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Why Are We Still Talking About the Mycophenolate REMS in 2024?

This activity is supported by an independent educational grant from the Mycophenolate REMS Group. This activity is intended to be fully compliant with the Mycophenolate REMS education requirements issued by the U.S. Food and Drug Administration (FDA).

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Mycophenolate REMS (MREMS) Introduction

Michelle Josephson, MD

Mycophenolate Teratogenicity and the Mycophenolate Risk Evaluation and Mitigation Strategy (REMS)

Emergence of evidence about mycophenolate teratogenicity paralleled the emergence of REMS programs in the United States

Pattern of malformations among infants born to pregnant women treated with mycophenolate during early pregnancy led to:

- PI boxed warning in **2007**
- Medication guide in **2008**

FDAAA. 2007. www.fda.gov/regulatory-information/selected-amendments-fdc-act/food-and-drug-administration-amendments-act-fdaaa-2007. Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

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FDA Amendments Act (FDAAA) in **2007** charged FDA with the implementation of REMS

- To ensure benefit outweighs risk
- To enforce safe use behaviors

FDAAA. 2007. www.fda.gov/regulatory-information/selected-amendments-fdc-act/food-and-drug-administration-amendments-act-fdaaa-2007. Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

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MREMS* introduced in 2012

FDA Amendments Act (FDAAA) in **2007** charged FDA with the implementation of REMS

- To ensure benefit outweighs risk
- To enforce safe use behaviors

***From 2012 to 2023, the MREMS was available as a shared system (SS) REMS program. A parallel system (PS) MREMS, instituted as part of the FDA's waiver process to protect patents/trade secrets, was introduced in late 2023. Both MREMS programs are now available and include the same goals and resources.**

FDAAA. 2007. www.fda.gov/regulatory-information/selected-amendments-fdc-act/food-and-drug-administration-amendments-act-fdaaa-2007. Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

Goals of the Mycophenolate REMS

Educate health care providers on:

- Increased risks of first trimester pregnancy loss and congenital malformations with exposure to mycophenolate
- Counseling patients of reproductive potential on preventing pregnancies when taking mycophenolate
- Reporting pregnancies to the Mycophenolate Pregnancy Registry
- Reporting pregnancies to the Transplant Pregnancy Registry International (TPRI), formerly the National Transplantation Pregnancy Registry (NTPR)

Educate patients on:

- Increased risks of miscarriage and birth defects
- Importance of pregnancy prevention and planning when taking mycophenolate
- Participating in the Mycophenolate Pregnancy Registry
- Participating in the TPRI

Increased Risk
Need for Counseling

Pregnancy Registry

Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.
Transplant Pregnancy Registry International [TPRI]. 2024. www.transplantpregnancyregistry.org/.

Why Are We Still Talking About the MREMS?

- MREMS has been suboptimal at best in preventing prenatal exposure
- New and evolving abortion laws leave limited options when accidental prenatal exposure occurs
  - Absolute or 6-week abortion bans restrict opportunity to consider pregnancy termination
  - The potential for malformations is generally not recognized as an exception to strict abortion laws

Sarayani A, et al. *Am J Obstet Gynecol*. 2022;227(2):263:e1-e38.

Mycophenolate in Clinical Perspective

Michael Moritz, MD

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Learning Objective 1

Evaluate embryofetal toxicity and pregnancy risks associated with the use of mycophenolate.

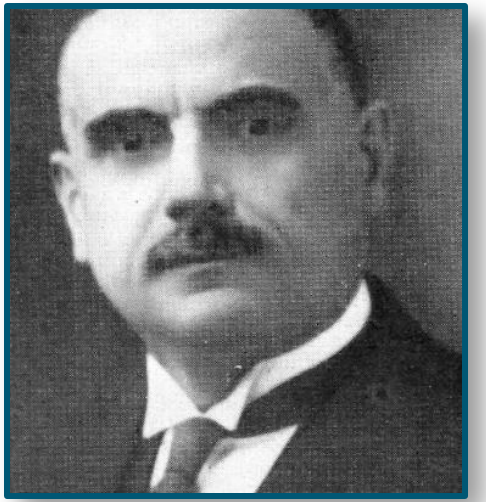
Audience Response

What percentage of infants born to an individual exposed to mycophenolate during the first trimester of pregnancy are born with congenital abnormalities?

A. ~10-15%
B. ~20-25%
C. ~45-50%
D. More than 50%
E. I’m not sure

Mycophenolic Acid (MPA): Brief History

- First antibiotic purified from any source
- Discovered in 1893 by Italian physician and scientist Bartolomeo Gosio
- Mycophenolic acid = acidic phenol from a fungus
- “Re-discovered” as an antibiotic, antifungal, antiviral, antitumor, and at one time considered a mycotoxin
- 1960s: immunosuppressive properties identified



Dr. Bartolomeo Gosio

Bentley R. *Chem Rev*. 2000;100(10):3801-3826.

Mycophenolate Products: FDA Indications

- **Mycophenolate mofetil (MMF)**
  - IV solution, PO capsule/tablet/oral suspension
  - FDA labeled indications: prophylaxis of organ rejection in allogeneic kidney, heart, or liver transplants in combination with other immunosuppressants

- **Delayed-release mycophenolic acid sodium**
  - PO tablets
  - FDA labeled indications: prophylaxis of organ rejection in allogeneic kidney transplants

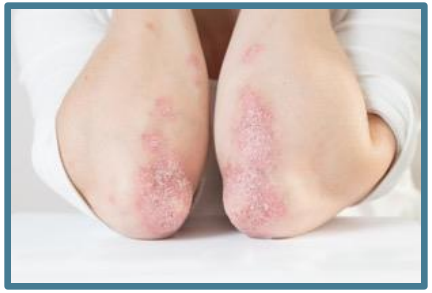
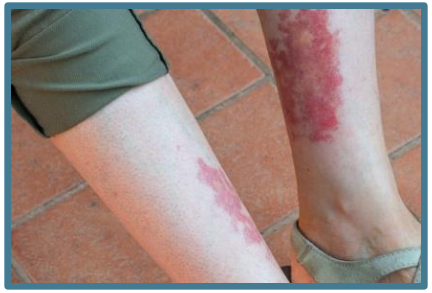
IV = intravenous; PO = by mouth.

Mycophenolic acid [package insert]. https://www.accessdata.fda.gov/drugsatfda_docs/label/2009/050791s007lbl.pdf.
Mycophenolate mofetil [package insert]. https://www.accessdata.fda.gov/drugsatfda_docs/label/2009/050722s021,050723s019,050758s019,050759s024lbl.pdf.

Mycophenolate Products: Off-Label

- Other solid organ transplantation, bone marrow transplantation
- Rheumatoid arthritis
- Inflammatory bowel disease
- Psoriasis
- Autoimmune diseases (lupus, vasculitis, etc.)

