.3%) and Rd18 (1.5%) arms. Pulmonary embolism (PE) was reported as a serious adverse drug reaction (3.7%) or Grade 3/4 (4.0%) at a higher rate in the lenalidomide/dexamethasone group compared to 0.9% (serious or grade 3/4) in the placebo/dexamethasone group in the 2 studies in patients with, at least 1 prior therapy, with discontinuations due to PE adverse reactions reported at comparable rates between groups. In the NDMM study, the frequency of adverse reactions of PE was similar between the Rd Continuous, Rd18, and MPT Arms for adverse reactions (all grades: 3.9%, 3.3%, and 4.3%, respectively), serious adverse reactions (3.8%, 2.8%, and 3.7%, respectively), and grade 3/4 adverse reactions group. Discontinuation due to MI (including acute) was reported as an adverse reaction (1.0%) or severe (1.7%) adverse drug reaction at a higher rate in the lenalidomide/dexamethasone group compared to 0.6% and 0.6% respectively), in the placebo/dexamethasone group and none in the placebo/dexamethasone group. In the NDMM study, myocardial infarction (including acute) was reported as an adverse reaction (all grades: 2.4%,

Arms, respectively.

Stroke (CVA) was reported as a serious (2.3%) or severe (2.0%) adverse drug reaction in the lenalidomide/dexamethasone group compared to 0.9% and 0.9% respectively in the placebo/dexamethasone group.

Discontinuation due to stroke (CVA) was 1.4% in lenalidomide/dexamethasone group and 0.3% in the placebo/

dexamethasone group. In the NDMM study, CVA was reported as an adverse reaction (all grades: 0.8%, 0.6%, and 0.6%), as a serious adverse reaction (0.8%, 0.6%, and 0.6%), or as a severe adverse reaction (0.6%, 0.6%, 0.2%) in the Rd Continuous, Rd18, and MPT arms respectively. Other Adverse Reactions: After At Least One Prior Therapy for MM In these 2 studies, the following adverse drug reactions (ADRs) not described above that occurred at \geq 1% rate and of at least twice of the placebo percentage rate were reported: Blood and lymphatic system disorders: pancytopenia, autoimmune hemolytic anemia Cardiac disorders: bradycardia, myocardial infarction, angina pectoris Endocrine disorders: hirsutism

Eye disorders: blindness, ocular hypertension Castrointestinal disorders: gastrointestinal hemorrhage, glossodynia General disorders and administration site conditions: malaise Investigations: liver function tests abnormal, alanine aminotransferase increased Nervous system disorders: cerebral ischemia Psychiatric disorders: mood swings, hallucination, loss of libido

Body System

Pyrexia

Sepsis

Dizziness

Chest Pain

Pruritus

Pancytopenia

Muscle Cramp

Multi-organ Failure

Pulmonary Hyperte

Sweating Increased

Ear and labyrinth disorders: vertigo

Arthralgia

Epistaxis

Granulocytopenia

Pulmonary Embolism

Respiratory Distress

Respiratory Tract Infectio

Upper Respiratory Tract Infection

Patients with at least one adverse reaction

Psychiatric disorders: mood swings, hallucination, loss of libido
Reproductive system and breast disorders: erectile dysfunction
Respiratory, thoracic and mediastinal disorders: cough, hoarseness
Skin and subcutaneous tissue disorders: exanthem, skin hyperpigmentation
Myelodysplastic Syndromes:
A total of 148 patients received at least 1 dose of 10 mg lenalidomide in the del 5q MDS clinical study. At least
one adverse reaction was reported in all of the 148 patients who were treated with the 10 mg starting dose
of lenalidomide. The most frequently reported adverse reactions were related to blood and lymphatic system
disorders, skin and subcutaneous tissue disorders, gastrointestinal disorders, and general disorders and
administrative site conditions. disorders, skill aid subcutairedus tissue disorders, gestomental extended the most frequently reported adverse reactions. Thrombocytopenia (61.5%; 91/148) and neutropenia (58.8%; 87/148) were the most frequently reported adverse reactions. The next most common adverse reactions observed were diarrhea (48.6%; 72/148), pruritus (41.9%; 62/148), rash (35.8%; 53/148) and fatigue (31.1%; 46/148). Table 9 summarizes the adverse reactions that were reported in ≥ 5% of the lenalidomide treated patients in the del 5q MDS clinical study. Table 10 summarizes the most frequently observed Grade 3 and Grade 4 adverse reactions regardless of relationship to treatment with lenalidomide. In the single-arm studies conducted, it is often not possible to distinguish adverse reactions that are drug-related and those that reflect the patient's underlying disease. Table 9: Summary of Adverse Reactions Reported in ≥5% of the Lenalidomide Treated Patients in del 5q MDS Clinical Study

Blood and Lymphatic System Disorders Thrombocytopenia	91	(61)
Neutropenia	87	(59)
Anemia Leukopenia	17 12	(11) (8)
Febrile Neutropenia	8	(5)
Skin and Subcutaneous Tissue Disorders Pruritus	62	(42)
Rash Dry Skin	53 21	(36) (14)
Contusion Night Sweats	12 12	(8)
Sweating Increased Ecchymosis	10 8	(7) (5)
Erythema	8	(5)
Gastrointestinal Disorders Diarrhea	72	(49)
Constipation Nausea	35 35	(24) (24)
Abdominal Pain Vomiting	18 15	(12) (10)
Abdominal Pain Upper Dry Mouth	12 10	(8) (7)
Loose Stools	9	(6)
Respiratory, Thoracic and Mediastinal Disorders Nasopharyngitis	34	(23)
Cough Dyspnea	29 25	(20) (17)
Pharyngitis Epistaxis	23 22	(16) (15)
Dyspnea Exertional Rhinitis	10 10	(7) (7)
Bronchitis	9	(6)
General Disorders and Administration Site Conditions	46	(31)
Fatigue Pyrexia	31 30	(21) (20)
Edema Peripheral Asthenia	22 15	(15) (10)
Edema Pain	10 9	(7) (6)
Rigors Chest Pain	8	(5)
Musculoskeletal and Connective Tissue Disorders	20	(00)
Arthralgia Back Pain	32 31	(22) (21)
Muscle Cramp Pain in Limb	27 16	(18) (11)
Myalgia Peripheral Swelling	13 12	(9)
Nervous System Disorders Dizziness	29	(20)
Headache	29	(20)
Hypoesthesia Dysgeusia	10 9	(7) (6)
Peripheral Neuropathy Infections and Infestations	8	(5)
Upper Respiratory Tract Infection Pneumonia	22 17	(15) (11)
Urinary Tract Infection	16	(11)
Sinusitis Cellulitis	12 8	(8) (5)
Metabolism and Nutrition Disorders Hypokalemia	16	(11)
Anorexia Hypomagnesemia	15 9	(10) (6)
Investigations		
Alanine Aminotransferase Increased Psychiatric Disorders	12	(8)
Insomnia Depression	15 8	(10) (5)
Renal and Urinary Disorders	10	
Dysuria Vascular Disorders	10	(7)
Hypertension	9	(6)
Endocrine Disorders Acquired Hypothyroidism	10	(6)
Cardiac Disorders Palpitations	8	(5)
Body System and adverse reactions are coded using	the MedDRA dictionary. Body	System and adverse react
are listed in descending order of frequency for the adverse reaction is counted only once under the appl	cable Body System/Adverse R	teaction.
Table 10: Most Frequently Observed Grade 3 and 4 Drug Treatment in the del 5q MDS Clinical Study	Adverse Reactions ¹ Regardle	ess of Relationship to Stu
Adverse Reactions ²		10 mg (N=148)
Patients with at least one Grade 3/4 AE		131 (89)
Neutropenia Thrombocytopenia		79 (53) 74 (50)
Pneumonia		11 (7)
Rash		10 (7)
Anemia		9 (6)
Leukopenia Fatigue		8 (5) 7 (5)
Dyspnea		7 (5)
Back Pain		7 (5)
Febrile Neutropenia		6 (4)
Nausea Diarrhea		6 (4) 5 (3)
Digitied		5 (3)

Pain in Limb 2 (1) Headache 2 (1) 2 (1) Syncope Adverse reactions with frequency ≥1% in the 10 mg Overall group. Grade 3 and 4 are based of Institute Common Toxicity Criteria version 2.

Adverse reactions are coded using the MedDRA dictionary. A patient with multiple occurrences of an adverse reaction is counted only once in the adverse reaction category. In other clinical studies of lenalidomide in MDS patients, the following serious adverse reactions (regardless of relationship to study drug treatment) not described in Table 9 or 10 were reported:

Blood and lymphatic system disorders: warm type hemolytic anemia, splenic infarction, bone marrow depression, coagulopathy, hemolysis, hemolytic anemia, refractory anemia

Cardiac disorders: cardiac failure congestive, atrial fibrillation, angina pectoris, cardiac arrest, cardiac failure, cardio-respiratory arrest, cardiomy atrial fibrillation, myocardial ischemia, atrial fibrillation aggravated, bradycardia, cardiogenic shock, pulmonary edema, supraventricular arrhythmia, tachyarrhythmia,

5 (3)

4 (3)

4 (3)

3 (2)

3 (2)

3 (2)

3 (2)

3 (2)

3 (2)

3 (2) 2 (1)

2 (1)

2 (1)

2 (1)

2 (1) 2 (1)

2 (1) 2 (1)

2 (1)

2 (1)

2 (1)

rine disorders: Basedow's disease Gastrointestinal disorders: gastrointestinal hemorrhage, colitis ischemic, intestinal perforation, rectal bearrointestinal usoruers. gastrointestinal homotrage, colonic polyn, diverticultists, dysphagia, gastritist, gastroenteritis, gastroensonapear reflux disease, obstructive inguinal hernia, irritable bowel syndrome, melena, pancreatitis due to biliary obstruction, pancreatitis, perirectal abscess, small intestinal obstruction, upper gastrointestinal hemorrhage.

General disorders and administration site conditions: disease progression, fall, gait abnormal, intermittent yrexia, nodule, rigors, sudden death enatohiliarv disorders: hyperbilirubinemia, cholecystitis, acute cholecystitis, hepatic failure

Immune system disorders: hypersensitivity
Infections and infestations: infection bacteremia, central line infection, clostridial infection, ear infection,
Enterobacter sepsis, fungal infection, herpes viral infection NOS, influenza, kidney infection, Klebsiella sepsis,
lobar pneumonia, localized infection, oral infection, Pseudomonas infection, septic shock, sinusitis acute,
sinusitis, Staphylococcal infection, urosepsis
Injury, poisoning and procedural complications: femur fracture, transfusion reaction, cervical vertebral fracture,
femoral neck fracture, fractured pelvis, hip fracture, overdose, post procedural hemorrhage, rib fracture, road
traffic accident, spinal compression fracture
Investigations: blood creatinine increased, hemoglobin decreased, liver function tests abnormal, troponin I
processed Metabolism and nutrition disorders: dehydration, gout, hypernatremia, hypoglycemia
Musculoskeletal and connective tissue disorders: arthritis, arthritis aggravated, gouty arthritis, neck pain,

chondrocalcinosis pyrophosphate

Neoplasms benign, malignant and unspecified: acute leukemia, acute myeloid leukemia, bronchoalveolar carcinoma, lung cancer metastatic, lymphoma, prostate cancer metastatic

Nerous system disorders: cerebrovascular accident, aphasia, cerebellar infarction, cerebral infarction, depressed
level of consciousness, dysarthria, migraine, spinal cord compression, subarachnoid hemorrhage, transient chemic attack Psychiatric disorders: confusional state Renal and urinary disorders: renal failure, hematuria, renal failure acute, azotemia, calculus ureteric, renal mass

Reproductive system and breast disorders: pelvic pain
Respiratory, thoracic and mediastinal disorders: bronchitis, chronic obstructive airways disease exacerbated,
respiratory failure, dyspnea exacerbated, interstitial lung disease, lung infiltration, wheezing
Skin and subcutaneous tissue disorders: acute febrile neutrophilic dermatosis Vascular system disorders: deep vein thrombosis, hypotension, aortic disorder, ischemia, thrombophlebitis

Mantle Cell Lymphoma:
n the MCL trial, a total of 134 patients received at least 1 dose of lenalidomide. Their median age was 67 (range in the Wich that, a found of 134 patients received at least 1 outset of retination lines. Then median age was of charge 43 to 83 years, 128/134 (19%) were Caucasian, 108/134 (81%) were males and 82/134 (61%) and duration of MCL for at least 3 years.

