



State of New Jersey  
Department of Human Services  
Division of Medical Assistance & Health Services  
New Jersey Drug Utilization Review Board

# NEWSLETTER

Volume 28 No. 19

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**TO:** Physicians, Nurse Practitioners, Clinics, Federally Qualified Health Centers- **For Action**  
Providers of Pharmaceutical Services, Health Maintenance Organizations – **For Information Only**

**SUBJECT:** **Metformin as First Line Treatment for Type 2 Diabetes**

**PURPOSE:** To provide practitioners useful clinical information regarding Metformin in the treatment of Type 2 diabetes

**BACKGROUND:** The New Jersey Drug Utilization Review Board (DURB) serves as an advisory board to the New Jersey Department of Human Services and the New Jersey Department of Health. The DURB's responsibilities include recommending clinical standards based, in part, on the evaluation of prescription drug use by participants in the State's prescription drug programs. The DURB is also responsible for disseminating information that it has determined would encourage appropriate drug utilization.

**ACTION:** Attached is a bulletin regarding the use of Metformin as the first line of treatment for Type 2 diabetes. This bulletin may also be viewed online at: <http://www.state.nj.us/humanservices/dmahs/boards/durb/newsletters/>.

The DURB welcomes your comments regarding the information shared in the bulletin. These comments may be sent to: [Sam.Emenike@molinahealthcare.com](mailto:Sam.Emenike@molinahealthcare.com). When submitting comments, please include the phrase 'DURB Comments' in the subject area of the email.

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Educational Newsletter  
September 2018  
Metformin as First Line Treatment of Type 2 Diabetes

**Purpose:** To encourage prescribers to use metformin as first-line treatment for patients with type 2 diabetes.

**Efficacy:**

The first-line treatments recommended for type 2 diabetes are lifestyle changes and metformin, which is a biguanide antihyperglycemic agent. According to the 2018 American Association of Clinical Endocrinologists recommendations, "metformin has a low risk of hypoglycemia, can promote modest weight loss, and has good antihyperglycemic efficacy at doses of 2,000 to 2,500 mg/ day. Its effects are quite durable compared to sulfonylureas (SUs), and it also has robust cardiovascular safety relative to SUs".

**Most treatment guidelines, including those from the American Diabetes Association/European Association for the Study of Diabetes and the International Diabetes Federation, suggest metformin be used as the first-line therapy after diet and exercise.**

- Diabetes Care 2017 Aug; 40(8)

According to 2017 American Diabetes Association recommendations, "metformin, if not contraindicated and if tolerated, is the preferred initial pharmacologic agent for the treatment of type 2 diabetes. Metformin monotherapy should be started when type 2 diabetes is first diagnosed unless there are contraindications. Metformin is effective and safe, is inexpensive, and may reduce risk of cardiovascular events and death.

**Safety:**

The FDA recently changed the package label for metformin use in chronic kidney disease (CKD) patients lifting the previous contraindication in males with serum creatinine >1.5 mg/dL and females with serum creatinine >1.4 mg/ dL. Newer CKD guidelines are based on estimated glomerular filtration rate (eGFR), not on serum creatinine. Metformin should not be used in patients who have an eGFR below 30 mL/min/1.73 m<sup>2</sup>, but it can be continued in those who start while their eGFR is above 45 mL/min/1.73 m<sup>2</sup>, continue with assessment of the risks as their eGFR falls below 45 mL/min/1.73 m<sup>2</sup>, and then stop altogether if the eGFR falls below 30 mL/min/1.73 m<sup>2</sup>. Lactic acidosis, another concern with metformin, was addressed by a Cochrane report. A systematic review of 70,490 type 2 diabetics on metformin did not report a single case of metformin lactic acidosis. The risk of lactic acidosis is the same in individuals treated with metformin as with those not treated with metformin. For most patients, metformin should be discontinued at least 48 hours prior to administration of iodinated contrast media and restarted if renal function is normal. Gastrointestinal side effects are sometimes reported during initial therapy with metformin, but subsides with time, when a slower dosage titration is prescribed or with the use of the extended release dosage form.

**Cost:**

A study at The John Hopkins University School of Medicine in 2007 demonstrated that metformin offered the same level of effectiveness with tolerable reductions in blood glucose measurements, and did so for a lower price. With the influx of new and very efficient antidiabetic products, that finding holds today. Review of initial prescriptions for 59,091 type 2 diabetes patients in the NJ FamilyCare fee for service

(FFS) and managed care organization programs in 2017 showed that 8,212 or 14% of patient treatment plans involved use of an alternative drug prior to use of or addition of metformin. Another 4,421 (7%) received alternative products with no history of metformin being added. Cost for metformin compared to other type 2 diabetic medications (see table below) demonstrated an average per claim savings of about \$181.00.

*Diabetes Drugs Utilization Cost Analysis in 2017 (Excludes people with Part D or TPL)*

	<b>Claims</b>	<b>Average cost/claim</b>	<b>Total Cost</b>
Metformin	314,953	\$6.03	\$1,898,041
Other diabetic drug	300,235	\$187.87	\$56,423,449

**Conclusion:**

With this drug's proven attributes, as well as its substantially lower cost, the Board encourages the broader use of metformin. Metformin's negligible risk of hypoglycemia when prescribed as monotherapy and minimal adverse drug reactions is indicative of the high safety profile for this drug. There are many alternatives to metformin that can be considered in cases of intolerance or contraindication.

References:

1. Handelsman, Y., Bloomgarden, Z.T., Grunberger, G. et al, Consensus Statement By The American Association Of Clinical Endocrinologists And American College Of Endocrinology On The Comprehensive Type 2 Diabetes Management Algorithm – 2018 Executive Summary. *Endocr Pract.* Vol 24 No 1, 2018; 91-120.
2. Sinha A, Hoeger T, et al. Costs and consequences associated with newer medications for glycemic control in type 2 diabetes. *Diabetes Care.* 2010;33:695-700
3. Salpeter SR, Greyber E, Pasternak GA, Salpeter EE. Risk of fatal and nonfatal lactic acidosis with metformin use in type 2 diabetes mellitus. *Cochrane Database Syst Rev.* 2010;(1)
4. The Medical Letter on Drugs and Therapeutics. *Drugs for Type 2 Diabetes (2017)*; Vol 59; 9-18
5. American Diabetes Association Position. Statement: Standards of Medical Care in Diabetes—2017. *Diabetes Care.* 2017;40(Suppl. 1):S1–S138
6. GLUCOPHAGE® [Prescribing Information] Bristol-Myers Squibb Company. Princeton, NJ 04/2017
7. Rojas LBA, Gomes MB. Metformin: an old but still the best treatment for type 2 diabetes. *Diabetology & Metabolic Syndrome* 2013, 5:6