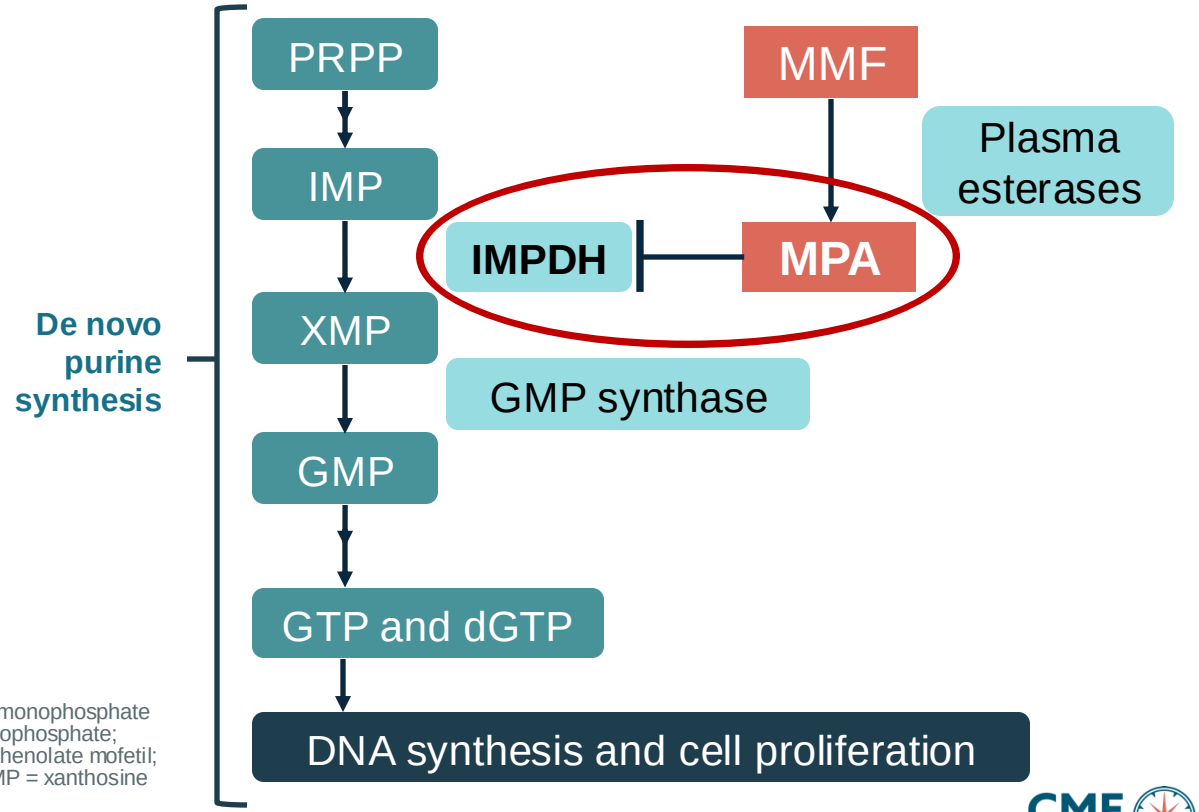


Lipsky JJ. *Lancet.* 1996;348(9038):1357-1359.

MPA: Immunosuppressive Effect

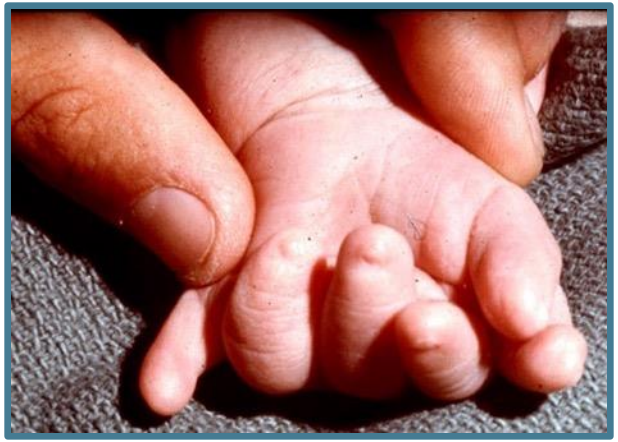
- MPA inhibits inosine-5′-monophosphate dehydrase (IMDPH)
- Cellular proliferation requires DNA synthesis
- Inhibiting formation of its building block can prevent organ rejection

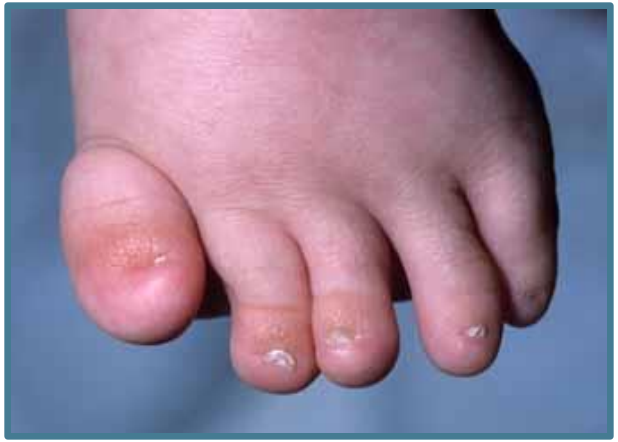


dGTP = deoxyguanosine triphosphate; GMP synthase = guanosine monophosphate synthetase; GTP = guanosine-5'-triphosphate; IMP = inosine 5'-monophosphate; IMPDH = inosine-5'-monophosphate dehydrogenase; MMF = mycophenolate mofetil; MPA = mycophenolic acid; PRPP = phosphoribosyl diphosphate; XMP = xanthosine 5'-monophosphate.

Ji Y, et al. *J Biol Chem.* 2006;281(1):206-212.

Human Teratogenicity of MPA First Described in 2001



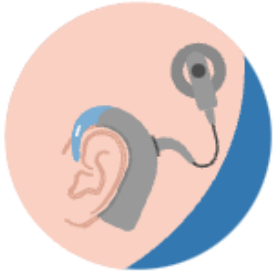


- First case report in 2001 was a child born with hypoplastic nails and shortened fingers to a mother who had been exposed to mycophenolate
- This was the tip of the iceberg as many other subsequent reports followed

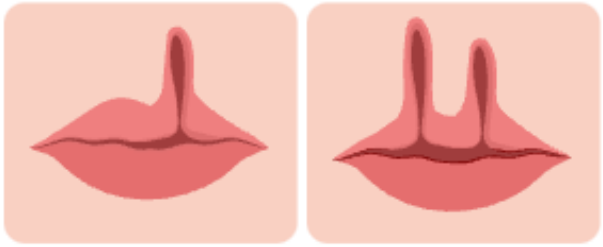
National Institute of Health [NIH] Human Genome Research Institute. 2009. https://elementsofmorphology.nih.gov.

Mycophenolate Embryopathy

Microtia or anotia



Auditory canal atresia or conductive deafness



Cleft lip and palate

Congenital heart defects

Tracheal-esophageal malformations

Other frequent manifestations include dysmorphic features of the face and distal limb anomalies.

Anderka MT, et al. *Am J Med Genet A*. 2009;149A(6):1241-1248.

Embryofetal Risk

National Transplantation Pregnancy Registry (NTPR) 2006:

- 24 female transplant patients reported 33 mycophenolate-exposed pregnancies. Of these pregnancies, there were:
  - ➔ 15/33 (45%) spontaneous miscarriages
  - ➔ 4/18 (22%) structural malformations in live-born infants
- Post-marketing data (Roche) of 77 patients exposed to systemic mycophenolate during pregnancy (1995-2007):
  - ➔ 25 patients (33%) had spontaneous abortions
  - ➔ 14 (18%) had a malformed fetus or infant

Sifontis NM, et al. *Transplantation.* 2006;82:1698-1702. Mechcatie E. *Fam Pract News*. 2007:28.