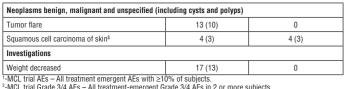
Table 11 summarizes the most frequently observed adverse reactions regardless of relationship to treatment with

Table 11: Incidence of Adverse Reactions (≥10%) or Grade 3 / 4 AE (in at least 2 patients) in Mantle Cell

ymphoma		
Body System Adverse Reaction	All Adverse Reactions¹ (N=134) n (%)	Grade 3/4 Adverse Reactions ² (N=134) n (%)
General disorders and administration site condition	ons	
Fatigue	45 (34)	9 (7)
Pyrexia ^{\$}	31 (23)	3 (2)
Edema peripheral	21 (16)	0
Asthenia ^s	19 (14)	4 (3)
General physical health deterioration	3 (2)	2 (1)
Gastrointestinal disorders		
Diarrhea ^s	42 (31)	8 (6)
Nausea ^s	40 (30)	1 (<1)
Constipation	21 (16)	1 (<1)
Vomiting ^s	16 (12)	1 (<1)
Abdominal pain ^s	13 (10)	5 (4)
Musculoskeletal and connective tissue disorders		
Back pain	18 (13)	2 (1)
Muscle spasms	17 (13)	1 (<1)
Arthralgia	11 (8)	2 (1)
Muscular weakness ^{\$}	8 (6)	2 (1)
Respiratory, thoracic and mediastinal disorders		
Cough	38 (28)	1 (<1)
Dyspnea ^s	24 (18)	8 (6)
Pleural Effusion	10 (7)	2 (1)
Нурохіа	3 (2)	2 (1)
Pulmonary embolism	3 (2)	2 (1)
Respiratory distress ^s	2 (1)	2 (1)
Oropharyngeal pain	13 (10)	0
Infections and infestations		
Pneumonia®\$	19 (14)	12 (9)
Upper respiratory tract infection	17 (13)	0
Cellulitis ^{\$}	3 (2)	2 (1)
Bacteremia ^s	2 (1)	2 (1)
Staphylococcal sepsis ^s	2 (1)	2 (1)
Urinary tract infection ^{\$}	5 (4)	2 (1)
Skin and subcutaneous tissue disorders	'	
Rash +	30 (22)	2 (1)
Pruritus	23 (17)	1 (<1)
Blood and lymphatic system disorders		
Neutropenia	65 (49)	58 (43)
Thrombocytopenia% ^{\$}	48 (36)	37 (28)
Anemia ^s	41 (31)	15 (11)
Leukopenia ^{\$}	20 (15)	9 (7)
Lymphopenia	10 (7)	5 (4)
Febrile neutropenia ^s	8 (6)	8 (6)
Metabolism and nutrition disorders		
Decreased appetite	19 (14)	1 (<1)
Hypokalemia	17 (13)	3 (2)
Dehydration ^{\$}	10 (7)	4 (3)
Hypocalcemia	4 (3)	2 (1)
Hyponatremia	3 (2)	3 (2)
Renal and urinary disorders		
Renal failure ^s	5 (4)	2 (1)
Vascular disorders		.,
Hypotension ^{@ \$}	9 (7)	4 (3)

5 (4)

5 (4)



 MCL trial Grade 3/4 AEs – All treatment-emergent Grade 3/4 AEs in 2 or more subjects.
 MCL trial Serious AEs – All treatment-emergent SAEs in 2 or more subjects.
 Adverse reactions where at least one resulted in a fatal outcome. - Adverse reactions where at least one was considered to be Life Threatening (if the outcome of the event was death, it is included with death cases) - All adverse reactions under Body System of Infections except for rare infections of Public Health interest will

 All adverse reactions under HLT of Rash will be considered listed. The following adverse reactions which have occurred in other indications including another MCL study and not escribed above have been reported (1%-10%) in patients treated with lenalidomide monotherapy for mantle Cardiac disorder: Cardiac failure

Cardiac disorder: Cardiac failure
Ear and labyrinth disorders: Vertigo
General disorders and administration site conditions: Chills
Infections and infestations: Respiratory tract infection, sinusitis, nasopharyngitis, oral herpes
Musculoskeletal and connective tissue disorders: Pain in extremity
Nervous system disorders: Dysgeusia, headache, neuropathy peripheral, lethargy
Psychiatric disorders: Insomnia
Skin and subcutaneous tissue disorders: Dry skin, night sweats
The following serious adverse reactions not described above and reported in 2 or more patients treated with lenalidomide monotherapy for mantle cell lymphoma.
Blood and lymphatic system disorders: Neutropenia
Cardiac disorder: Myocardial infarction (including acute MI), supraventricular tachycardia
Infections and infestations: Clostridium difficile colitis, sepsis
Neoplasms benign, malignant and unspecified (including cysts and polyps): Basal cell carcinoma
Respiratory, thoracic, and mediastinal disorders: Chronic obstructive pulmonary disease, pulmonary embolism
Follicular Lymphoma or Marginal Zone Lymphoma
The safety of lenalidomide / rituximab was evaluated in 398 patients with either previously treated follicular lymphoma or marginal zone lymphoma in two clinical trials; AUGMENT (N=176) and MAGNIFY (N=222) [see
Clinical Studies (14.4)]. Subjects were 18 years or older in age, had an ECOG PS <2, ANC =178. platelets≥ 75,000/mm³ (unless secondary to bone marrow involvement by lymphoma), hemoglobin ≥8g/dL, AST and ALT ≤ 3x ULN (unless documented liver involvement with lymphoma, and creatinine clearance of ≥ 30mL/min. Subjects with active HIV, hepatitis B or C were not eligible. In the AUGMENT trial, patients received lenalidomide 20 mg daily by mouth on days 1 – 21 of each 28 day cycle in the Aushien I mal, patients received entaincomine 20 mg daily by mount on days 1 – 21 of each 28 day Cycle with rituximab 375 mg/m² weekly (days 1, 8, 15 and 22 in cycle 1) then on day 1 of cycles 2-5 (n=176) or placebo with rituximab 375 mg/m² weekly (days 1, 8, 15 and 22 in cycle 1) then on day 1 of cycles 2-5 (n=1780) for up to 12 cycles. In the MAGNIFY trial, patients received lenalidomide 20 mg by mouth daily, days 1-21 of each 28 day cycle with rituximab 375 mg/m² weekly (days 1, 8, 15 and 22 in cycle 1) then on day 1 of cycles 3, 5, 7, 9 and 11 in the induction phase of the trial (n=222). In the AUGMENT trial, 88.1% of patients completed at least 6 cycles of lenalidomide /rituximab, and 30.6% of patients completed 12 cycles. In the ongoing MAGNIFY trial as of May 1, 2017, 62.2% of patients completed at least 6 cycles of lenalidomide /rituximab, and 30.6% of patients completed 12 cycles.

rere male; and 81% were White.

atal adverse reactions occurred in 6 patients (1.5%) receiving lenalidomide /rituximab. Fatal adverse reactions occurred in 6 patients (1.5%) receiving lenalidomide /rituximab. Fatal adverse reactions each) included cardio-respiratory arrest. arrhythmic cardiomidectors. inical trials (AUGMENT and MAGNIFY), patients had a median age of 64.5 years (26 to 91); 49% cluded cardio-respiratory arrest, arrhythmia, cardiopulmonary failure, multiple organ dysfunctio sepsis, and acute kidney injury. Serious adverse reactions occurred in 26% of patients receivin

	All Advers	se Reactions ¹	Grade 3 / 4 Adve	erse Reactions ²
37%), diarrhea (32%), constip able 12: All Grade Adverse F IZL with a Difference Betwee	ation (27%), nau Reactions (≥5%)	sea (21%), and cough or Grade 3/4 Adverse	n (20%). • Reactions (≥1%) i n	Patients with FL a
iscontinuation of lenalidomide he most common adverse re				openia (48%), fatig
enalidomide /rituximab arm.	The most comi	mon adverse reactio	n (in at least 1%)	
iscontinuation of lenalidomide	a ar rituvimah di			

Body System Adverse Reaction*	+ Rituximab Arm (N=176) n (%)	Placebo (Control Arm) (N=180) n (%)	Rituximab Arm (N=176) n (%)	Placebo (Contro Arm) (N=180) n (%)
Infections and infestations				
Upper respiratory tract infection	32 (18)	23 (13)	2 (1.1)	4 (2.2)
Influenza %	17 (10)	8 (4.4)	1 (< 1)	0 (0)
Pneumonia 3,8,%	13 (7)	6 (3.3)	6 (3.4)	4 (2.2)
Sinusitis	13 (7)	5 (2.8)	0 (0)	0 (0)
Urinary tract infections	13 (7)	7 (3.9)	1 (< 1)	1 (< 1)
Bronchitis	8 (4.5)	6 (3.3)	2 (1.1)	0 (0)
Gastroenteritis \$	6 (3.4)	4 (2.2)	2 (1.1)	0 (0)
Neoplasms benign, malignar	. , ,	. , ,	. , ,	1
Tumor flares	19 (11)	1 (< 1)	1 (< 1)	0 (0)
Blood and lymphatic disorde	rs			
Neutropenia 3,\$, %	102 (58)	40 (22)	88 (50)	23 (13)
Leukopenia ^{\$,%}	36 (20)	17 (9)	12 (7)	3 (1.7)
Anemia 3,\$	28 (16)	8 (4.4)	8 (4.5)	1 (< 1)
Thrombocytopenia 3,\$,%	26 (15)	8 (4.4)	4 (2.3)	2 (1.1)
Lymphopenia	8 (4.5)	14 (8)	5 (2.8)	2 (1.1)
Febrile Neutropenia 3,8,%	5 (2.8)	1 (< 1)	5 (2.8)	1 (< 1)
Metabolism and nutrition dis	orders			
Decreased Appetite	23 (13)	11 (6)	2 (1.1)	0 (0)
Hypokalemia %	14 (8)	5 (2.8)	4 (2.3)	0 (0)
Hyperuricemia	10 (6)	8 (4.4)	1 (< 1)	1 (< 1)
Nervous system disorders				
Headache	26 (15)	17 (9)	1 (< 1)	0 (0)
Dizziness	15 (9)	9 (5)	0 (0)	0 (0)
Vascular disorders				
Hypotension %	9 (5)	1 (< 1)	1 (< 1)	0 (0)
Thromboembolic events a,\$	8 (4.5)	2 (1.1)	4 (2.3)	2 (1.1)
Respiratory, thoracic and me	diastinal disord	ers		
Cough ^b	43 (24)	35 (19)	1 (< 1)	0 (0)
Dyspnea ^{\$}	19 (11)	8 (4.4)	2 (1.1)	1 (< 1)
Oropharyngeal pain	10 (6)	8 (4.4)	0 (0)	0 (0)
Pulmonary Embolism 3,\$	4 (2.3)	1 (< 1)	4 (2.3)	1 (< 1)
Chronic obstructive pulmonary disease \$	3 (1.7)	0 (0)	2 (1.1)	0 (0)
Respiratory failure 3,\$	2 (1.1)	1 (< 1)	2 (1.1)	0 (0)
Gastrointestinal disorders				
Diarrhea ^{\$,%}	55 (31)	41 (23)	5 (2.8)	0 (0)
Constipation	46 (26)	25 (14)	0 (0)	0 (0)
Abdominal pain c,\$	32 (18)	20 (11)	2 (1.1)	0 (0)
Vomiting [§]	17 (10)	13 (7)	0 (0)	0 (0)
Dyspepsia	16 (9)	5 (2.8)	0 (0)	0 (0)
Stomatitis	9 (5)	7 (3.9)	0 (0)	0 (0)
Skin and subcutaneous tissu				
Rash \$,d	39 (22)	14 (8)	5 (2.8)	2 (1.1)
Pruritus \$,e	36 (20)	9 (5)	2 (1.1)	0 (0)
Dry skin	9 (5)	6 (3.3)	0 (0)	0 (0)
Dermatitis acneiform	8 (4.5)	0 (0)	2 (1.1)	0 (0)
Musculoskeletal and connect				
Muscle Spasms	23 (13)	9 (5)	1 (< 1)	1 (< 1)
Pain in Extremity \$	8 (4.5)	9 (5)	2 (1)	0 (0)
Renal disorders				
Acute Kidney Injury 3,8,@,%	3 (1.7)	0 (0)	2 (1.1)	0 (0)
Cardiac disorders Supraventricular tachycardia	2 (1.1)	0 (0)	2 (1.1)	0 (0)
3,\$			2 (1.1)	0 (0)
General disorders and admir			0.41.11	4
Fatigue	38 (22)	33 (18)	2 (1.1)	1 (< 1)
Pyrexia 3,\$	37 (21)	27 (15)	1 (< 1)	3 (1.7)
Asthenia \$.%	24 (14)	19 (11)	2 (1.1)	1 (< 1)
Edema Peripheral \$	23 (13)	16 (9)	0 (0)	0 (0)
Chills	14 (8)	8 (4.4)	0 (0)	0 (0)
Malaise	13 (7)	10 (6)	0 (0)	0 (0)
Influenza like illness	9 (5)	7 (3.9)	0 (0)	0 (0)
Psychiatric disorders	44.00	44 (0)	0.70	0 (0)
Insomnia	14 (8)	11 (6)	0 (0)	0 (0)
Investigations		T		1
Alanine Aminotransferase Increased	18 (10)	15 (8)	3 (1.7)	1 (< 1)
WBC count decreased	16 (9)	13 (7)	5 (2.8)	2 (1.1)
Lymphocyte count	40 (7)	10.77	0 (2.1)	0.44

Weight Decreased 12 (7) (11) (11) (12) (13) (14) Mole: Adverse reaction are coded to body system/adverse reaction using MedDRA 21. A patient with multiple occurrences of an adverse reaction is counted only once under the applicable Body System/Adverse reaction.

1 All treatment-emergent AEs in at least 5% of patients in the lenalidomide + rituximab group and at least 1% higher frequency (%) than the rituximab + placebog group (control arm).

2 All grade 3 or 4 treatment-emergent AEs in at least 1% of patients in the lenalidomide + rituximab group and at least 1% by the pregration (%), they the rituximab + placebog group (control arm). least 1% higher frequency (%) than the rituximab + placebo group (control arm).

3 All serious treatment-emergent AEs in at least 1% of patients in the lenalidomide + rituximab group and at least 1% higher frequency (%) than the rituximab + placebo group (control arm).

\$ Serious ADR reported.

12 (7)

0 (0)

2 (1.1)

6 (3.4)

0 (0)

0 (0)

2 (1.1)

0 (0)

12 (7)

10 (6)

12 (7)

Lymphocyte count

Weight Decreased

Blood bilirubin increased

- adverse reactions in which at least one resulted in a fatal outcome. adverse reactions in which at least one was considered to be life threatening (if the outcome of the reaction was death, it is included with death cases). *Adverse Reactions for combined ADR terms (based on relevant TEAE PTs [per MedDRA version 21.0]): a "Thromboembolic events" combined term includes the following PTs: pel meduha version 21:01).

a "Thromboembolic events" combined term includes the following PTs: pulmonary embolism, deep vein thrombosis, cerebrovascular accident, embolism, and thrombosis.

b "Cough" combined AE term includes the following PTs: cough and productive cough.

c "Abdominal pain" combined AE term includes the following PTs: abdominal pain and abdominal pain upper.

d "Rash" combined AE term includes the following PTs: rash maculo-papular, rash erythematous, rash macular, resh provider, each provider, and resh pages appropriate.

ash papular, rash pruritic, and rash generalized.
"Pruritus" combined AE term includes the following PTs: pruritus, pruritus generalized, rash pruritic, and pruritus allergic.

