# Metformin

By pharmacist:

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# *Contents*

- History
- Mechanism of action
- Metformin in Guidelines
- Dosing
- Side effects
- Contraindications
- Pharmacokinetics

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# Historical Overview

- *Galega officinalis (Middle ages) reduce DM*
- *Synthalin A&B less toxic 1920's*
- *Advent of insulin 1930's*
- *Jean Sterne (Paris) 1956*
- *UK 1958*
- *Canada 1972*
- *US 1995*

- *FDA approved 1994 !!!*

# *Mechanism of action*

- Insulin sensitizer
- Increases glucose uptake and utilization by target tissues
- Decreases insulin resistance
- Lower risk of hypoglycemia due to its mechanism of action

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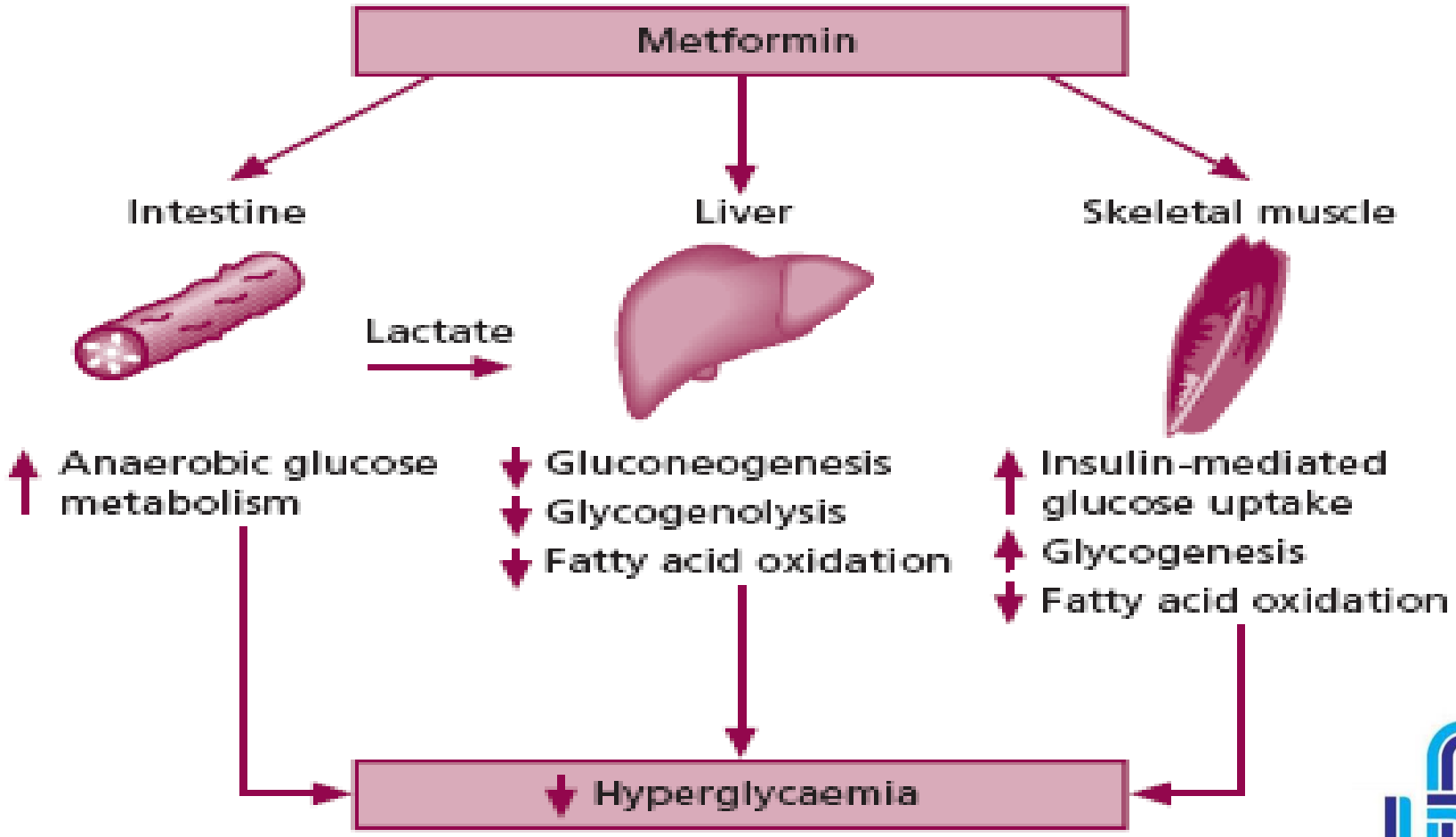
# *Metformin Mechanism of action*