Mycophenolate FDA Boxed Warning

WARNING: EMBRYOFETAL TOXICITY, MALIGNANCIES AND SERIOUS INFECTIONS

See full prescribing information for complete boxed warning

- **Use during pregnancy is associated with increased risks of first trimester pregnancy loss and congenital malformations. Avoid if safer treatment options are available. Females of reproductive potential must be counseled regarding pregnancy prevention and planning *[see Warnings and Precautions (5.1)]*.**
- **Increased risk of development of lymphoma and other malignancies, particularly of the skin *[see Warnings and Precautions (5.2)]*.**
- **Increased susceptibility to infections, including opportunistic infections and severe infections with fatal outcomes *[see Warnings and Precautions (5.3)]*.**

Risk Mitigation: Pregnancy Prevention and Planning

- NTPR annual report compared pregnancies conceived on mycophenolate to those conceived when mycophenolate was discontinued at least 6 weeks prior to conception
  - Rate of miscarriages in pregnancies with mycophenolate as high as 48% compared to 22% when mycophenolate was discontinued
- Adequate contraception is critical

Transplant Pregnancy Registry International [TPRI]. 2024. www.transplantpregnancyregistry.org/.

Safer Alternatives to Mycophenolate Products?

- Most immunosuppressants ➔ limited embryofetal risk data in humans
- Azathioprine (AZA)
  - Older immunosuppressant
  - Animal teratogenicity
  - Longer history of use in pregnancy
  - Retrospective cohort study comparing pregnancies exposed to MPA to those on AZA during the first trimester
    - 55/111 (49.5%) pregnancy loss with MPA vs. 113/471 (24%) with AZA
- mTOR inhibitors (e.g., sirolimus, everolimus)
  - Animal teratogenicity
  - Safety data about fetal exposure to mTOR inhibitors in humans is sparse
  - Despite reports of successful pregnancy in sirolimus- or everolimus-treated kidney transplant recipients, KDIGO guidelines advise against mTOR use

KDIGO = Kidney Disease Improving Global Outcomes; mTOR = mammalian target of rapamycin.
Thai TN, et al. *Pharmacoepidemiol Drug Saf*. 2020;29(6):716-724. Chittka D, Hutchinson JA. *Transplantation*. 2017;101(4):675-678.

Counseling Patients of Reproductive Potential

Michelle Josephson, MD

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Learning Objective 2

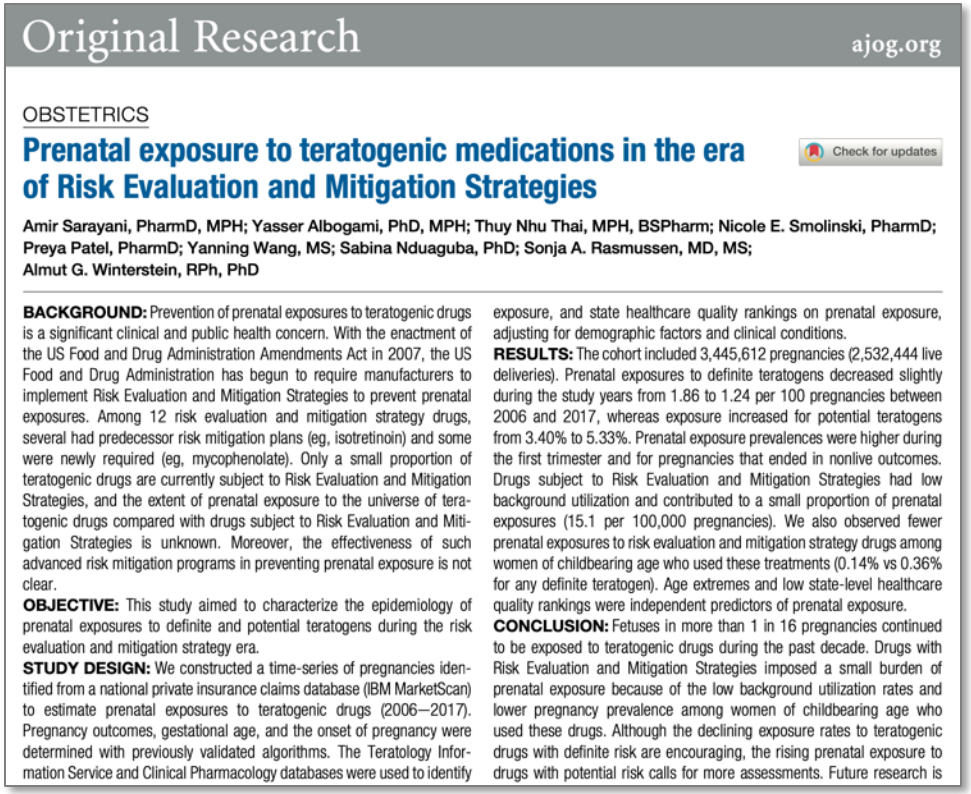
Counsel patients of reproductive potential on pregnancy prevention and/or planning during mycophenolate treatment.

Audience Response

What percent of pregnancies are unplanned?

A. 18%
B. 25%
C. 40%
D. 54%
E. I’m not sure

Prenatal Exposure to Teratogenic Drugs is Common



Original Research ajog.org

OBSTETRICS

Prenatal exposure to teratogenic medications in the era of Risk Evaluation and Mitigation Strategies

Check for updates

Amir Sarayani, PharmD, MPH; Yasser Albogami, PhD, MPH; Thuy Nhu Thai, MPH, BSPharm; Nicole E. Smolinski, PharmD; Preya Patel, PharmD; Yanning Wang, MS; Sabina Nduaguba, PhD; Sonja A. Rasmussen, MD, MS; Almut G. Winterstein, RPh, PhD

BACKGROUND: Prevention of prenatal exposures to teratogenic drugs is a significant clinical and public health concern. With the enactment of the US Food and Drug Administration Amendments Act in 2007, the US Food and Drug Administration has begun to require manufacturers to implement Risk Evaluation and Mitigation Strategies to prevent prenatal exposures. Among 12 risk evaluation and mitigation strategy drugs, several had predecessor risk mitigation plans (eg, isotretinoin) and some were newly required (eg, mycophenolate). Only a small proportion of teratogenic drugs are currently subject to Risk Evaluation and Mitigation Strategies, and the extent of prenatal exposure to the universe of teratogenic drugs compared with drugs subject to Risk Evaluation and Mitigation Strategies is unknown. Moreover, the effectiveness of such advanced risk mitigation programs in preventing prenatal exposure is not clear.

OBJECTIVE: This study aimed to characterize the epidemiology of prenatal exposures to definite and potential teratogens during the risk evaluation and mitigation strategy era.

STUDY DESIGN: We constructed a time-series of pregnancies identified from a national private insurance claims database (IBM MarketScan) to estimate prenatal exposures to teratogenic drugs (2006–2017). Pregnancy outcomes, gestational age, and the onset of pregnancy were determined with previously validated algorithms. The Teratology Information Service and Clinical Pharmacology databases were used to identify exposure, and state healthcare quality rankings on prenatal exposure, adjusting for demographic factors and clinical conditions.

RESULTS: The cohort included 3,445,612 pregnancies (2,532,444 live deliveries). Prenatal exposures to definite teratogens decreased slightly during the study years from 1.86 to 1.24 per 100 pregnancies between 2006 and 2017, whereas exposure increased for potential teratogens from 3.40% to 5.33%. Prenatal exposure prevalences were higher during the first trimester and for pregnancies that ended in nonlive outcomes. Drugs subject to Risk Evaluation and Mitigation Strategies had low background utilization and contributed to a small proportion of prenatal exposures (15.1 per 100,000 pregnancies). We also observed fewer prenatal exposures to risk evaluation and mitigation strategy drugs among women of childbearing age who used these treatments (0.14% vs 0.36% for any definite teratogen). Age extremes and low state-level healthcare quality rankings were independent predictors of prenatal exposure.