6.2 Postmarketing Experience
The following adverse drug rea

rosinal and graphene following adverse drug reactions have been identified from the worldwide post-marketing experience with lidomide. Because these reactions are reported voluntarily from a population of uncertain size, it is not always sible to reliably estimate their frequency or establish a causal relationship to drug exposure [see Warnings and cautions Section (5.8 to 5.11, and 5.13)] Endocrine disorders: Hypothyroidism, hyperthyroidism
Hepatobiliary disorders: Hepatic failure (including fatality), toxic hepatitis, cytolytic hepatitis, cholestatic hepatitis, mixed cytolytic/cholestatic hepatitis, transient abnormal liver laboratory tests
Immune system disorders: Angioedema, anaphylaxis, acute graft-versus-host disease (following allogeneic hematopoietic transplant), solid organ transplant rejection
Infections and infestations: Viral reactivation (such as hepatitis B virus and herpes zoster), progressive multifocal

Neoplasms benign, malignant and unspecified (including cysts and polyps): Tumor lysis syndrome, tumor Respiratory, thoracic and mediastinal disorders: Pneumonitis
Skin and subcutaneous tissue disorders: Stevens-Johnson Syndrome, toxic epidermal necrolysis, drug reaction

with eosinophilia and systemic symptoms (DRESS) DRUG INTERACTIONS The Drugs in Teractions
7.1 Digoxin
When digoxin was co-administered with multiple doses of lenalidomide (10 mg/day) the digoxin C and AUC were increased by 14%. Periodically monitor digoxin plasma levels, in accordance with clinical judgment and based on standard clinical practice in patients receiving this medication, during administration of lenalidomide.
7.2 Concomitant Therapies That May Increase the Risk of Thrombosis

Erythropoletic agents, or other agents that may increase the risk of thrombosis, such as estrogen containing therapies, should be used with caution after making a benefit-risk assessment in patients receiving lenalidomide (see Warnings and Precautions (5.4)].

7.3 Warfarin
Co-administration of multiple doses of lenalidomide (10 mg/day) with a single dose of warfarin (25 mg) had no effect on the pharmacokinetics of lenalidomide or R- and S-warfarin. Expected changes in laboratory assessments of PT and INR were observed after warfarin administration, but these changes were not affected by concomitant lenalidomide administration. It is not known whether there is an interaction between dexamethasone and warfarin.
Close monitoring of PT and INR is recommended in patients with MM taking concomitant warfarin. USE IN SPECIFIC POPULATIONS

8. I Pregnancy
Pregnancy Exposure Registry
There is a pregnancy exposure registry that monitors pregnancy outcomes in females exposed to lenalidomide
during pregnancy as well as female partners of male patients who are exposed to lenalidomide. This registry is
also used to understand the root cause for the pregnancy. Report any suspected fetal exposure to lenalidomide
to the FDA via the MedWatch program at 1-800-FDA-1088 and also to the REMS Call Center at 1-888-423-5436.

Place Summany Risk Summary

Based on the mediumation program at Pooto-Tax-root and asso to the Tubo and indings from animal studies [see Data], lenalidomide can cause embryo-fetal harm when administered to a pregnant female and is contraindicated during pregnancy [see Boxed Warning, Contraindications (4.1), and Use in Specific Populations (5.1)].

Lenalidomide is a thalidomide analogue. Thalidomide is a human teratogen, inducing a high frequency of severe and life-threatening birth defects such as amelia (absence of limbs), phocomelia (short limbs), hypoplasticity of the bones, absence of bones, external ear abnormalities (including anotia, micropinna, small or absent external auditory canals), facial palsy, eye abnormalities (anophthalmos, microphthalmos,) and conqueital heart defects. Alimentary tract, urinary tract, and genital malformations have also been documented and mortality at or shortly after birth has been reported in about 40% of infants.

Lenalidomide caused thalidomide-type limb defects in monkey offspring. Lenalidomide crossed the placenta after administration to pregnant rabbits and pregnant rats [see Data]. If this drug is used during pregnancy, or if the patient becomes pregnant while taking this drug is used of the potential risk to a fetus.

patient becomes pregnant while taking this drug, the patient should be apprised of the potential risk to a fetus. If pregnancy does occur during treatment, immediately discontinue the drug. Under these conditions, refer patient to an obstetrican/dynecologist experienced in reproductive toxicity for further evaluation and consisting. Report any suspected fetal exposure to lenalidomide to the FDA via the MedWatch program at 1-800-FDA-1088 and also to the REMS Call Center at 1-888-423-5436. The estimated background risk of major birth defects and miscarriage for the indicated popu pregnancies have a background risk of birth defect, loss, or other adverse outcomes. The estimated background risk in the U.S. general population of major birth defects is 2% to 4% and of miscarriage is 15% to 20% of

<u>Data</u> Animal data Animal data

In an embryo-fetal developmental toxicity study in monkeys, teratogenicity, including thalidomide-like limb defects, occurred in offspring when pregnant monkeys received oral lenalidomide during organogenesis. Exposure (AUC) in monkeys at the lowest dose was 0.17 times the human exposure at the maximum recommended human dose (MRHD) of 25 mg. Similar studies in pregnant rabbits and rats at 20 times and 200 times the MRHD respectively, produced embryo lethality in rabbits and no adverse reproductive effects in rats.

In a pre- and post-natal development study in rats, animals received lenalidomide from organogenesis through lactation. The study revealed a few adverse effects on the offspring of female rats treated with lenalidomide at doses up to 500 mg/kg (approximately 200 times the human dose of 25 mg based on body surface area). The male offspring swibited slightly delayed sexual maturation and the female offspring had slightly lower body weight gains during gestation when bred to male offspring. As with thalidomide, the rat model adequately address the full spectrum of potential human embryo-fetal developmental effects for lenalidomide. Following daily oral administration of lenalidomide from Gestation Day 7 through Gestation Day 20 in pregnant rabbits, fetal plasma lenalidomide concentrations were approximately 20 to 40% of the maternal C_{mx}. Following a single oral dose to pregnant rats, lenalidomide was detected in fetal plasma and tissues; concentrations of radioactivity in fetal tissues were generally lower than those in maternal tissues. These data indicated that lenalidomide crossed the placenta.

lenalidomide crossed the placenta. 8.2 Lactation HISK SUMILITIATY
There is no information regarding the presence of lenalidomide in human milk, the effects of lenalidomide on the breastfed child, or the effects of lenalidomide on milk production. Because many drugs are excreted in human milk and because of the potential for adverse reactions in breastfed children from lenalidomide, advise women not to breastfeed during treatment with lenalidomide.

8.3 Females and Males of Reproductive Potential
Pregnancy Testing
Lenalidomide can cause fetal harm when administered during pregnancy [see Use in Specific Populations (8.1)].
Verify the pregnancy status of females of reproductive potential prior to initiating lenalidomide therapy and during therapy. Advise females of reproductive potential that they must avoid pregnancy 4 weeks before therapy, while taking lenalidomide, during dose interruptions and for at least 4 weeks after completing therapy.
Females of reproductive potential must have 2 negative pregnancy tests before initiating lenalidomide. The first test should be performed within 10 to 14 days, and the second test within 24 hours prior to prescribing lenalidomide.
Once treatment has started and during dose interruptions, pregnancy testing for females of reproductive potential should occur weekly during the first 4 weeks of use, then pregnancy testing should be repeated every 4 weeks in females with regular menstrual cycles. If menstrual cycles are irregular, the pregnancy testing should occur every 2 weeks. Pregnancy testing and counseling should be performed if a patient misses her period or if there is any abnormality in her menstrual bleeding. Lenalidomide treatment must be discontinued during this evaluation.

Contraception 8.3 Females and Males of Reproductive Potential

Females
Females of reproductive potential must commit either to abstain continuously from heterosexual sexual intercourse
or to use 2 methods of reliable birth control simultaneously: one highly effective form of contraception – tubal
ligation, IUD, hormonal (birth control pills, injections, hormonal patches, vaginal rings, or implants), or partner's
vasectomy, and 1 additional effective contraceptive method – male latex or synthetic condo, diaphragm, or
cervical cap. Contraception must begin 4 weeks prior to initiating treatment with lenalidomide, during therapy,
during dose interruptions, and continuing for 4 weeks following discontinuation of lenalidomide therapy,
during dose interruptions, and continuing for 4 weeks following discontinuation of lenalidomide therapy,
employed to the contraception is indicated even where there has been a history of infertility, unless due to hysterectomy. Females
of reproductive potential should be referred to a qualified provider of contraceptive methods, if needed.

Males

or synthetic condom during any sexual contact with females of reproductive potential while taking lenalidomide and for up to 4 weeks after discontinuing lenalidomide, even if they have undergone a successful vasectomy. Male patients taking lenalidomide must not donate sperm and for up to 4 weeks after discontinuing lenalidomide. 8.4 Pediatric Use ctiveness have not been established in pediatric patients. 8.5 Geriatric Use

ion: Overall, of the 1613 patients in the NDMM study who received study treatment, 94% (1521 MM.In Combination: Overall, of the 1613 patients in the NDMM study who received study treatment, 94%, (1521 /1613) were 65 years of age or older, while 35% (561/1613) were over 75 years of age. The percentage of patients over age 75 was similar between study arms (Rd Continuous: 33%; Rd18: 34%; MPT: 33%). Overall, across all /1613) were 65 years of age or older, while 35% (561/1613) were over 75 years of age. The percentage of patients over age 75 was similar between study arms (Rd Continuous: 33%; Rd18: 34%; MPT: 33%). Overall, across all treatment arms, the frequency in most of the adverse reaction categories (eg. all adverse reactions, grade 3/4 adverse reactions, serious adverse reactions) was higher in older (> 75 years of age) than in younger (< 75 years of age) subjects. Grade 3 or 4 adverse reactions in the General Disorders and Administration Site Conditions body system were consistently reported at a higher frequency (with a difference of at least 5%) in older subjects than in younger subjects across all treatment arms. Grade 3 or 4 adverse reactions in the Infections and Infestations, Cardiac Disorders (including cardiac failure and congestive cardiac failure), Skin and Subcutaneous Tissue Disorders, and Renal and Urinary Disorders (including renal failure) body systems were also reported slightly, but consistently, more frequently (< 6% difference), in older subjects than in younger subjects across all treatment arms. For other body systems (e.g., Blood and Lymphatic System Disorders, Infections and Infestations, Cardiac Disorders, Vascular Disorders), there was a less consistent frend for increased frequency of grade 3/4 adverse reactions in older vs younger subjects across all treatment arms. Serious adverse reactions were generally reported at a higher frequency in the older subjects than in he younger subjects across all treatment arms. Serious adverse reactions were generally reported at a higher frequency in the older subjects than in the younger subjects across all treatment arms. Serious adverse reactions were generally reported at a higher frequency in the older subjects than in the younger subjects across all treatment arms. Serious adverse reactions were generally reported at a higher frequency of age. Grade 3 or 4 adverse reactions were higher in the lenalidomide arm (more than 5% higher) in the patients 65 to safety differently from younger patients.

MM After At Least One Prior Therapy: Of the 703 MM patients who received study treatment in Studies 1 and 2,

45% were age 65 or over while 12% of patients were age 75 and over. The percentage of patients age 65 or over was not significantly different between the lenalidomide/dexamethasone and placebo/dexamethasone groups. Of the 353 patients who received lenalidomide/dexamethasone, 46% were age 65 and over. In both studies, patients - 65 years of age were more likely than patients < 65 years of age were more likely than patients < 65 years of age to experience DVT, pulmonary embolism, atrial fibrillation, and renal failure following use of lenalidomide. No differences in efficacy were observed between patients over 55 years of age and vourgen patients. patients over 65 years of age and younger patients. Of the 148 patients with del 5q MDS enrolled in the major study, 38% were age 65 and over, while 33% were age 75 and over. Although the overall frequency of adverse reactions (100%) was the same in patients over 65 years of age as in younger patients, the frequency of serious adverse reactions was higher in patients over 65 years of age than in younger patients (54% vs. 33%). A greater proportion of patients over 65 years of age discontinued from the clinical studies because of adverse reactions than the proportion of younger patients (27% vs.16%). No ifferences in efficacy were observed between patients over 65 years of age and younger patients. If the 134 patients with MCL enrolled in the MCL trial, 63% were age 65 and over, while 22% of patients were age 75 and over. The overall frequency of adverse reactions was similar in patients over 65 years of age and in younger natients (98% vs. 100%). The overall incidence of grade 3 and 4 adverse reactions was also similar in these 2 atient groups (79% vs. 78%, respectively). The frequency of serious adverse reactions was higher in patients ver 65 years of age than in younger patients (55% vs. 41%). No differences in efficacy were observed between

over 65 years of age than in younger patients (55% vs. 41%). No differences in efficacy were observed between patients over 65 years of age and younger patients.
Lor MZ Lin Combination: Overall, 48% (282/590) of patients were 65 years of age or older, while 14% (82/590) of patients were over 75 years of age. The overall frequency of adverse reactions was similar in patients 65 years of age or older and younger patients for both studies pooled (98%). Grade 3 or 4 adverse reactions were higher in the lenalidomide arm (more than 5% higher) in the patients 65 years of age or older versus younger patients (71% versus 59%). The frequency of Grade 3 or 4 adverse reactions were higher in the lenalidomide arm (more than 5% higher) in the patients 65 years of age or older versus younger patients in the Blood and Lymphatic System Disorders (47% versus 40%) and Infections and Infestations (16% versus 11%). Serious adverse reactions were higher in the lenalidomide arm (more than 5% higher) in the patients 65 years of age or older versus younger patients (37% versus 18%). The frequency of serious adverse reactions were higher in the lenalidomide arm (more than 5% higher) in the patients 65 years of age or older versus younger patients in Infections and Infestations (15% versus 61%). Since elderly patients are more likely to have decreased renal function, care should be taken in dose selection. Monitor renal function. 8.6 Renal Impairment

Adjust the starting dose of lenalidomide based on the creatinine clearance value and for patients on dialysis [see Dosage and Administration (2.6)]. OVERDOSAGE There is no specific experience in the management of lenalidomide overdose in patients with MM, MDS, MCL, L, or MZL. In dose-ranging studies in healthy subjects, some were exposed to up to 200 mg (administered 00 mg BID) and in single-dose studies, some subjects were exposed to up to 400 mg, Prufitus, urticaria, rash, and elevated liver transaminases were the primary reported AEs. In clinical trials, the dose-limiting toxicity was neutropenia and thrombocytopenia. 11 DESCRIPTION

Lorianiuming, a thalidomide analogue, is an immunomodulatory agent with antiangiogenic and antineoplastic roperties. The chemical name is 3-(4-amino-1-oxo 1,3-dihydro-2*H*-isoindol-2-yl) piperidine-2,6-dione and it has ne following chemical structure:

3-(4-amino-1-oxo 1,3-dihydro-2*H*-isoindol-2-yl) piperidine-2,6-dione

The empirical formula for lenalidomide is C₁₃H₁₃N₁O₃, and the gram molecular weight is 259.27.

Lenalidomide is an off-white to pale-yellow powder. It is slightly soluble in dimethyl formamide. Solubility was significantly lower in less acidic buffers, ranging from about 0.4 to 0.5 mg/ml. Lenalidomide has an asymmetric carbon atom and can exist as the optically active forms S(-) and R(+), and is produced as a racemic mixture with a net optical rotation of zero. Lenalidomide is available in 2.5 mg, 5 mg, 10 mg, 15 mg, 20 mg and 25 mg capsules for oral administration. Each capsule contains lenalidomide as the active ingredient and the following inactive ingredients: anhydrous lactose, croscarmellose sodium, magnesium stearate and microcrystalline cellulose. The capsule shell contains gelatin, itanium dioxide, in addition 2.5 mg, 15 mg, and 20 mg contains iron oxide red, 10 mg contains FD&C Yellow 6, 20 mg contains iron oxide yellow and iron oxide black. The capsules are imprinted with ink containing black iron xide, potassium hydroxide, propylene glycol, shellac, and strong ammonia solution 12 CLINICAL PHARMACOLOGY

12 CLINICAL PHARMACOLOGY
12.1 Mechanism of Action
Lenalidomide is an analogue of thalidomide with immunomodulatory, antiangiogenic, and antineoplastic properties. Cellular activities of lenalidomide are mediated through its target cereblon, a component of a cullin ring E3 ubiquitin ligase enzyme complex. In vitro, in the presence of drug, substrate proteins (including Aiolos, Ikaros, and CK1a) are targeted for ubiquitination and subsequent degradation leading to direct cytotoxic and immunomodulatory effects. Lenalidomide inhibits proliferation and induces apoptosis of certain hematopoietic tumor cells including MM, mantle cell lymphoma, and del (5q) myelodysplastic syndromes, follicular lymphoma and marginal zone lymphoma in vitro. Lenalidomide causes a delay in tumor growth in some in vivo nonclinical hematopoietic tumor models including MM. Immunomodulatory properties of lenalidomide include increased number and activation of T cells and natural killer (INI): cells leading to direct and enhanced antibody-dependent cell-mediated cytotoxicity (ADCC) via increased secretion of interleukin-2 and interferon-gamma, increased ell-mediated cytotoxicity (ADCC) via increased secretion of interleukin-2 and interferon-gamma, increased numbers of NKT cells, and inhibition of pro-inflammatory cytokines (e.g., TNF-a and IL-6) by monocytes. In MM cells, the combination of lenalidomide and dexamethasone synergizes the inhibition of cell proliferation and the induction of apoptosis. The combination of lenalidomide and rituximab increases ADCC and direct tumor apoptosis in follicular lymphoma cells and increases ADCC in marginal zone lymphoma cells compared to rituximab alone in vitro.

12.2 Pharmacodynamics
Cardiac Electrophysiology
The effect of lenalidomide on the QTc interval was evaluated in 60 healthy male subjects in a thorough QT study.
At a dose two times the maximum recommended dose, lenalidomide did not prolong the QTc interval. The largest upper bound of the two-sided 90% CI for the mean differences between lenalidomide and placebo was below 10 ms. 12.3 Pharmacokinetics

12.3 Pharmacokinetics
Absorption
Following single and multiple doses of lenalidomide in patients with MM or MDS, the maximum plasma concentrations occurred between 0.5 and 6 hours post-dose. The single and multiple dose pharmacokinetic disposition of lenalidomide is linear with AUC and C values increasing proportionally with dose. Multiple doses of lenalidomide at the recommended dosage does not result in drug accumulation.

Administration of a single 25 mg dose of lenalidomide with a high-fat meal in healthy subjects reduces the extent of absorption, with an approximate 20% decrease in AUC and 50% decrease in C. In the trials where the efficacy and safety were established for lenalidomide, the drug was administered without regard to food intake. Lenalidomide can be administered with or without food.

The oral absorption rate of lenalidomide in patients with MCL is similar to that observed in patients with MM or MDS.

Distribution In vitro [14°C]-lenalidomide binding to plasma proteins is approximately 30%. Lenalidomide is present in semen at 2 hours (1379 ng/ejaculate) and 24 hours (35 ng/ejaculate) after the administration of lenalidomide 25 mg daily. the mean half-life of lenalidomide is 3 hours in healthy subjects and 3 to 5 hours in patients with MM, MDS or

Lenalidomide undergoes limited metabolism. Unchanged lenalidomide is the predominant circulating componen in humans. Two identified metabolites are 5-hydroxy-lenalidomide and N-acetyl-lenalidomide; each constitutes less than 5% of parent levels in circulation.

subjects, approximately 90% and 4% of the radioactive dose was eliminated within ten days in urine and feces, respectively. Approximately 82% of the radioactive dose was excreted as lenalidomide in the urine within 24 hours. Hydroxy-lenalidomide and N-acetyl-lenalidomide represented 4.6% and 1.8% of the excreted dose, respectively. The renal clearance of lenalidomide exceeds the glomerular filtration rate.
Specific Populations
Renal Impairment: Eight subjects with mild renal impairment (creatinine clearance (CLcr) 50 to 79 mL/
min calculated using Cockcroft-Gault), 9 subjects with moderate renal impairment (CLcr 30 to 49 mL/min), 4
subjects with severe renal impairment (CLcr < 30 mL/min), and 6 patients with end stage renal disease (ESRD)
requiring dialysis were administered a single 25 mg dose of lenalidomide. Three healthy subjects of similar age
with normal renal function (CLcr > 80 mL/min) were also administered a single 25 mg dose of lenalidomide. As
CLcr decreased, hall-life increased and drug clearance decreased linearly. Patients with moderate and severe
impairment had a 3-fold increase in half-life and a 66% to 75% decrease in drug clearance compared to healthy
subjects. Patients on hemodialysis (n=6) had an approximate 4.5-fold increase in half-life and an 80% decrease
in drug clearance compared to healthy subjects. Approximately 30% of the drug in body was removed during a
4-hour hemodialysis session.

Adjust the starting dose of lenalidomide in patients with renal impairment based on the CLcr value [see Dosage
and Administration (2.6)]. espectively. The renal clearance of lenalidomide exceeds the glomerular filtration rate

and Administration (2.6)].

Hepatic Impairment: Mild hepatic impairment (defined as total bilirubin > 1 to 1.5 times upper limit normal (ULN) or any aspartate transaminase greater than ULN) did not influence the disposition of lenalidomide. No pharmacokinetic data is available for patients with moderate to severe hepatic impairment.

Other Intrinsic Factors: Age (39 to 85 years), body weight (33 to 135 kg), sex, race, and type of hematological malignancies (MM, MDS or MCL) did not have a clinically relevant effect on lenalidomide clearance in adult patients.

Drug Interactions
Co-administration Co-administration of a single dose or multiple doses of dexamethasone (40 mg) had no clinically relevant effect on the multiple dose pharmacokinetics of lenalidomide (25 mg). Co-administration of lenalidomide (25 mg) after multiple doses of a P-gp inhibitor such as quinidine (600 mg twice daily) did not significantly increase the C_{me} or AUC of lenalidomide. Co-administration of the P-gp inhibitor and substrate temsirolimus (25 mg), with lenalidomide (25 mg) did not significantly alter the pharmacokinetics of lenalidomide, temsirolimus, or strolimus (metabolite of temsirolimus). In vitro studies demonstrated that lenalidomide is a substrate of P-glycoprotein (P-gp). Lenalidomide is not a substrate of human breast cancer resistance protein (BCRP), multidrug resistance protein (MRP) transporters MRP1, MRP2, or MRP3, organic anion transporters (OAT) OAT1 and OAT3, organic anion transporting polypeptide 181 (OATP181), organic cation transporters novel (OCT) OCT1 and OCT2, multidrug and toxin extrusion protein (MATE) MATE1, and organic cation transporters novel (OCTN) OCTN1 and OCTN2. Lenalidomide is not an inhibitor of P-gp, bile salt export pump (BSEP), BCRP, MRP2, OAT1, OAT3, OATP181, OATP183, or OCT2. Lenalidomide does not inhibit or induce CYP450 iscenzymes. Also, lenalidomide does not inhibit bilirubin glucuronidation formation in human liver microsomes with UGT1A1 genotyped as UGT1A1*1/*1, UGT1A1*1/*28, and UGT1A1*28/*28. nistration of a single dose or multiple doses of dexamethasone (40 mg) had no clinically relevant effect

 NONCLINICAL TOXICOLOGY
 13. Carcinogenesis, Mutagenesis, Impairment of Fertility
 Carcinogenicity studies with lenalidomide have not been conducted. Lenalidomide was not mutagenic in the bacterial reverse mutation assay (Ames test) and did not induce chromosome aberrations in cultured human peripheral blood lymphocytes, or mutations at the thymidine kinase (tk) locus of mouse lymphoma L5178Y cells. Lenalidomide did not increase morphological transformation in ian Hamster Embryo assay or induce micronuclei in the polychromatic erythrocytes of the bone marrow o imately 200 times the human dose of 25 mg, based on body surface area) produced no parental toxicit and no adverse effects on fertility.

14.1 Multiple Myeloma
Randomized, Open-Label Clinical Trial in Patients with Newly Diagnosed MM:
A randomized multicenter, open-label, 3-arm trial of 1,623 patients, was conducted to compare the efficacy and safety of lenalidomide and low-dose dexamethasone (Rd) given for 2 different durations of time to that of melphalan, prednisone and thaildomide (MPT) in newly diagnosed MM patients who were not a candidate for stem cell transplant. In the first arm of the study, Rd was given continuously until progressive disease [Arm Rd Continuous]. In the second arm, Rd was given for up to eighteen 28-day cycles [72 weeks, Arm Rd18]). In the third arm, melphalan, prednisone and thaildomide (MPT) was given for a maximum of twelve 42-day cycles (72 weeks). For the purposes of this study, a patient who was < 65 years of age was not a candidate for SCT if the patient refused to undergo SCT therapy or the patient did not have access to SCT due to cost or other reasons. Patients were stratified at randomization by age (≤75 versus >75 years), stage (ISS Stages I and II versus Stage III), and country.

Patients were stratified at randomization by age (≤75 versus >75 years), stage (ISS Stages I anu II versus Stage III), and country.

Patients in the Rd Continuous and Rd18 arms received lenalidomide 25 mg once daily on Days 1 to 21 of 28-day cycles. Dexamethasone was dosed 40 mg once daily on Days 1, 8, 15, and 22 of each 28-day cycle. For patients over > 75 years old, the starting dose of dexamethasone was 20 mg orally once daily on days 1, 8, 15, and 22 of repeated 28-day cycles. Initial dose and regimens for Rd Continuous and Rd18 were adjusted according to age and renal function. All patients received prophylactic anticoagulation with the most commonly used being aspirin. The demographics and disease-related baseline characteristics of the patients were balanced among the 3 arms. In general, study subjects had advanced-stage disease. Of the total study population, the median age was 73 in the 3 arms with 35% of total patients > 75 years of age; 59% had ISS Stage II; 9% had severe renal impairment (creatinine clearance (CLcr) < 30 mL/min); 23% had moderate renal impairment (CLcr > 30 to 50 mL/min). For ECOG Performance Status, 29% were Grarle 1. 21% Grade 2. 0.4% ≥ Grade 3. 30 to 50 mL/min; 44% had mild renal impairment (CLcr > 50 to 80 mL/min). For ECOG Performance Status, 29% were Grade 0, 49% Grade 1, 21% Grade 2, 0.4% E Grade 3. The primary efficacy endpoint, progression-free survival (PFS), was defined as the time from randomization to the first documentation of disease progression as determined by Independent Response Adjudication Committee (IRAC), based on International Myeloma Working Group [IMWG] criteria or death due to any cause, whichever occurred first during the study until the end of the PFS follow-up phase. For the efficacy analysis of all endpoints, the primary comparison was between Rd Continuous and MPT arms. The efficacy results are summarized in the table below. PFS was significantly longer with Rd Continuous than MPT. HR 0.72 (95% CL: 0.61 to 0.85 p < 0.0001). A lower percentage of subjects in the Rd Continuous arm compared with the MPT arm had PFS events (52% versus 61%, respectively). The improvement in median PFS time in the Rd Continuous arm compared with MPT (75.1% versus 62.3%); with a complete response in 15.1% of Rd Continuous arm patients versus 9.3% in the MPT arm. The median time to first response was 1.8 months in the Rd Continuous arm versus 2.8 months in