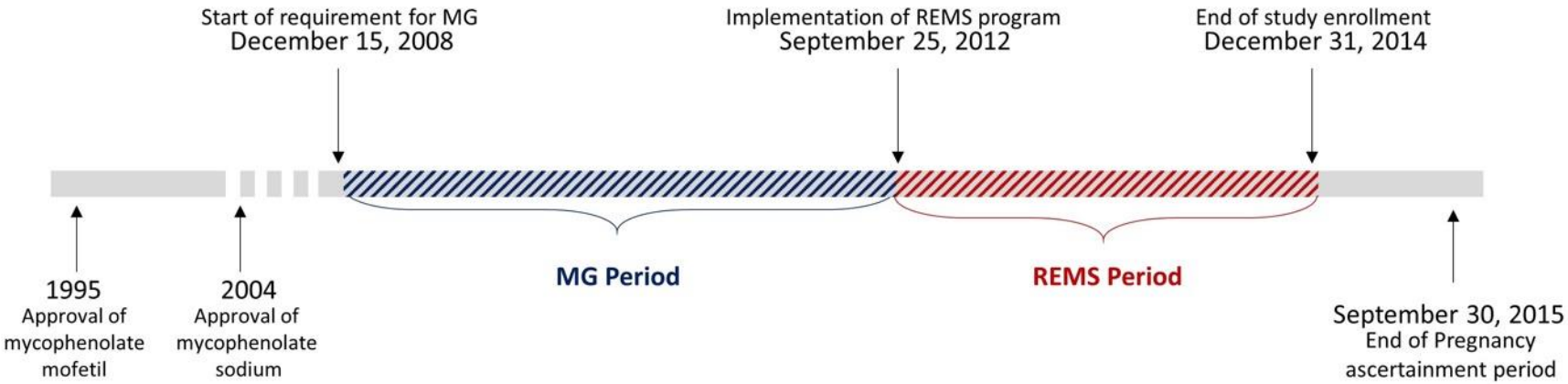
CONCLUSION: Fetuses in more than 1 in 16 pregnancies continued to be exposed to teratogenic drugs during the past decade. Drugs with Risk Evaluation and Mitigation Strategies imposed a small burden of prenatal exposure because of the low background utilization rates and lower pregnancy prevalence among women of childbearing age who used these drugs. Although the declining exposure rates to teratogenic drugs with definite risk are encouraging, the rising prenatal exposure to drugs with potential risk calls for more assessments. Future research is

- About 1 in 16 pregnancies is exposed to medications with known or potential teratogenicity
- Few (currently 10) medications have REMS
- Type of REMS varies from requirement of a negative pregnancy test prior to dispensing (for example, isotretinoin) to only additional written information for patients

Sarayani A, et al. *Am J Obstet Gynecol*. 2022;227(2):263:e1-e38.

Mycophenolate REMS

REMS: Original MG, mandate for sponsor to train prescribers, prescriber-patient acknowledgment form, website, pregnancy registry



MG = medication guide

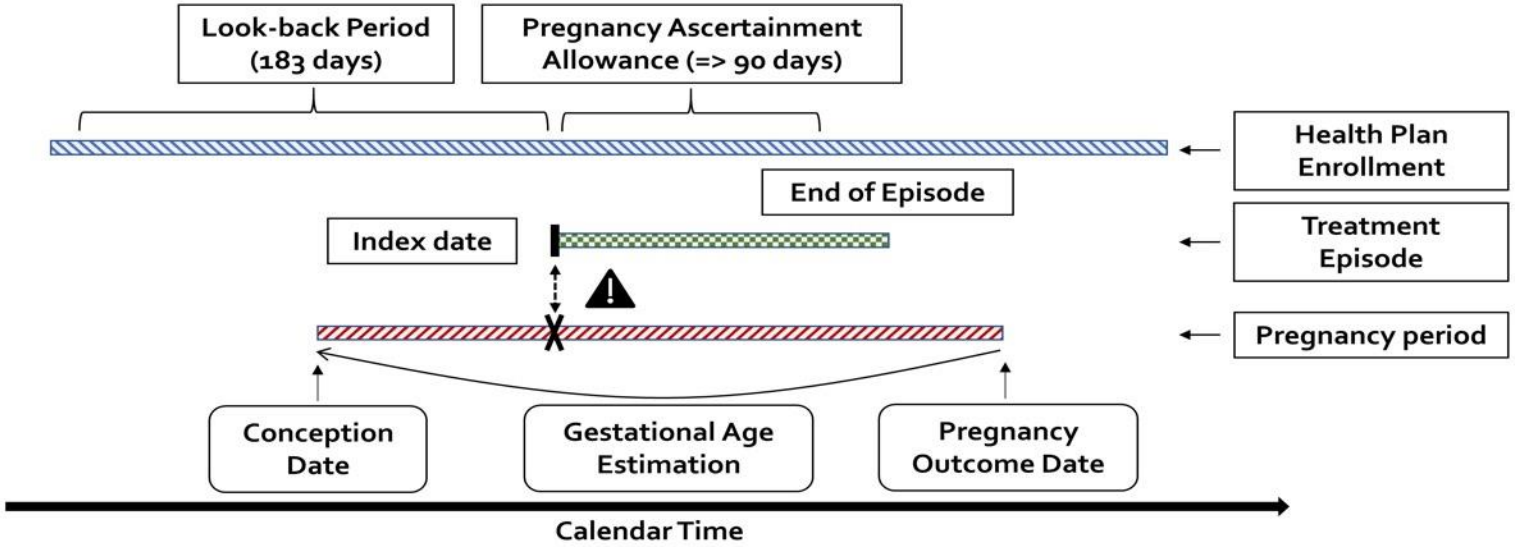
Sarayani A, et al. *BMJ Qual Saf.* 2020;29(8):636-644.

Data Source/Eligibility Criteria

- **Data Source:** MarketScan Databases 2008-2015 (national sample of privately insured patients)
- **Eligibility Criteria:**
  - Persons of reproductive potential age 15-44
  - Filled at least one prescription for oral MPA
- **Unit of Analysis:** MPA treatment episode (multiple episodes allowed)
- **Index date:** Dispensing day of the first MPA prescription in each episode
- **Look-back period:** 6 months