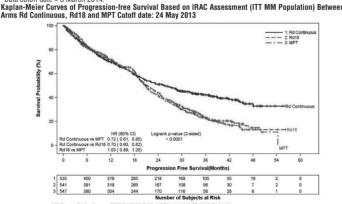
or the interim OS analysis with 03 March 2014 data cutoff, the median follow-up time for all surviving pa s 45.5 months, with 697 death events, representing 78% of prespecified events required for the planned final OS

nalysis (697/896 of the final OS events). Th $I = 0.62, 0.90$).	e observed OS HR was	s 0.75 for Rd Continuo	ous versus MPT (95%			
able 13: Overview of Efficacy Results – Stu	dy MM-020 (Intent-to-	treat Population)				
	Rd Continuous (N= 535)	Rd18 (N = 541)	MPT (N = 547)			
PFS - IRAC (months) ^g						
Number of PFS events	278 (52)	348 (64.3)	334 (61.1)			
Median ^a PFS time, months (95% CI) ^b	25.5 (20.7, 29.4)	20.7 (19.4, 22)	21.2 (19.3, 23.2)			
HR [95% CI] ^c ; p-value ^d						
Rd Continuous vs MPT	0.72 (0.61, 0.85); <0.0001					
Rd Continuous vs Rd18	0.70 (0.60, 0.82)					
Rd18 vs MPT	1.03 (0.89, 1.20)					
Overall Survival (months) ^h						
Number of Death events	208 (38.9)	228 (42.1)	261 (47.7)			
Median ^a OS time, months (95% CI) ^b	58.9 (56, NE) ^f	56.7 (50.1, NE)	48.5 (44.2, 52)			
HR [95% CI] ^c						
Rd Continuous vs MPT		0.75 (0.62, 0.90)				
Rd Continuous vs Rd18		0.91 (0.75, 1.09)				
Rd18 vs MPT		0.83 (0.69, 0.99)				
Response Rate ^e – IRAC, n (%) ^g						
CR	81 (15.1)	77 (14.2)	51 (9.3)			
/GPR	152 (28.4)	154 (28.5)	103 (18.8)			
PR	169 (31.6)	166 (30.7)	187 (34.2)			
Overall response: CR, VGPR, or PR	402 (75.1)	397 (73.4)	341 (62.3)			
R = complete response; d = low-dose dex						

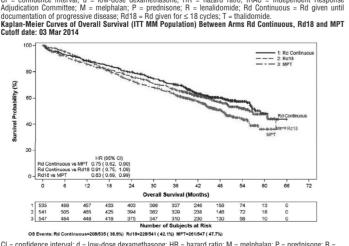
Adjudication Committee; M = melphalan; NE = not estimable; OS = overall survival; P = prednisone; PFS = progression-free survival; PR = partial response; R = lenalidomide; Rd Continuous = Rd given until documentation of progressive disease; Rd18 = Rd given for ≤ 18 cycles; T = thalidomide; VGPR = very good partial response; The median is based on the Kaplan-Meier estimate. ^bThe 95% Confidence Interval (CI) about the median. ^c Based on Cox proportional hazards model comparing the hazard functions associated with the indicated

The p-value is based on the unstratified log-rank test of Kaplan-Meier curve differences between the indicated treatment arms.

Best assessment of response during the treatment phase of the study. including patients with no response assessment data or whose only assessment was "response not evaluable." Data cutoff date = 24 May 2013.
Data cutoff date = 3 March 2014.



CI = confidence interval; d = low-dose dexamethasone; HR = hazard ratio; IRAC = Independent Response



 $CI = confidence \ interval; \ d = low-dose \ dexamethasone; \ HR = hazard \ ratio; \ M = melphalan; \ P = prednisone; \ R = lenalidomide; \ Rd \ Continuous = Rd \ given \ until \ documentation \ of \ progressive \ disease; \ Rd18 = Rd \ given \ for \ \leq 18$ Randomized, Placebo-Controlled Clinical Trials - Maintenance Following Auto-HSCT: Two multicenter, randomized, double-blind, parallel group, placebo-controlled studie Two multicenter, randomized, double-blind, parallel group, placebo-controlled studies were conducted to evaluate the efficacy and safety of lenalidomide maintenance therapy in the treatment of MM patients after auto-HSCT. In Maintenance Study 1, patients between 18 and 70 years of age who had undergone induction therapy followed by auto-HSCT were eligible. Induction therapy must have occurred within 12 months. Within 90-100 days after auto-HSCT, patients with at least a stable disease response were randomized 1:1 to receive either lenalidomide or placebo maintenance. In Maintenance Study 2, patients aged < 65 years at diagnosis who had undergone induction therapy followed by auto-HSCT and had achieved at least a stable disease response at the time of hematologic recovery were eligible. Within 6 months after auto-HSCT, patients were randomized 1:1 to receive either lenalidomide or placebo maintenance. Patients eligible for both trials had to have CLcr ≥30 mL/minute. In both studies, the lenalidomide maintenance dose was 10 mg once daily on days 1-28 of repeated 28-day cycles, could be increased to 15 mg once daily after 3 months in the absence of dose-limiting toxicity, and treatment was to be continued until disease progression or patient withdrawal for another reason. The dose was reduced, or treatment was temporarily interrupted or stopped, as needed to manage toxicity. A dose increase to 15 mg once daily occurred in 135 patients (65%) in Maintenance Study 1, and in 185 patients (66%) in Maintenance Study 2. The demographics and disease-related baseline characteristics of the patients were similar across the two studies and reflected a typical MM population after auto- HSCT (see Table 14).

'able 14: Baseline Demographic and Disease-Related Characteristics – MM Maintenance Studies 1 and 2							
	Maintenan	ce Study 1	Maintenance Study 2				
	lenalidomide N = 231	Placebo N = 229	lenalidomide N = 307	Placebo N = 307			
Age (years)							
Median	58	58	57.5	58.1			
(Min, max)	(29, 71)	(39, 71)	(22.7, 68.3)	(32.3, 67)			
Sex, n (%)							
Male	121 (52)	129 (56)	169 (55)	181 (59)			
Female	110 (48)	100 (44)	138 (45)	126 (41)			
ISS Stage at Diagnosis, n (%)							

Stage I or II	120 (52)	131 (57)	232 (76)	250 (81)
Stage I	62 (27)	85 (37)	128 (42)	143 (47)
Stage II	58 (25)	46 (20)	104 (34)	107 (35)
Stage III	39 (17)	35 (15)	66 (21)	46 (15)
Missing	72 (31)	63 (28)	9 (3)	11 (4)
CrCI at Post-auto-HSCT, n (%)				
< 50 mL/min	23 (10)	16 (7)	10 (3)	9 (3)
≥50 mL/min	201 (87)	204 (89)	178 (58)	200 (65)
Missing	7 (3)	9 (4)	119 (39)	98 (32)

The major efficacy endpoint of both studies was PFS defined from randomization to the date of progression or death, whichever occurred first; the individual studies were not powered for an overall survival endpoint. Both studies were unblinded upon the recommendations of their respective data monitoring committees and after surpassing the respective thresholds for preplanned interim analyses of PFS. After unblinding, patients continued to be followed as before. Patients in the placebo arm of Maintenance Study 1 were allowed to cross over to receive lenalidomide before disease progression (76 patients [33%] crossed over to lenalidomide); patients in Maintenance Study 2 were not recommended to cross over. The efficacy results are summarized in the following table. In both studies, the primary analysis of PFS at unblinding was significantly longer with lenalidomide compared to placebo: Maintenance Study 1 HR 0.38 (95% CI: 0.27 to 0.54 p <0.001) and Maintenance Study 2 HR 0.50 (95% CI: 0.39 to 0.64 p <0.001). For both studies, PFS was updated with a cutoff date of 1 March 2015 as shown in the table and the following Kaplan Meier graphs. With longer follow-up (median 72.4 and 86.0 months, respectively), the updated PFS analyses for both studies continue to show a PFS advantage for lenalidomide compared to placebo: Maintenance Study 1 HR 0.38 (95% CI: 0.44-0.64) with median PFS of 68.6 months and Maintenance Study 2 HR 0.53 (95% CI: 0.44-0.64) with median PFS of 63.0 months.

Descriptive analysis of OS data with a cutoff date of 1 February 2016 are provided in Table 15. Median follow-up time was 81.6 and 96.7 months for Maintenance Study 1 and Maintenance Study 2, respectively. Median OS was 111.0 and 84.2 months for lenalidomide and placebo, respectively, for Maintenance Study 1, and 105.9 and 88.1 months, for lenalidomide and placebo, respectively, for Maintenance Study 1, and 105.9 and 88.1 months, for lenalidomide and placebo, respectively, for Maintenance Study 1, and 105.9 and 88.1 months, for lenalidomide and The major efficacy endpoint of both studies was PFS defined from randomization to the date of progression of

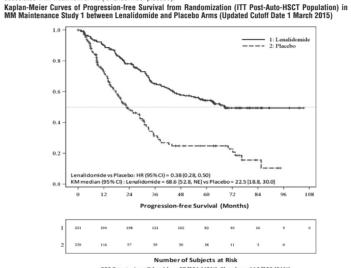
Table 15: Progression-free Survival and Overall Survival from Randomization in MM Maintenance Studies 1

	Maintenance Study 1		Maintenance Study 2	
	Lenalidomide N = 231	Placebo N = 229	Lenalidomide N = 307	Placebo N = 307
PFS at Unblinding				
PFS Events n (%)	46 (20)	98 (43)	103 (34)	160 (52)
Median in months [95% CI]	33.9 [NE, NE]	19 [16.2, 25.6]	41.2 [38.3, NE]	23.0 [21.2, 28.0]
Hazard Ratio [95% CI]	0.38 [0.27, 0.54]			
Log-rank Test p-value	<0.001 <0.001			
PFS at Updated Analysis 1 March 2015 (Stud	ies 1 and 2)			
PFS Events n (%)	97 (42)	116 (51)	191 (62)	248 (81)
Median in months [95% CI]	68.6 [52.8, NE]	22.5 [18.8, 30.0]	46.3 [40.1, 56.6]	23.8 [21.0, 27.3]
Hazard Ratio [95% CI]	0.38 [0.28, 0.50]			
OS at Updated Analysis 1 Feb 2016 (Studies	1 and 2)			
OS Events n (%)	82 (35)	114 (50)	143 (47)	160 (52)
Median in months [95% CI]	111 [101.8, NE]	84.2 [71.0, 102.7]	105.9 [88.8, NE]	88.1 [80.7, 108.4]
Hazard Ratio [95% CI]	0.59 [0.44, 0.78]		0.90 [0.72, 1.13]	

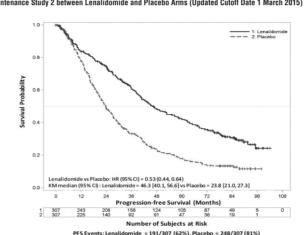
ITT = Intent to treat; NE = not estimable; PFS = progression-free survival.

FFS at time of unblinding for Maintenance Study 2 was based on assessment by an Independent Review Committee. All other PFS analyses were based on assessment by investigator.

Note: The median is based on Kaplan-Meier estimate, with 95% Cls about the median overall PFS time. Hazard ratio is based on a proportional hazards model stratified by stratification factors comparing the hazard functions associated with treatment arms (lenalidomide: placebo).



etic stem cell transplantation; CI = confidence interval; HR = hazard ratio; IT = intent to treat; KM = Kaplan-Meier; PFS = progression-free survival; vs = versus. Kaplan-Meier Curves of Progression-free Survival from Randomization (ITT Post-Auto-HSCT Population) in MM Maintenance Study 2 between Lenalidomide and Placebo Arms (Updated Cutoff Date 1 March 2015)



 $Auto\text{-HSCT} = autologous\ hematopoietic\ stem\ cell\ transplantation;\ Cl = confidence\ interval;\ HR = hazard\ ratio;\ ITT = intent\ to\ treat;\ KM = Kaplan\text{-}Meier;\ NE = not\ estimable;\ PFS = progression\text{-}free\ survival;\ vs = versus.}$ Randomized. Open-Label Clinical Studies in Patients with MM After At Least One Prior Therapy Two randomized studies (Studies 1 and 2) were conducted to evaluate the efficacy and safety of lenalidomide. These multicenter, multinational, double-blind, placebo-controlled studies compared lenalidomide plus oral pulse high-dose dexamethasone therapy to dexamethasone therapy alone in patients with MM who had received at least one prior treatment. These studies enrolled patients with absolute neutrophil counts $(ANC) \ge 1000/mm^2$, platelet counts $\ge 75,000/mm^2$, serum creatinine $\le 2.5 \, \text{mg/dL}$, serum SGOT/AST or $SGPT/ALT \le 3 \times \text{upper limit of normal}$ (ULN), and serum direct bilirubin $\le 2 \, \text{mg/dL}$. (ULN), and serum direct bilirubin ≤ 2 mg/dL. In both studies, patients in the lenalidomide/examethasone group took 25 mg of lenalidomide orally once daily on Days 1 to 21 and a matching placebo capsule once daily on Days 22 to 28 of each 28-day cycle. Patients in the placebo/dexamethasone group took 1 placebo capsule on Days 1 to 28 of each 28-day cycle. Patients in both treatment groups took 40 mg of dexamethasone orally once daily on Days 1 to 4, 9 to 12, and 17 to 20 of each 28-day cycle for the first 4 cycles of therapy.

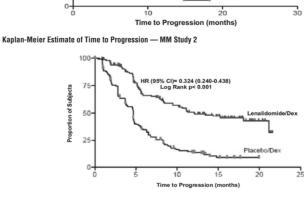
The dose of dexamethasone was reduced to 40 mg orally once daily on Days 1 to 4 of each 28-day cycle after the first 4 cycles of therapy. In both studies, treatment was to continue until disease progression.