Analysis-1: REMS Goal – Rule Out Pregnancy at Treatment Initiation

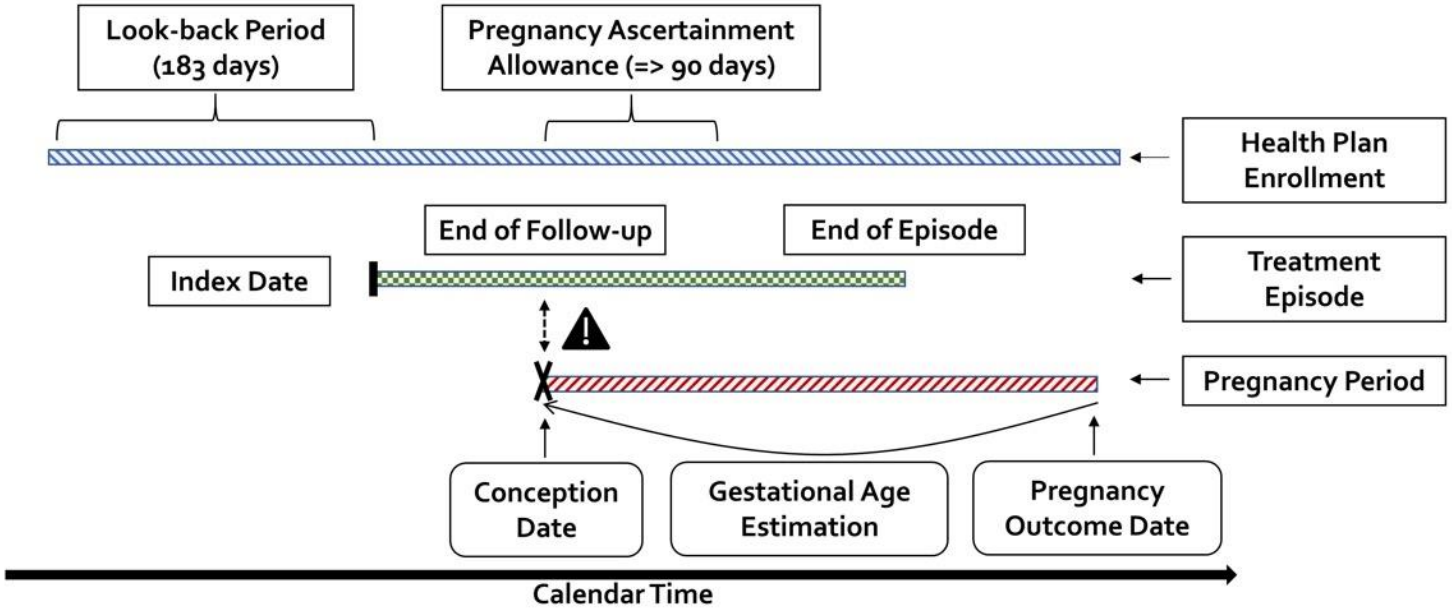
Proportion of patients pregnant at treatment initiation



Sarayani A, et al. *BMJ Qual Saf.* 2020;29(8):636-644.

Analysis-2: REMS Goal – Prevent Conception During Treatment

Rate of conception during treatment episode



Sarayani A, et al. *BMJ Qual Saf.* 2020;29(8):636-644.

REMS May Affect Safe Use Behaviors Differently

Comparison of fetal exposure risk during mycophenolate treatment during era of medication guide vs. REMS program

	Med Guide period	REMS period	Relative measures of frequency
Proportion pregnant at mycophenolate treatment initiation	4.1 (3.2-5.4) per 1000 initiations	1.7 (1.0-2.9) per 1000 initiations	Prevalence ratio = 0.42 (0.24-0.74)
Rate of conception during mycophenolate treatment	12.9 (9.9-16.9) per 1000 exposure-years	12.5 (8.9-17.6) per 1000 exposure-years	Rate Ratio = 0.97 (0.63-1.49)

REMS did decrease mycophenolate initiation during pregnancy (i.e., prescribers evaluating pregnancy status prior), *but contraception during use did not improve*

Sarayani A, et al. *Am J Obstet Gynecol*. 2022;227(2):263:e1-e38.

Why Does This Happen?

Reason for Pregnancy	Year 12 3/1/17-2/28/18 N = 185; N (%)	Year 13 3/1/18-2/28/19 N = 182; N (%)	Year 14 3/1/19-2/28/20 N = 186; N (%)	Year 15 3/1/20-2/28/21 N = 189; N (%)	Year 16 3/1/21-12/10/21 N = 184; N (%)
Contraceptive Failure	52 (28.1)	15 (8.2)	26 (14.0)	38 (20.1)	30 (16.3)
Contraceptive Not Used Date Conceived	2 (1.1)	2 (1.1)	7 (3.8)	8 (4.2)	3 (1.6)
Did Not Use 2 Birth Control Methods	64 (34.6)	65 (35.7)	48 (25.8)	43 (22.8)	56 (30.4)
Unsuccessful at Abstinence	34 (18.4)	48 (26.4)	49 (26.3)	43 (22.8)	41 (22.3)
Used Ineffective Contraception	3 (1.6)	2 (1.1)	0 (0)	4 (2.1)	3 (1.6)
Planned Pregnancy	0 (0)	1 (0.5)	0 (0)	0 (0)	0 (0)
Other	1 (0.5)	10 (5.5)	6 (3.2)	5 (2.6)	9 (4.9)
Unknown	15 (8.1)	35 (19.2)	49 (26.3)	44 (23.3)	43 (23.4)
Missing	16 (8.6)	10 (5.5)	9 (4.8)	15 (7.9)	15 (8.2)

Risk for pregnancy during use of isotretinoin vs. other oral acne medications

	Relative risk
Overall	0.25 (0.21, 0.29)
Age 15 - 19	0.44 (0.28, 0.68)
Age 20 - 29	0.22 (0.17, 0.27)
Age 30 - 39	0.17 (0.12, 0.24)
Age 40 - 44	0.55 (0.22, 1.39)

Albogami Y, et al. *Drug Saf*. 2021;44(4):447-454.
U.S. Food and Drug Administration [FDA]. *FDA Briefing Document: Risk Evaluation and Mitigation Strategy (REMS) for Isotretinoin Products*. 2023. https://www.fda.gov/media/166485/download.

What Can We Do?

40% of pregnancies are unplanned

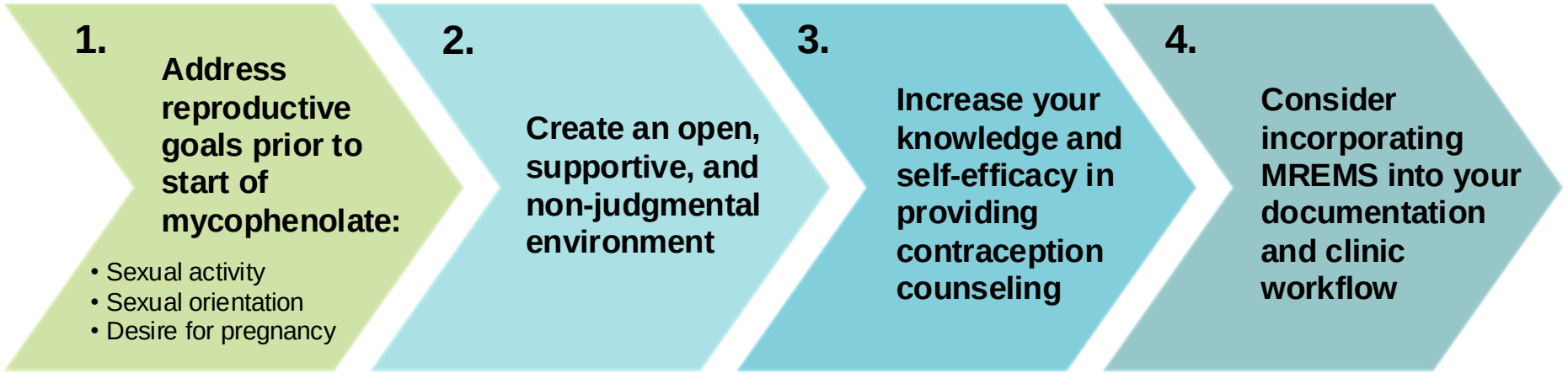
Implementing MREMS in clinical practice can be difficult

- Time constraints
- Patient perceptions
- Level of comfort
- Addressing culture, language, health literacy

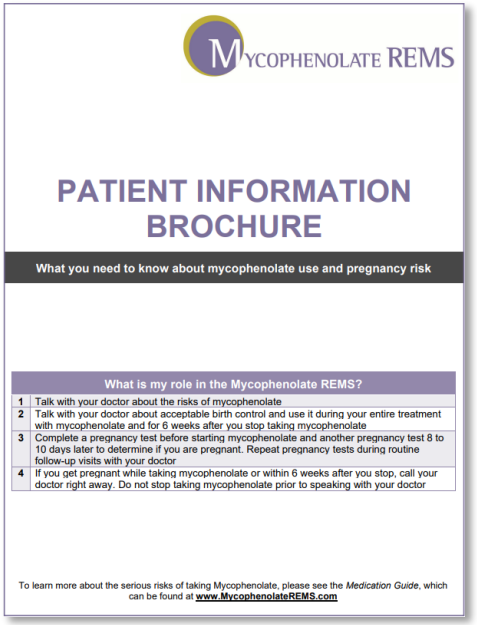
Strategies to reduce poor outcomes include counseling patients on adequate contraception, performing pregnancy screening, and reporting pregnancies to the mycophenolate pregnancy registry. Consider culture, language, health literacy, and other social determinants of health when counseling patients.

Cea Soriano L, et al. *BMC Med Inform Decis Mak*. 2020;20:164. Sifontis NM, et al. *Transplantation*. 2006;82(12):1698-1702.

Preparing for the Conversation



Contraception Counseling



MYCOPHENOLATE REMS

PATIENT INFORMATION BROCHURE

What you need to know about mycophenolate use and pregnancy risk

What is my role in the Mycophenolate REMS?	
1	Talk with your doctor about the risks of mycophenolate
2	Talk with your doctor about acceptable birth control and use it during your entire treatment with mycophenolate and for 6 weeks after you stop taking mycophenolate
3	Complete a pregnancy test before starting mycophenolate and another pregnancy test 8 to 10 days later to determine if you are pregnant. Repeat pregnancy tests during routine follow-up visits with your doctor
4	If you get pregnant while taking mycophenolate or within 6 weeks after you stop, call your doctor right away. Do not stop taking mycophenolate prior to speaking with your doctor

To learn more about the serious risks of taking Mycophenolate, please see the *Medication Guide*, which can be found at **www.MycophenolateREMS.com**

Who do we counsel?

- Patients of reproductive potential (puberty ➔ menopause)
- Exclude: hysterectomy, oophorectomy, premature menopause

How often should we counsel?

- Prior to initiation of mycophenolate and at every follow-up visit

When to use contraception?

- During treatment
- At least 6 weeks after ending medication

Frequency of pregnancy screening?

- Immediately prior to start of treatment
- 8-10 days after starting
- At every follow-up encounter
- 6 weeks after discontinuation

Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

Acceptable Birth Control Options

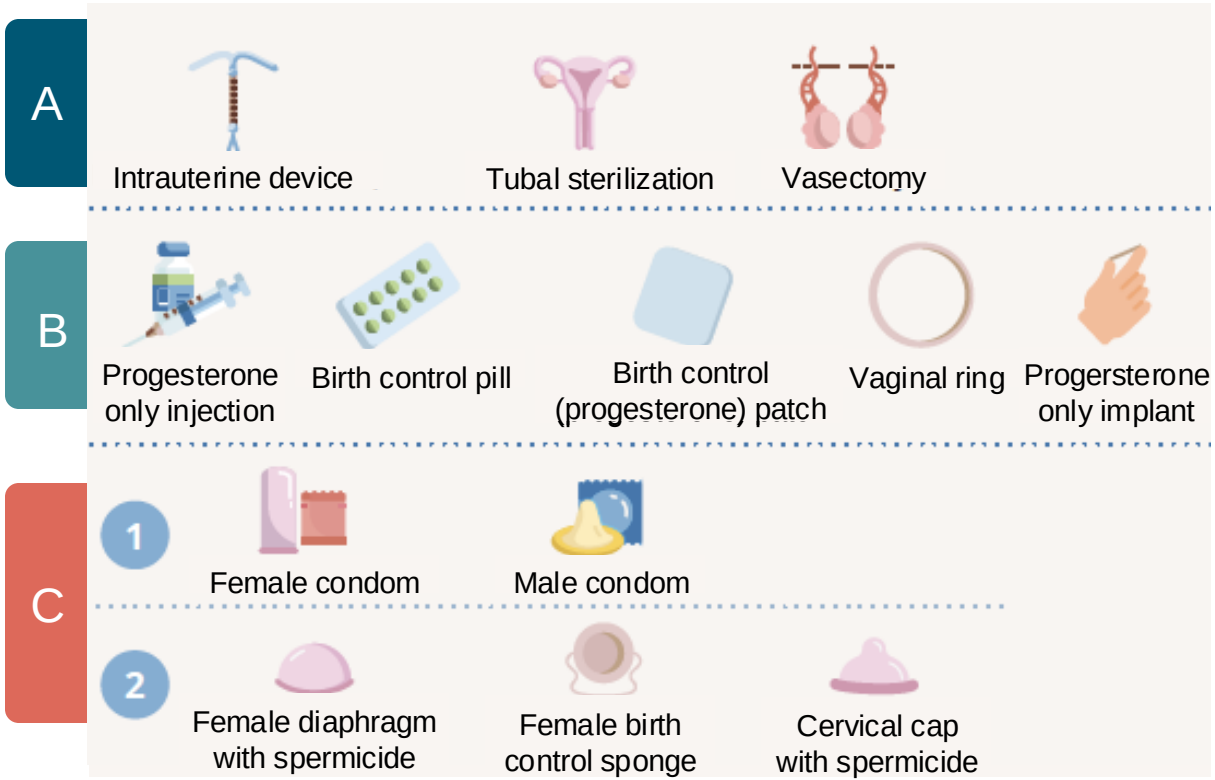
- 1 method from category A

or

- 1 method from category B and 1 method from category C1 or C2

or

- 1 method from category C1 and 1 method from category C2



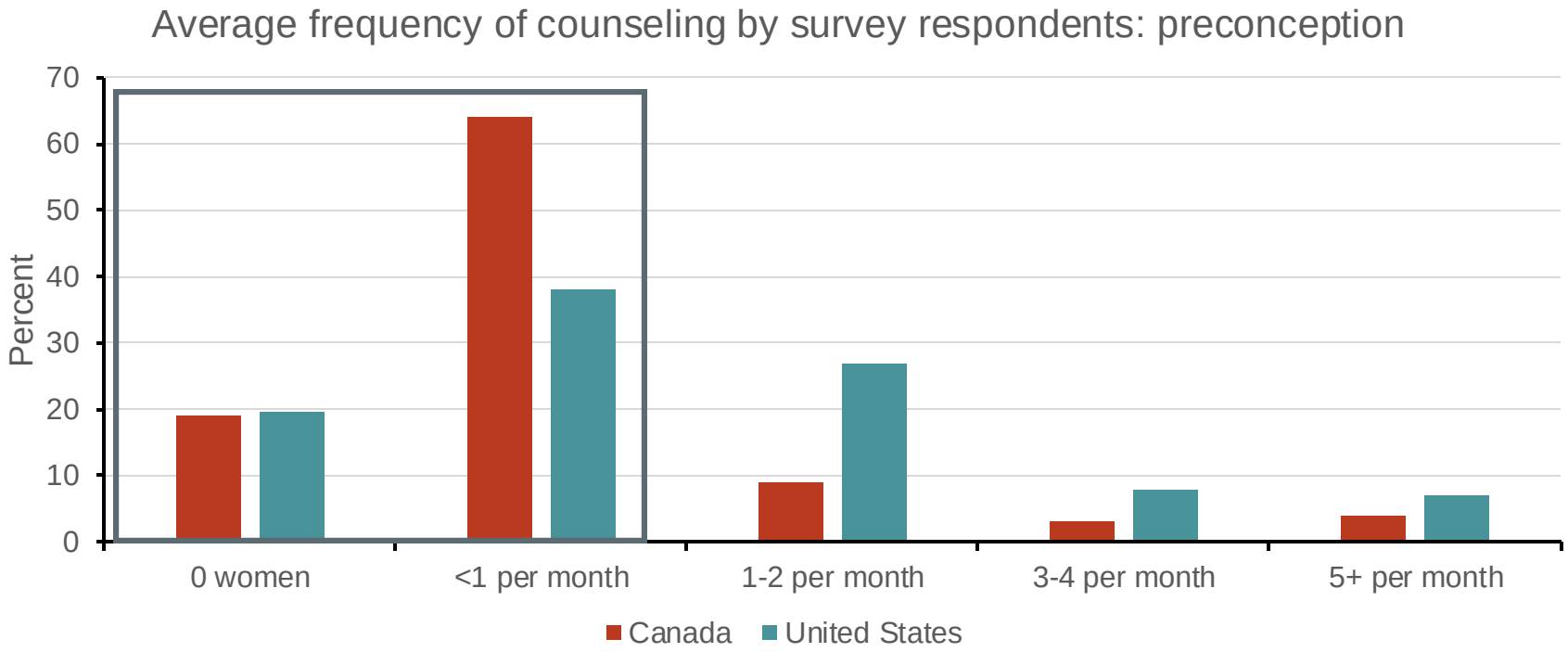
Kim M, et al. *Am J Transplant.* 2013;13(6):1383-1389; Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