In both studies, dose adjustments were allowed based on clinical and laboratory findings. Sequential dose reductions to 15 mg daily, 10 mg daily and 5 mg daily were allowed for toxicity [see Dosage and Administration (2.11)]. Table 16 summarizes the baseline patient and disease characteristics in the two studies. In both studies, baseline demographic and disease-related characteristics were comparable between the lenalidomide Table 16: Baseline Demographic and Disease-Related Characteristics – MM Studies 1 and 2

	Study 1		Study 2	
	Lenalidomide/ Dex N=177	Placebo/Dex N=176	Lenalidomide/ Dex N=176	Placebo/Dex N=175
Patient Characteristics				
Age (years) Median Min, Max	64 36, 86	62 37, 85	63 33, 84	64 40, 82
Sex Male Female	106 (60%) 71 (40%)	104 (59%) 72 (41%)	104 (59%) 72 (41%)	103 (59%) 72 (41%)
Race/Ethnicity White Other	141(80%) 36 (20%)	148 (84%) 28 (16%)	172 (98%) 4 (2%)	175 (100%) 0 (0%)
ECOG Performance Status 0 to 1	157 (89%)	168 (95%)	150 (85%)	144 (82%)
Disease Characteristics				
Multiple Myeloma Stage (Durie- Salmon) I II III	3% 32% 64%	3% 31% 66%	6% 28% 65%	5% 33% 63%
β2-microglobulin (mg/L) ≤ 2.5 mg/L > 2.5 mg/L	52 (29%) 125 (71%)	51 (29%) 125 (71%)	51 (29%) 125 (71%)	48 (27%) 127 (73%)
Number of Prior Therapies				
1 ≥ 2	38% 62%	38% 62%	32% 68%	33% 67%
Types of Prior Therapies				
Stem Cell Transplantation	62%	61%	55%	54%
Thalidomide	42%	46%	30%	38%
Dexamethasone	81%	71%	66%	69%
Bortezomib	11%	11%	5%	4%
Melphalan	33%	31%	56%	52%
Doxorubicin	55%	51%	56%	57%
The primary efficacy endpoint in both andomization to the first occurrence replanned interim analyses of both ignificantly superior to dexamethason examethasone group to receive treat ne extended follow-up survival data 19.4 months (95%CI: 32.9, 47.4) in le lacebo/dexamethasone group, with a me was 37.5 months (95%CI: 29.9, 40.3) in placebo/dexamethasone group.	of progressive disestudies showed that lead one for TTP. The ment with the lenal with crossovers would be made of the constant	ase. It the combination e studies were unb idomide/dexameth ere analyzed. In st ethasone group and 9 (95% Cl: 0.61 to e/dexamethasone	of lenalidomide/dulinded to allow pati- lasone combination tudy 1, the median d 31.6 months (95° 1.03). In study 2, 1 group and 30.8 mo	examethasone vents in the place n. For both stud survival time v Cl: 24.1, 40.9 the median surv

	Study 1		Study 2	
	Lenalidomide/ Dex N=177	Placebo/Dex N=176	Lenalidomide/ Dex N=176	Placebo/Dex N=175
TTP				
Events n (%)	73 (41)	120 (68)	68 (39)	130 (74)
Median TTP in months [95% CI]	13.9 [9.5, 18.5]	4.7 [3.7, 4.9]	12.1 [9.5, NE]	4.7 [3.8, 4.8]
Hazard Ratio [95% CI]	0.285 0.324 [0.210, 0.386] [0.240, 0.438]			
Log-rank Test p-value 3	<0.001		<0.001	
Response				
Complete Response (CR) n (%)	23 (13)	1 (1)	27 (15)	7 (4)
Partial Response (RR/PR) n (%)	84 (48)	33 (19)	77 (44)	34 (19)
Overall Response n (%)	107 (61)	34 (19)	104 (59)	41 (23)
n-value	<0.0	01	<0.00)1

Odds Ratio [95% CI] Kaplan-Meier Estimate of Time to Progression — MM Study 1 HR (95% CI)= 0.285 (0.210-0.386) Log Rank p< 0.001 Placebo/Dex



14.2 Myelodysplastic Syndromes (MDS) with a Deletion 5q Cytogenetic Abnormality

The efficacy and safety of lenalidomide were evaluated in patients with transfusion-dependent anemia in low- or intermediate-1- risk MDS with a 5q (q31-33) cytogenetic abnormality in isolation or with additional cytogenetic abnormality in isolation or with additional cytogenetic abnormalities, at a dose of 10 mg once daily or 10 mg once daily for 21 days every 28 days in an open-label, single-arm, multi-center study. The major study was not designed nor powered to prospectively compare the efficacy of the 2 dosing regimens. Sequential dose reductions to 5 mg daily and 5 mg every other day, as well as dose delays, were allowed for toxicity [Dosage and Administration (2.2)].

This major study enrolled 148 patients who had RBC transfusion dependent anemia. RBC transfusion dependence was defined as having received ≥ 2 units of RBCs within 8 weeks prior to study treatment. The study enrolled patients with absolute neutrophil counts (ANC) ≥ 500/mm², platelet counts ≥ 50,000/mm², serum creatinine ≤ 2.5 mg/dL, serum SGOT/AST or SGPT/ALT ≤ 3 x upper limit of normal (ULN), and serum direct bilirubin ≤ 2.5 mg/dL, serum GGOT/AST or SGPT/ALT ≤ 3 x upper limit of normal (ULN), and serum direct bilirubin ≤ 2 mg/dL. Granulocyte colony-stimulation factor was permitted for noatients who developed neutropenia or fever in mg/dL. Granulocyte colony-stimulating factor was permitted for patients who developed neutropenia or fever in association with neutropenia. Baseline patient and disease-related characteristics are summarized in Table 18. Table 18: Baseline Demographic and Disease-Related Characteristics in the MDS Study

	Overall (N=148)
Age (years)	
Median Min, Max	71 37, 95
Gender	n(%)
Male Female	51(34.5) 97(65.5)
Race	n(%)
White Other	143 (96.6) 5 (3.4)
Duration of MDS (years)	
Median Min, Max	2.5 0.1, 20.7
Del 5 (q31-33) Cytogenetic Abnormality	n (%)
Yes Other cytogenetic abnormalities	148 (100) 37 (25.2)
IPSS Score ^a	n (%)
Low (0) Intermediate-1 (0.5 to 1.0) Intermediate-2 (1.5 to 2.0) High (≥2.5) Missing	55 (37.2) 65 (43.9) 6 (4.1) 2 (1.4) 20 (13.5)
FAB Classification ^b from central review	n (%)

^aIPSS Risk Category: Low (combined score = 0), Intermediate-1 (combined score = 0.5 to 1), Intermediate-2 led score = 1.5 to 2.0), High (combined score \geq 2.5); Combined score = (Marrow blas

The frequency of RBC transfusion independence was assessed using criteria modified from the International Working Group (IWG) response criteria for MDS. RBC transfusion independence was defined as the absence of any RBC transfusion during any consecutive "rolling" 55 days (8 weeks) during the treatment period. Transfusion independence was seen in 99/148 (67%) patients (95% CI [59, 74]). The median duration from the date when RBC transfusion independence was first declared (i.e., the last day of the 56-day RBC transfusion-free eriod) to the date when an additional transfusion was received after the 56-day transfusion-free period among ne 99 responders was 44 weeks (range of 0 to >67 weeks). Ninety percent of patients who achieved a transfusion enefit did so by completion of three months in the study. BBC transfusion independence rates were unaffected by age or gender.

The dose of lenalidomide was reduced or interrupted at least once due to an adverse event in 118 (79.7%) of the 148 patients; the median time to the first dose reduction or interruption was 21 days (mean, 35.1 days; range, 2 to 253 days), and the median duration of the first dose interruption was 22 days (mean, 28.5 days; range, 2 to 265 days). A second dose reduction or interruption due to adverse events was required in 50 (33.8%) of the 148 patients. The median interval between the first and second dose reduction or interruption was 51 days (mear 59.7 days; range, 15 to 205 days) and the median duration of the second dose interruption was 21 days (mear 26 days; range, 2 to 148 days). 14.3 Mantle Cell Lymphoma

An utilicenter, single-arm, open-label trial of single-agent lenalidomide was conducted to evaluate the safety and efficacy of lenalidomide in patients with mantle cell lymphoma who have relapsed after or were refractory to bortezomib or a bortezomib-containing regimen. Patients with a creatinine clearance ≥60 mL/min were given lenalidomide at a dose of 25 mg once daily for 21 days every 28 days. Patients with a creatinine clearance ≥30 mL/ min and <60 mL/min were given lenalidomide at a dose of 10 mg once daily for 21 days every 28 days. Treatment was continued until disease progression, unacceptable toxicity, or withdrawal of consent. The trial included patients who were at least 18 years of age with biopsy-proven MCL with measurable disease by CT scan. Patients were required to have received prior treatment with an anthracycline or mitoxantrone, by CT scan. Patients were required to have received prior treatment with an anthracycline or mitoxantrone, cyclophosphamide, rituximab, and bortezomib, alone or in combination. Patients were required to have documented refractory disease (defined as without any response of PR or better during treatment with bortezomib or a bortezomib-containing regimen), or relapsed disease (defined as progression within one year after treatment with bortezomib or a bortezomib-containing regimen). At enrollment patients were to have an absolute neutrophil counts (ANC) ≥1500/ mm³, patelet counts ≥ 60,000/mm³, serum SG0T/AST or SGPT/ALT ≤3x upper limit of normal (ULN) unless there was documented evidence of liver involvement by lymphoma, serum total bilirubin ≤1.5 x ULN except in cases of Gilbert's syndrome or documented liver involvement by lymphoma, and calculated creatinine clearance (Cockcroft-Gault formula) ≥30 mL/min.

The median age was 67 years (43-83), 81% were male and 96% were Caucasian. The table below summarizes the baseline disease-related characteristics and prior antilymphoma therapy in the Mantle Cell Lymphoma trial.

Table 19: Baseline Disease-related Characteristics and Prior Anti −Lymphoma Therapy in Mantle Cell Table 19: Baseline Disease-related Characteristics and Prior Anti –Lymphoma Therapy in Mantle Cell

Baseline Disease Characteristics and Prior Anti - Lymphoma Treatment	Total Patients (N=134)
ECOG Performance Status ^a n (%)	
0	43 (32)
1	73 (54)
2 3	17 (13) 1 (<1)
Advanced MCL Stage, n (%)	27 (20)
IV	97 (72)
High or Intermediate MIPI Score ^b , n (%)	90 (67)
High Tumor Burden ^c , n (%)	77 (57)
Bulky Disease ^d , n (%)	44 (33)
Extranodal Disease, n (%)	101 (75)
Number of Prior Systemic Anti-Lymphoma Therapies, n (%) Median (range)	4 (2, 10)
1	0 (0)
2 3	29 (22)
3 ≥ 4	34 (25) 71 (53)
Number of Subjects Who Received Prior Regimen Containing, n (%):	(***)
Anthracycline/mitoxantrone	133 (99)
Cyclophosphamide	133 (99)
Rituximab	134 (100)
Bortezomib	134 (100)
Refractory to Prior Bortezomib, n (%)	81 (60)
Refractory to Last Prior Therapy, n (%)	74 (55)

Prior Autologous Bone Marrow or Stem Cell Transplant, $\,n\,(\%)\,$ 39 (29) ECOG = Eastern Cooperative Oncology Group High tumor burden is defined as at least one lesion that is ≥5 cm in diameter or 3 lesions that are ≥3 cm in

d Bulky disease is defined as at least one lesion that is ≥7cm in the longest diameter. The efficacy endpoints in the MCL trial were overall response rate (ORR) and duration of response (DOR). Response was determined based on review of radiographic scans by an independent review committee according to a modified version of the International Workshop Lymphoma Response Criteria (Cheson, 1999). The DOR is defined as the time from the initial response (at least PR) to documented disease progression. The efficacy results

esponse Analyses (N = 133)	sponse Analyses (N = 133) N (%)	
Overall Response Rate (IWRC) (CR + CRu +PR)	34 (26)	(18.4, 33.9)
Complete Response (CR + CRu)	9 (7)	(3.1, 12.5)
CR	1 (1)	
CRu	8 (6)	
Partial Response (PR)	25 (19)	
uration of Response (months)	Median	95% CI
uration of Overall Response (CR + CRu + PR) (N = 34)	16.6	(7.7, 26.7)

ular and Marginal Zone Lymphoma

y of lenalidomide with rituximab in patients with relapsed or refractory follicular and marginal zone evaluated in the AUGMENT (NCT01938001) and MAGNIFY (NCT01996865) transported double-blind multicenter trial (n=358) in which patients with re-AUGMENT is a randomized, double-blind, multicenter trial (n=358) in which patients with relapsed or refractory follicular or marginal zone lymphoma were randomized 1:1 to receive lenalidomide and rituximab or rituximab and placebo. AUGMENT included patients diagnosed with Grade 1, 2, or 3a follicularly rymphoma, who received at least 1 prior systemic therapy, were refractory or relapsed, not rituximab-refractory, had at least one measurable nodal or extranodal lesion by CT or MRI scan, and had adequate bone marrow, liver, and renal function. Randomization was stratified by follicular versus marginal zone lymphoma, previous rituximab therapy, and time since other anti-lymphoma therapy. In AUGMENT, lenalidomide was administered orally 20 mg once daily for Days 1 to 21 of repeating 28-day cycles for a maximum of 12 cycles or until unacceptable toxicity. The dose of rituximab was 375 mg/m² every week in Cycle 1 (Days 1, 8, 15, and 22) and on Day 1 of every 28-day cycle from Cycles 2 through 5. All dosage calculations for rituximab were based on the patient's body surface area (BSA), using actual patient weight. Dose adjustments for lenalidomide were allowed based on clinical and laboratory findings. A patient with moderate renal insufficiency (≥30 to -60 mL/minuthy received a lower lenalidomide starting dose of 10 mg daily on the same schedule. After 2 cycles, the lenalidomide dose could be increased to 15 mg once daily on Days 1 to 21 of each 28-day cycle if the patient tolerated the medication.

MASNIFY is an open-label, multicenter trial (n=232) in which patients with relapsed or refractory follicular.

MAGNIFY is an open-label, multicenter trial (n=232) in which patients with relapsed or refractory follicular, marginal zone, or mantle cell lymphoma received 12 induction cycles of lenalidomide and rituximab. MAGNIFY included patients diagnosed with Grade 1, 2,3a, 3b follicular (including transformed), marginal zone, or mantle cell lymphoma Stage I to IV who were previously treated for their lymphoma, had been refractory or had a relapse after their last treatment, had at least one measurable nodal or extranodal lesion by CT or MRI scan, and had adequate bone marrow, liver, and renal function. Patients refractory to rituximab were also included. The information from the subjects who received at least 1 dose of initial therapy in the first 12 induction cycles (n=222) in the MAGNIFY trial was included in the evaluation of the efficacy of lenalidomide /rituximab in patients with relapsed or refractory follicular and marginal zone lymphoma. In MAGNIFY, lenalidomide 20 mg was given on Days 1-21 of repeated 28-day cycles for up to 12 cycles or until unacceptable toxicity, progression, or withdrawal of consent. The dose of rituximab was 375 mg/m every week in Cycle 1 (Days 1, 8, 15, and 22) and on Day 1 of every ther 28-day cycle (Cycles 3,5,7,9, and 11) up to 12 cycles therapy. All dosage calculations for rituximab were based on the patient BSA and actual weight. Dose adjustments were allowed based on clinical and laboratory findings. MAGNIFY is an open-label, multicenter trial (n=232) in which patients with relansed or refractory follocular The demographic and disease-related baseline characteristics in the AUGMENT and MAGNIFY trials are shown in the following table.