Emergency Contraception

Type of emergency contraception	Weight restrictions?	How soon after sexual encounter?	How it works?	How to provide to patient?
Plan B *(Levonorgestrel)*	Ideally < 165 lbs	Within 3 days	Prevents ovulation or prevents an egg from attaching to uterus	Over the counter [Four-year shelf life]
ELLA *(Ulipristal)*	Ideally < 195 lbs	Within 5 days	Prevents ovulation	Prescription [Three-year shelf life]
Copper Intrauterine Device	100% effective Any weight	Within 5 days	Nonhormonal – copper ions mainly affect sperm motility	Referral to a healthcare provider

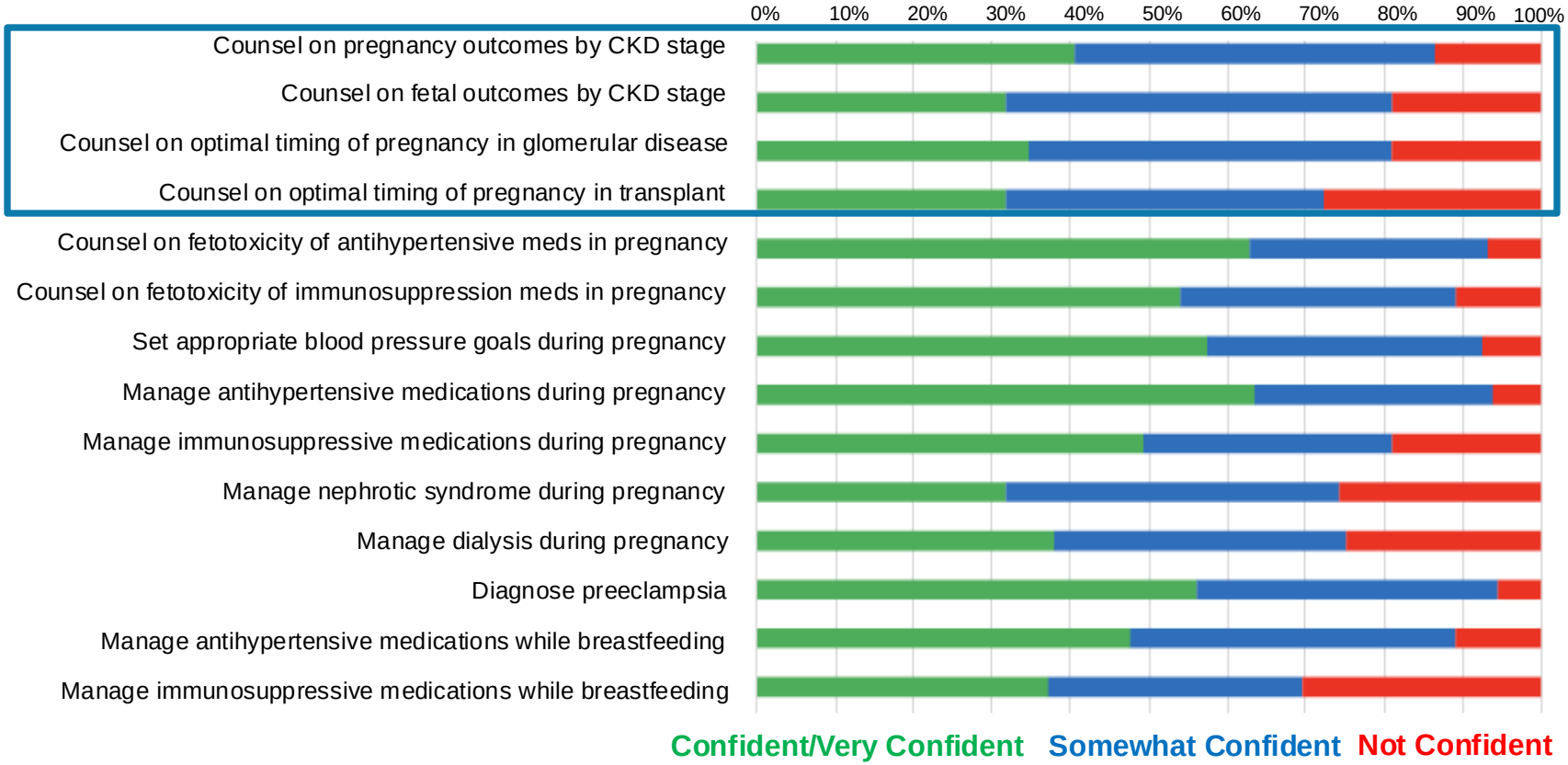
Fok WK, et al. *Curr Opin Obstet Gynecol.* 2016;28(6):522-529.

Contraception in Kidney Transplant Recipients



Hendren EM, et al. *J Clin Med.* 2019;8(2):176-189.

Contraception in Kidney Transplant Recipients: Nephrologists' Confidence in Managing Pregnancy-Related Topics



Hendren EM, et al. *J Clin Med*. 2019;8(2):176-189.

CME

Consider Partnering with an OB/GYN or Women's Health Provider

Health care providers should develop a strong relationship and partner with an obstetrician/gynecologist or women's health care provider that can:

Counsel patients about contraception

Prescribe the full range of available contraceptive methods

Provide fitting/insertion, demonstration, and/or instruction on acceptable uses of contraceptives

Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

The Mycophenolate Pregnancy Registry

Lisa Coscia, RN, BSN, CCTC, FAST

CME OUTFITTERS

Learning Objective 3

Monitor relevant pregnancies and encourage patient reporting to the Mycophenolate Pregnancy Registry.

Audience Response

If pregnancy occurs while using mycophenolate (or within 6 weeks of stopping it), what is the first step for patients to participate in the Registry?