Table 21: Baseline Demographics and Disease-Related Characteristics of Patients with FL and MZL in AUGMENT and MAGNIFY Trials

AUGMENT Trial

MAGNIFY Trial

Parameter	Lenalidomide + Rituximab (N=178)	Rituximab + Placebo (Control Arm) (N=180)	Lenalidomide + Rituximab (N=222)
Age (years)			
Median (Max, Min)	64 (26, 86)	62 (35, 88)	65 (35, 91)
Age distribution, n (%)			
<65 years	96 (54)	107 (59)	103 (46)
≥65 years	82 (46)	73 (41)	119 (54)
Sex, n (%)			
Male	75 (42)	97 (54)	122 (55)
Female	103 (58)	83 (46)	100 (45)
Race			
White	118 (66)	115 (64)	206 (93)
Other races	54 (30)	64 (36)	14 (6)
Not collected or reported	6 (3)	1 (0.6)	2 (1)
Body Surface Area (BSA, m²)			
Median (Max, Min)	1.8 (1.4, 3.1)	1.8 (1.3, 2.7)	2 (1.3, 2.6)
Disease Type FL or MZL			
Follicular lymphoma	147 (83)	148 (82)	177 (80)
Marginal zone lymphoma	31 (17)	32 (18)	45 (20)
MZL subtype at diagnosis (investigator), n (%)			
MALT	14 (45)	16 (50)	10 (22)
Nodal	8 (26)	10 (31)	25 (56)
Splenic	9 (29)	6 (19)	10 (22)
FL stage at diagnosis (investigator), n (%)			
FL Grade 1-2	125 (85)	123 (83)	149 (84)
FL Grade 3a	22 (15)	25 (17)	28 (16)
FLIPI score at baseline (calculated), n (%)			Not Collected
Low risk (0,1)	52 (29)	67 (37)	
Intermediate risk (2)	55 (31)	58 (32)	
High risk (≥3)	69 (39)	54 (30)	
Missing	2 (1)	1 (0.6)	
ECOG score at baseline, n (%)			
0	116 (65)	128 (71)	102 (46)
1	60 (34)	50 (28)	113 (51)
2	2 (1)	2 (1)	7 (3)
High tumor burden ^a at baseline, n (%)			
Yes	97 (54)	86 (48)	148 (67)
No	81 (46)	94 (52)	74 (33)
Number of prior systemic antilymphoma therapies			
1	102 (57)	97 (54)	94 (42)b
>1	76 (43)	83 (46)	128 (58)

Data Cutoff: 22 June 2010 (notation 1,) and "Defined by GELF criteria." Patient had either 0 (n=2) or 1 prior systemic therapy.

POSIGE = Eastern Cooperative Oncology Group; FLIPI = follicular lymphoma international prognostic index In AUGMENT, efficacy was established in the intent-to-treat (ITT) population based on progression-free survival by Independent Review Committee using modified 2007 International Working Group response criteria. Efficacy

Parameter	Lenalidomide + Rituximab (N=178)	Rituximab + Placebo (N=180)	
PFS			
Patients with event, n (%)	68 (38.2)	115 (63.9)	
Death	6 (8.8)	2 (1.7)	
Progression of disease	62 (91.2)	113 (98.3)	
PFS, median ^a [95% CI] (months)	39.4 [22.9, NE]	14.1 [11.4, 16.7]	
HR ^b [95% CI]	0.46 [0	.34, 0.62]	
p-value °	<0.0001		
Objective response (CR+PR) , n(%) [95% CI] ^d	138 (77.5) [70.7, 83.4]	96 (53.3) [45.8, 60.8]	

mab treatment (yes, no), time since last antilymphoma therapy (≤ 2, > 2 years), and disease p-value from log-rank test stratified by 3 factors noted above: previous rituximab treatment (yes, no), time since ast antilymphoma therapy (< 2, > 2 years), and disease histology (FL, MZL). Exact confidence interval for binomial distribution. Kaplan-Meier Curves of Progression-free Survival by IRC Assessment Between Arms in AUGMENT Trial (ITT FL and MZL Population)

Progression-free Survival (Months) Number of Subjects at Risk

a = Stratification factors included: previous rituximab treatment (y/n), time since last anti-lymphoma therapy (<2 2years), and disease histology (FL or MZL). fidence interval; HR = hazard ratio; KM = Kaplan-Meier; PFS = progression-free survival Follicular Lymphoma
In AUGMENT, the objective response by IRC assessment for patients with follicular lymphoma was 80% (118/147)
[95% Cl: 73%, 86%]) in lenalidomide with rituximab arm compared to 55% (82/148) [95% Cl: 47, 64] in control arm.

In MAGNIFY, the overall response by investigator assessment was 59% (104/177) [95% CI: 51, 66] for patients with follicular lymphoma. Median duration of response was not reached with a median follow-up time of 7.9 months [95% CI: 4.6, 9.2]. Marginal Zone Lymphoma
In AUGMENT, the objective response by IRC assessment for patients with marginal zone lymphoma was 65% (20/31) [95% CI: 45%, 81%] in lenalidomide with rituximab arm compared to 44% (14/32) [95% CI: 26%, 62%]

in control arm.

In MAGNIFY, the overall response by investigator assessment was 51% (23/45) [95% CI: 36, 66] for patients with marginal zone lymphoma. Median duration of response was not reached with a median follow-up time of 11.5 months [95% CI: 8.0, 18.9]. 15 REFERENCES OSHA Hazardous Drugs. OSHA [Accessed on 29 January 2013, from http://www.osha.gov/SLTC/ ardous/frugs/index.html]

16 HOW SUPPLIED/STORAGE AND HANDLING 16.1 How Supplied 10.1 Now Supplies
Lenalidomide Capsules 2.5 mg: Pink opaque cap and white opaque body, size '4' hard gelatin capsules imprinted with 'H' on cap and 'L1' on body, filled with off white to pale yellow color powder.

Bottles of 28
Bottles of 100
NDC 31722-257-28
NDC 31722-257-01 Lenalidomide Capsules 5 mg: White opaque cap and white opaque body, size '2' hard gelatin capsules imprinted with 'H' on cap and 'L2' on body, filled with off white to pale yellow color powder.

Bottles of 28

Bottles of 100

NDC 31722-258-28

NDC 31722-258-01 Lenalidomide Capsules 10 mg: Orange opaque cap and white opaque uouy, Sizo & Miller With 'H' on cap and 'L4' on body, filled with off white to pale yellow color powder.

Rottles of 28

NDC 31722-259-28

NDC 31722-259-18 Lenalidomide Capsules 10 mg: Orange opaque cap and white opaque body, size '0' hard gelatin capsules imprinted

ide Capsules 15 mg: Red opaque cap and white opaque body, size '0' hard gelatin capsules imprinted Lenalidomide Capsules 15 mg: Hed opaque cap and write opaque body, size of hero years with 'H' on cap and 'L5' on body, filled with off white to pale yellow color powder.

Bottles of 21

Rattles of 100

NDC 31722-260-01 Lenalidomide Capsules 20 mg: Brown opaque cap and writte opaque 500, 500 with 'H' on cap and 'L6' on body, filled with off white to pale yellow color powder.

Bottles of 21 NDC 31722-261-21** NDC 31722-261-01** mide Capsules 20 mg: Brown opaque cap and white opaque body, size 'O' hard gelatin capsules imprinted alidomide Capsules 25 mg: White opaque cap and white opaque body, size '0' hard gelatin capsules imprinted i 'H' on cap and 'L7' on body, filled with off white to pale yellow color powder.

Bottles of 21

Bottles of 100

NDC 31722-262-21

NDC 31722-262-01

 $\textbf{16.2 Storage} \\ \textbf{Store at 20^{\circ}C to 25^{\circ}C (68^{\circ}F to 77^{\circ}F); excursions permitted to 15^{\circ}C to 30^{\circ}C (59^{\circ}F to 86^{\circ}F) [See USP Controlled 15^{\circ}C to 15^{\circ}C t$ 16.3 Handling and Disposal sed in the handling of lenalidomide capsules. Lenalidomide capsules should not be opened Care should be exercised in the handling of lenalidomide capsules. Lenalidomide capsules should not be opened or broken. If powder from lenalidomide capsules contacts the skin, wash the skin immediately and thoroughly with soap and water. If lenalidomide contacts the mucous membranes, flush thoroughly with water. Procedures for the proper handling and disposal of anticancer drugs should be considered. Several guidelines on the subject have been published.¹ Dispense no more than a 28-day supply.

17 PATIENT COUNSELING INFORMATION Advise the patient to read the FDA-approved Patient labeling (Medication Guide)

Embryo-Fettal Toxicity

Advise patients that lenalidomide is contraindicated in pregnancy [see Boxed Warning and Contraindications

(4.1)). Lenaldomide is a thalidomide analogue and can cause serious birth defects or death to a developing baby [see Warnings and Precautions (5.1) and Use in Specific Populations (8.1)].

Advise females of reproductive potential that they must avoid pregnancy while taking lenalidomide capsules and for at least 4 weeks after completing therapy.

Initiate lenalidomide capsules treatment in females of reproductive potential only following a negative preparent test. Initiate lenalidomide capsules treatment in remains of representancy test.

Advise females of reproductive potential of the importance of monthly pregnancy tests and the need to use 2 different forms of contraception including at least 1 highly effective form, simultaneously during lenalidomide capsules therapy, during does interruption and for 4 weeks after she has completely finished taking lenalidomide capsules. Highly effective forms of contraception other than tubal ligation include IUD and hormonal (birth control pills, injections, patch or implants) and a partner's vasectomy. Additional effective

contraceptive methods include latex or synthetic condom, diaphragm and cervical cap.
Instruct patient to immediately stop taking lenalidomide capsules and contact her healthcare provider if
she becomes pregnant while taking this drug, if she misses her menstrual period, or experiences unusual
menstrual bleeding, if she stops taking birth control, or if she thinks FOR ANY REASON that she may be pregnant.
Advise patient that if her healthcare provider is not available, she should call the REMS Call Center at 1-888-423-5436 [see Warnings and Precautions (5.1) and Use in Specific Populations (8.3)].
Advise males to always use a latex or synthetic condom during any sexual contact with females of reproductive potential while taking lenalidomide capsules and for up to 4 weeks after discontinuing lenalidomide capsules, even if they have undergone a successful vasectomy.

Advise male patients taking lenalidomide capsules that they must not donate sperm and for up to 4 weeks after discontinuation of lenalidomide capsules Isee Warnings and Precautions (5.1) and Use in Specific All patients must be instructed to not donate blood while taking lenalidomide capsules, during dose interruptions and for 4 weeks following discontinuation of lenalidomide capsules Isee Warnings and Precautions (5.1)].

Precautions (a.1).
 Lenalidomide REMS program
 Because of the risk of embryo-fetal toxicity, lenalidomide is only available through a restricted program called the Lenalidomide REMS program [see Warnings and Precautions (5.2)].
 Patients must sign a Patient-Physician agreement form and comply with the requirements to receive lenalidomide capsules. In particular, females of reproductive potential must comply with the pregnancy testing, contraception requirements and participate in monthly telephone surveys. Males must comply with the contraception requirements [see Use in Specific Populations (8.3)].
 Lenalidomide capsules are available only from pharmacies that are certified in the Lenalidomide REMS program. Provide patients with the telephone number and website for information on how to obtain the product.

Pregnancy Exposure Registry
Inform females there is a Pregnancy Exposure Registry that monitors pregnancy outcomes in females exposed to
lenalidomide during pregnancy and that they can contact the Pregnancy Exposure Registry by calling 1-888-4235436 [see Use in Specific Populations (8.1)]. <u>Iematologic Toxicity</u> inform patients that lenalidomide capsules are associated with significant neutropenia and thrombocytopenia [see Boxed Warning and Warnings and Precautions (5.3)]. Venous and Arterial Thromboembolism
Inform patients of the risk of thrombosis including DVT, PE, MI, and stroke and to report immediately any signs and symptoms suggestive of these events for evaluation [see Boxed Warning and Warnings and Precautions (5.41)]

Inform patients that lenalidomide capsules had increased mortality in patients with CLL and serious adverse cardiovascular reactions, including atrial fibrillation, myocardial infarction, and cardiac failure [see Warnings and nform patients of the potential risk of developing second primary malignancies during treatment with lenalidomide

capsules (see Warnings and Precautions (5.6)) Hepatotoxicity
Inform patients of the risk of hepatotoxicity, including hepatic failure and death, and to report any signs and symptoms associated with this event to their healthcare provider for evaluation [see Warnings and Precautions (5.8)].

Severe Cutaneous Reactions
Inform patients of the potential risk for severe skin reactions such as SJS, TEN, and DRESS and report any signs and symptoms associated with these reactions to their healthcare provider for evaluation. Patients with a prior history of Grade 4 rash associated with thalidomide treatment should not receive lenalidomide capsules *[see* Warmings and Procusions (1977).
Tumor Lysis Syndrome
Inform patients of the potential risk of tumor lysis syndrome and to report any signs and symptoms associated with this event to their healthcare provider for evaluation [see Warnings and Precautions (5.10)].

with this event to meir nearthcare provider for evaluation (see Warnings and symptoms associated with this event to their healthcare provider for evaluation (see Warnings and Precautions (5.11)). Early Mortality in Patients with MCL Inform patients with MCL of the potential for early death (see Warnings and Precautions (5.14)). https://www.nems.itivity.itivi

Dosing Instructions
Inform patients how to take lenalidomide capsules [see Dosage and Administration (2)]

Lenalidomide capsules should be taken once daily at about the same time each day,
Lenalidomide capsules may be taken either with or without food.

The capsules should not be opened, broken, or chewed. Lenalidomide capsules should be swallowed whole with water.