A. Stop mycophenolate immediately
B. Inform healthcare provider
C. Notify the registry by phone or secure email of pregnancy
D. Request an informed consent form from the registry
E. I’m not sure

Purpose of the Mycophenolate Pregnancy Registry

- Assess risks and outcomes
- Create a framework for education (clinicians, patients)
- Mitigate or eliminate exposures to mycophenolate in pregnancy

Steps for Patients to Participate in Registry

1. If a patient gets pregnant while taking mycophenolate or within 6 weeks of stopping it, they should inform their healthcare provider immediately
2. Once confirmed, and with permission of the patient, the healthcare provider will report the pregnancy to the Registry
3. The Registry will contact the patient after speaking with the healthcare provider
4. An informed consent form which explains what to expect from the Registry including the patient's rights will be sent to the patient

Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

Steps for Patients to Participate in Registry

5. Healthcare providers should offer to review the document with the patient to answer any questions
6. Upon patient consent, the patient and healthcare provider provides information about the patient's health and the baby's health to the Registry

Providing Information to the Mycophenolate Pregnancy Registry

A patient's participation in the Registry does not require any additional healthcare provider visits, testing, or treatments beyond the regular medical care received from healthcare providers.

The Registry will contact the patient by her preferred method (eg, phone, email) and ask the patient (and also the healthcare provider) questions about both mother and baby at:

- About 3 months of pregnancy
- 2 more times over the next 6 months

- The mother's approximate due date

- When the baby is 2, 6, and 12 months old

Any information provided by the patient will be kept private and the patient may withdraw consent at any time and for any reason.

Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

Reporting Eligible Pregnancies to the Mycophenolate Pregnancy Registry

When a healthcare provider reports an eligible pregnancy to the Mycophenolate Pregnancy Registry, they should provide contact information, information about the pregnancy, and the patient's contact information so that they can be called for follow-up for the safety study.

Provision of patient contact and medical information to the Mycophenolate Pregnancy Registry is covered by a HIPAA waiver.

HIPAA = Health Insurance Portability and Accountability Act.

Mycophenolate REMS. 2024. www.mycophenolaterems.com; PS Mycophenolate REMS. 2024. www.psmycophenolaterems.com.

Role of the Healthcare Provider After Patient Enrolls in the Registry

After enrolling a patient in the Registry, healthcare providers will be asked to provide pregnancy and outcomes data on a paper-based case report form (CRF) and submit it via mail or fax, or enter the data into electronic data capture (EDC) system.

The healthcare provider should keep Registry informed of any changes to contact information throughout participation.

Data Elements Collected from Patients Enrolled in the Mycophenolate Pregnancy Registry

- Mycophenolate exposure, including dose and timing of exposure
- Maternal and fetal outcomes
- Root cause analysis (to assess that circumstances that led to the fetal exposure)

For example, in data from isotretinoin, the leading causes for pregnancies appears to be:

1

Failure to use 2 birth control methods

2

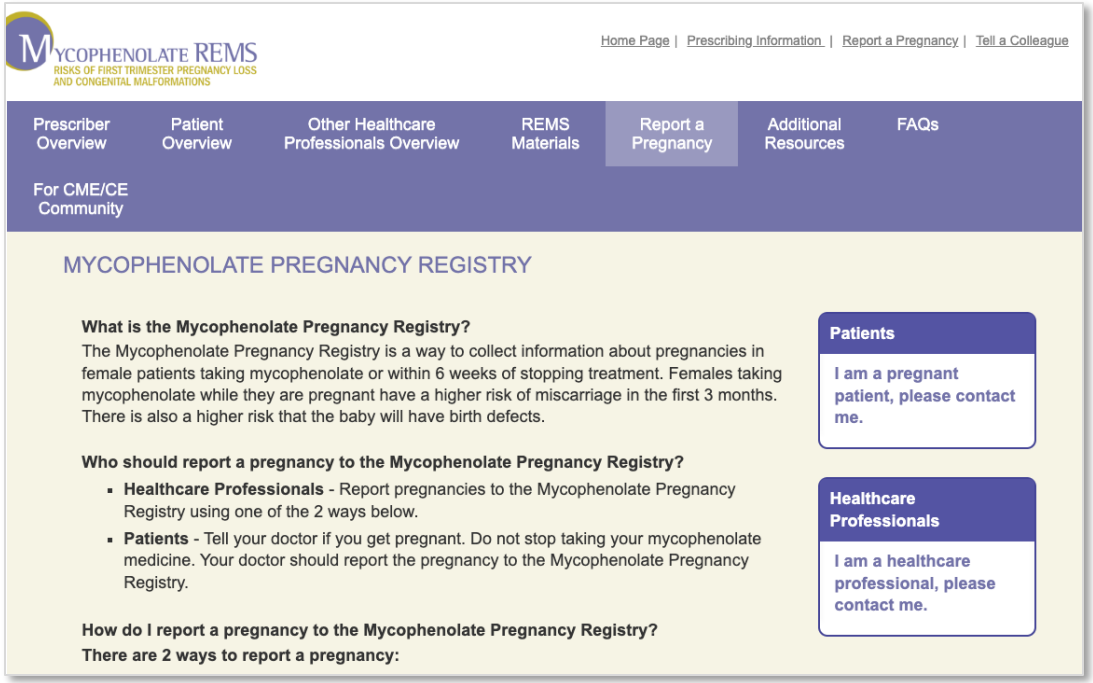
Unsuccessful abstinence

3

Contraceptive failure

- Frequency of educational counseling

Reporting a Pregnancy: Contact Info



Mycophenolate Pregnancy Registry
MycophenolateREMS.com
1.800.617.8191
(Call for mailing address)

PS-Mycophenolate Pregnancy Registry
PSMycophenolateREMS.com
1.877.310.4015
support@psmycophenolaterems.com

Transplant Pregnancy Registry International
transplantpregnancyregistry.org
1.877.955.6877 (toll-free)
Outside of US: 215.599.2078
tpr@transplantpregnancyregistry.org

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SMART Goals

Specific, Measurable, Attainable, Relevant, Timely

- Educate and remind! persons of reproductive potential about risk
- Engage in pregnancy prevention and planning, including:
  - Discussion of acceptable methods of contraception during mycophenolate treatment
  - Consideration of alternative immunosuppressants with less potential for embryofetal toxicity if pregnancy is desired
- Report to the Mycophenolate Pregnancy Registry any pregnancies that occur and encourage pregnant patients to participate in the Registry (also consider reporting to the TPRI for transplant recipients)
  - Support collection of evidence to improve understanding of REMS failure and enhance prevention of prenatal exposure to mycophenolate
- Read and share additional education resources:
  - Brochure for healthcare providers
  - Brochure for patients

Audience Response (Post-Activity)

What percentage of infants born to an individual exposed to mycophenolate during the first trimester of pregnancy are born with congenital abnormalities?

A. ~10-15%
B. ~20-25%
C. ~45-50%
D. More than 50%
E. I’m not sure

Audience Response (Post-Activity)

What percent of pregnancies are unplanned?

A. 18%
B. 25%
C. 40%
D. 54%
E. I’m not sure

Audience Response (Post-Activity)

If pregnancy occurs while using mycophenolate (or within 6 weeks of stopping it), what is the first step for patients to participate in the Registry?

A. Stop mycophenolate immediately
B. Inform healthcare provider
C. Notify the registry by phone or secure email of pregnancy
D. Request an informed consent form from the registry
E. I’m not sure

To Ask a Question

Please select the *Ask Question* tab
below the slide viewer.

Please include the faculty member's name
if a question is specifically for them.

Questions & Answers

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Click on the *Request Credit* tab to complete the process and print your certificate.

CME OUTFITTERS

Why Are We Still Talking About the Mycophenolate REMS in 2024?

This activity is supported by an independent educational grant from the Mycophenolate REMS Group. This activity is intended to be fully compliant with the Mycophenolate REMS education requirements issued by the U.S. Food and Drug Administration (FDA).