Instruct patients that if they miss a dose of lenalidomide capsules, they may still take it up to 12 hours after the time they would normally take it. If more than 12 hours have elapsed, they should be instructed to skip the dose for that day. The next day, they should take lenalidomide capsules at the usual time. Warn patients to not take 2 doses to make up for the one that they missed.

CAMBER Manufactured for

Revised: 04/2023

Camber Pharm aceuticals, Inc Piscataway, NJ 08854 By: **HETERO™**

Hetero Labs Limited, Unit V, Polepally, Jadcherla, Mahabubnagar - 509 301, India.

MEDICATION GUIDE Lenalidomide Capsules (LEN a LID oh mide)
Vhat is the most important information I should know about lenalidomide capsules?
lefore you begin taking lenalidomide capsules, you must read and agree to all of the instructions in the enalidomide REMS program. For more information, call 1-888-423-5436 or go to www.lenalidomiderems. om. Before prescribing lenalidomide capsules, your healthcare provider will explain the Lenalidomide REMS rogram to you and have you sign the Patient-Physician Agreement Form. enalidomide capsules may cause serious side effects including:
Possible birth defects (deformed babies) or death of an unborn baby. Females who are pregnant or who
plan to become pregnant must not take lenalidomide capsules.
enalidomide capsules are similar to the medicine thalidomide. We know thalidomide can cause severe life-

threatening birth defects. Lenalidomide capsules have not been tested in pregnant females. Lenalidomide capsules have harmed unborn animals in animal testing. emales must not get pregnant:
For at least 4 weeks before starting lenalidomide capsules

While taking lenalidomide capsules
During any breaks (interruptions) in your treatment with lenalidomide capsules
For at least 4 weeks after stopping lenalidomide capsules

mediately and call your healthcare provider right away.

Females who can become pregnant:

Will have pregnancy tests weekly for 4 weeks, then every 4 weeks if your menstrual cycle is regular, o every 2 weeks if your menstrual cycle is irregular. If you miss your period or have unusual bleeding, you will need to have a pregnancy test and receive Must agree to use two acceptable forms of hirth control at the same time, for at least 4 weeks before Talk with your healthcare provider to find out about options for acceptable forms of birth control that yo may use to prevent pregnancy before, during, and after treatment with lenalidomide capsules. If you had unprotected sex or if you think your birth control has failed, stop taking lenalidomide capsules

If you become pregnant while taking lenalidomide capsules, stop taking it right away and call your healthcare provider. If your healthcare provider is not available, you can call the REMS Call Center at 1-888-423-5436. Healthcare providers and patients should report all cases of pregnancy to:

FDA MedVatch at 1-809-FDA-1088, and

REMS Call Center at 1-888-423-5436 here is a pregnancy exposure registry that monitors the outcomes of females who take lenalidomide capsules uring pregnancy, or if their male partner takes lenalidomide capsules and they are exposed during pregnancy. You can enroll in this registry by calling the REMS call center at the phone number listed above.

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**nalidomide can pass into human semen:

**Males, including those who have had a vasectomy, must always use a latex or synthetic condom during any sexual contact with a pregnant female or a female that can become pregnant while taking lenalidomide capsules, during any breaks (interruptions) in your treatment with lenalidomide capsules, and for up to 4 weeks after stopping lenalidomide capsules.

Do not have unprotected sexual contact with a female who is or could become pregnant. Tell your healthcare provider if you do have unprotected sexual contact with a female who is or could become pregnant. pregnant

Do not donate sperm while taking lenalidomide capsules, during any breaks (interruptions) in you treatment, and for up to 4 weeks after stopping lenalidomide capsules. If a female becomes pregnant with your sperm, the baby may be exposed to lenalidomide and may be born with birth defects.

Men, if your female partner becomes pregnant, you should call your healthcare provider right away.

Low white blood cells (neutropenia) and low platelets (thrombocytopenia). Lenalidomide causes low white blood cells and low platelets in most people. You may need a blood transfusion or certain medicines if your blood counts drop too low. Your healthcare provider should check your blood counts often especially during the first several months of treatment with lenalidomide capsules, and then at least monthly. Tell your healthcare provider if you develop any bleeding or bruising, during treatment will **Blood clots**. Blood clots in the arteries, veins, and lungs happen more often in people who take lenalidomide capsules. This risk is even higher for people with multiple myeloma who take the medicine dexamethasone with lenalidomide capsules. Heart attacks and strokes also happen more often in people

who take lenalidomide capsules with dexamethasone. To reduce this increased risk, most people who take omide capsules will also take a blood thinner medicine. Before taking lenalidomide capsules, tell your healthcare provider: If you have had a blood clot in the past o If you have high blood pressure, smoke, or if you have been told you have a high level of fat in your About all the medicines you take. Certain other medicines can also increase your risk for blood clots Call your healthcare provider or get medical help right away if you get any of the following during treatment

with lenalidomide capsules:

Signs or symptoms of a blood clot in the lung, arm, or leg may include: shortness of breath, chesi pain, or arm or leg swelling

Signs or symptoms of a heart attack may include: chest pain that may spread to the arms, neck, jaw, back, or stomach area (abdomen), feeling sweaty, shortness of breath, feeling sick or vomiting

Signs or symptoms of stroke may include: sudden numbness or weakness, especially on one side of the body, severe headache or confusion, or problems with vision, speech, or balance What are lenalidomide capsules?

ide capsules are a prescription medicine, used to treat adults with: multiple myeloma (MM in combination with the medicine dexamethasone, or as maintenance treatment after autologous hematopoietic stem cell transplantation (a type of stem cell transplant that uses your own stem cells)
a condition called myelodysplastic syndromes (MDS). Lenalidomide capsules are for the type of MDS with
a chromosome problem where part of chromosome 5 is missing. This type of MDS is known as deletion
5q MDS. People with this type of MDS may have low red blood cell counts that require treatment with blood databasions.

mantle cell lymphoma (MCL) when the disease comes back or becomes worse after treatment with 2 prior medicines, one of which included bortezomib. MCL is a cancer of a type of white blood cell called

mphocytes that are in the lymph nodes

lymphocytes that are in the lymph nodes.

follicular lymphoma (FL) or marginal zone lymphoma (MZL)

in combination with a rituximab product, and

who have previously been treated for their FL or MZL FL and MZL are types of cancer of white blood cells called B-cell lymphocytes that are found in the lymph nide capsules should not be used to treat people who have chronic lymphocytic leukemia (CLL) unless they are participants in a controlled clinical trial. It is not known if lenalidomide capsules are safe and effective in children.

Who should not take lenalidomide capsules? Do not take lenalidomide capsules if you:

not take lenalidomide capsules ir you:
are pregnant, plan to become pregnant, or become pregnant during treatment with lenalidomide
capsules. See "What is the most important information I should know about lenalidomide capsules?"
are allergic to lenalidomide or any of the ingredients in lenalidomide capsules. See the end of this
Medication Guide for a complete list of ingredients in lenalidomide capsules. What should I tell my healthcare provider before taking lenalidomide capsules?

Before you take lenalidomide capsules, tell your healthcare provider about all of your medical conditions including if you:

have liver problems

have kidney problems or receive kidney dialysis treatment

have thyroid problems

have hay da serious skin rash with thalidomide treatment. You should not take lenalidomide capsules.

are lactose intolerant, Lenalidomide capsules contain lactose.

 are lactose intolerant. Lenalidomide capsules contain lactose.
 are breastfeeding. Do not breastfeed during treatment with lenalidomide capsules. It is not known if lenalidomide passes into your breast milk and can harm your baby.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. Lenalidomide capsules and other medicines may affect each other, causing serious side effects. Talk with your healthcare provider before taking any new medicines. Know the medicines you take. Keep a list of them to show your healthcare provider and pharmacist. How should I take lenalidomide capsules? mide capsules exactly as prescribed and follow all the instructions of the Lenalidomide REMS

allow lenalidomide capsules whole with water 1 time a day. **Do not open, break, or chew you** Lenalidomide capsules may be taken with or without food. Take lenalidomide capsules at about the same time each day.

Do not open or break lenalidomide capsules or handle them any more than needed.

If powder from the lenalidomide capsule comes in contact with your skin, wash the skin right away with soap and water.

If powder from the lenalidomide capsule comes in contact with the inside of your eyes, nose, o nouth, flush well with water. If you miss a dose of lenalidomide capsules and it has been less than 12 hours since your regular time, take it as soon as you remember. If it has been more than 12 hours, just skip your missed dose. **Do not** take 2 doses at the same time.

If you take too much lenalidomide, call your healthcare provider right away.

What should I avoid while taking lenalidomide capsules?

See "What is the most important information I should know about lenalidomide capsules?"

Females: Do not get pregnant and do not breastleed while taking lenalidomide capsules.

Males: Do not donate sperm while taking lenalidomide capsules, during any breaks (interruptions) in your treatment, and for up to 4 weeks after stopping lenalidomide capsules.

Do not share lenalidomide capsules with other people. It may cause birth defects and other serious problems Do not donate blood while you take lenalidomide capsules, during any breaks (interruptions) in your treatment, and for 4 weeks after stopping lenalidomide capsules. If someone who is pregnant gets your donated blood, her baby may be exposed to lenalidomide capsules and may be born with birth defects.

donated blood, her baby may be exposed to lenalidomide capsules and may be born with birth defects.

What are the possible side effects of lenalidomide capsules?

Lenalidomide capsules can cause serious side effects, including:

See "What is the most important information I should know about lenalidomide capsules?"

Increased risk of death in people who have chronic lymphocytic leukemia (CLL). People with CLL who take lenalidomide capsules have an increased risk of death compared with people who take the medicine chlorambucil. Lenalidomide capsules may cause you to have serious heart problems that can lead to death, including atrial fibrillation, heart attack, or heart failure. You should not take lenalidomide capsules if you have CLL unless you are participating in a controlled clinical trial.

Risk of new cancers (malignancies). An increase in new (second) cancers has happened in patients who received lenalidomide capsules and melphalan, or a blood stem cell transplant, including certain blood cancers, such as acute myelogenous leukemia (AML), and myelodysplastic syndrome (MDS) and certain other types of cancers of the skin and other organs. Talk with your healthcare provider about your risk of developing new cancers if you take lenalidomide capsules. Your healthcare provider about your risk of developing new cancers of the skin and other organs. Talk with your healthcare provider will check you for new cancers during your treatment with lenalidomide capsules. cancers during your treatment with lenalidomide capsules.

Severe liver problems, including liver failure and death. Your healthcare provider should do blood tests to check your liver function during your treatment with lenalidomide capsules. Tell your healthcare provider right away if you develop any of the following symptoms of liver problems:

yellowing of your skin or the white part of your opens (jaundice) bleeding or bruising more easily than dark or brown (tea-colored) urine Severe skin reactions and severe allergic reactions can happen with lenalidomide capsules and may

Call your healthcare provider right away if you develop any of the follow treatment with lenalidomide capsules: \circ a red, itchy, skin rash \circ peeling of your skin or blisters \circ severe itching \circ fever Get emergency medical help right away if you develop any of the following signs or symptoms during o swelling of your lips, mouth, tongue, or throat o raised red areas on your skin (hives)

o trouble breathing or swallowing a very fast heartbeat

Tumor lysis syndrome (TLS). TLS is caused by the fast breakdown of cancer cells. TLS can cause kidney failure and the need for dialysis treatment, abnormal heart rhythm, seizure and sometimes death. Your healthcare provider may do blood tests to check you for TLS.

Worsening of your tumor (tumor flare reaction) can happen with lenalidomide capsules and may cause death. Tell your healthcare provider if you get any of these symptoms of tumor flare reaction during treatment with lenalidomide capsules: tender swollen lymph nodes, low grade fever, pain, or rash. Your healthcare provider may tell you to decrease your dose, temporarily stop or permanently stop taking lenalidomide capsules if you develop certain serious side effects during treatment with lenalidomide capsules. capsules. Thyroid problems. Your healthcare provider may check your thyroid function before you start taking lenalidomide capsules and during treatment with lenalidomide capsules. Risk of Early Death in MCL. In people who have Mantle Cell Lymphoma (MCL), there may be a risk of dying sooner (early death) when taking lenalidomide capsules. Talk with your healthcare provider about any concerns and possible risk factors.

most common side effects of lenalidomide capsules include:

 diarrhea · swelling of your arms, hands, · upper respiratory tract legs, feet and skin infection or bronchitis inflammation of the stomach rash sleep problems (insomnia) and intestine ("stomach flu") headache nausea nose bleed muscle cramps or spasms
 shaking or trembling (tremor) constipation · shortness of breath joint aches fever cough, sore throat, and other . itching

These are not all the possible side effects of lenalidomide capsules.
Call your doctor for medical advice about side effects. You may report side effects to the FDA at 1-800-FDA-1088. How should I store lenalidomide capsules? lomide capsules at room temperature between 68°F to 77°F (20°C to 25°C). Store lenalidomide capsules at room temperature between 68°F to 77°F (20°C to 25°C).
 Return any unused lenalidomide capsules to Hetero Labs Limited or your healthcare provider.
 Keep lenalidomide capsules and all medicines out of the reach of children.

General information about the safe and effective use of lenalidomide capsules.

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Do not take lenalidomide capsules for conditions for which it was not prescribed. Do not give lenalidomide capsules to other people, even if they have the same symptoms you have. They may harm them and may cause birth defects. oroots. If you would like more information, talk with your healthcare provider. You can ask your healthcare provider o pharmacist for information about lenalidomide capsules that is written for health profi For more information, call 1-888-423-5436 or go to www.lenalidomiderems.com. What are the ingredients in lenalidomide capsules? Active ingredient: lenalidomide lnactive ingredient: lenalidomide lnactive ingredients: anhydrous lactose, croscarmellose sodium, magnesium stearate and microcrystalline cellulose. The capsule shell contains gelatin, titanium dioxide, in addition 2.5 mg, 15 mg, and 20 mg contains iron oxide red, 10 mg contains FD&C Yellow 6, 20 mg contains iron oxide yellow and iron oxide black. The capsules are imprinted with ink containing black iron oxide, potassium hydroxide, propylene glycol, shellac, and strong ammonia solution.

CAMBER Manufactured for

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Medication Guide available at http://camberpharma.com/medication-guides