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# *Metformin in Guidelines*

- First line agent
- >50 year old molecule
- Current guidelines from the **ADA/EASD** and the **AACE/ACE recommend early initiation of metformin as a first-line drug** for monotherapy and combination therapy for patients with T2DM

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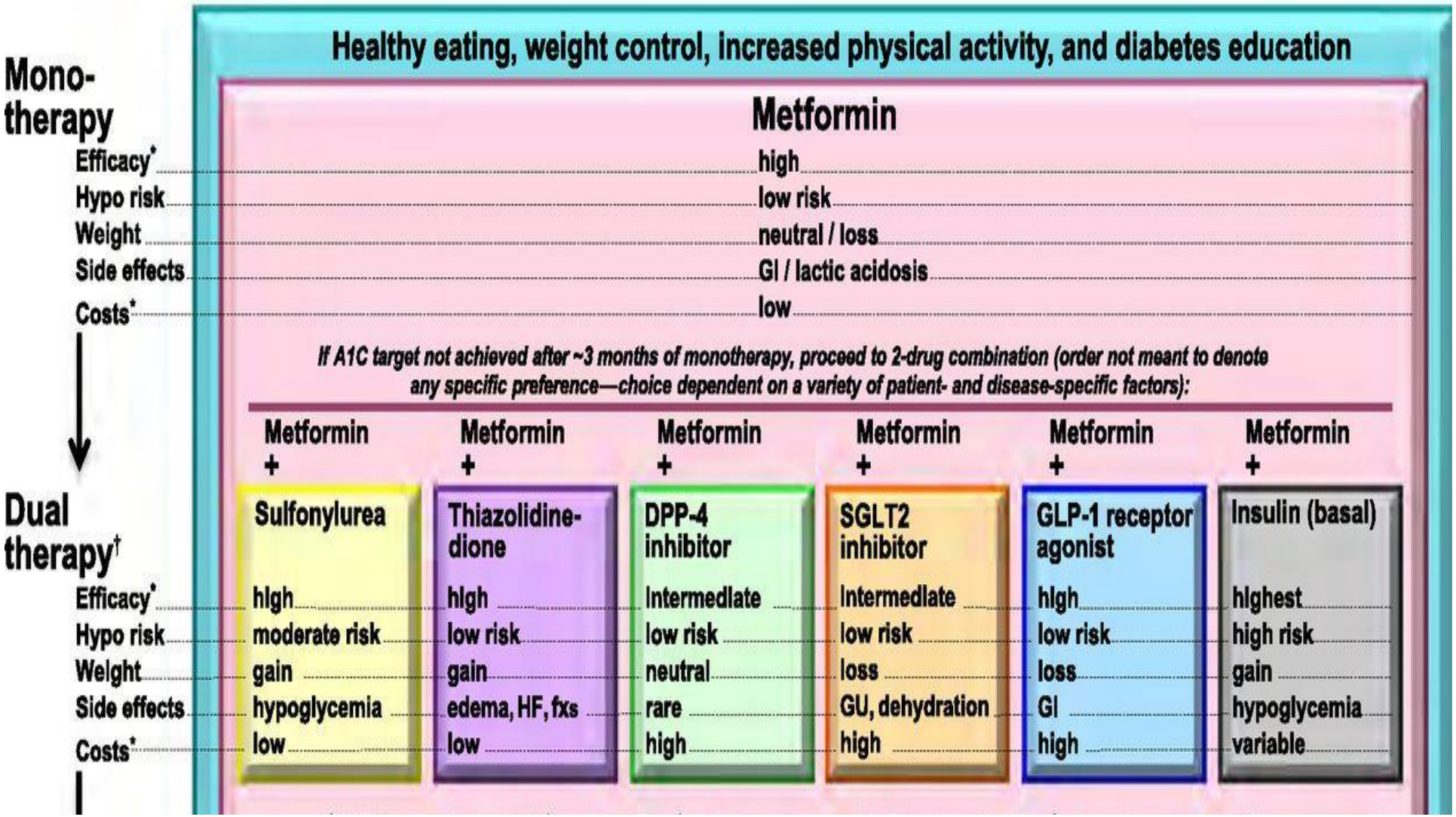
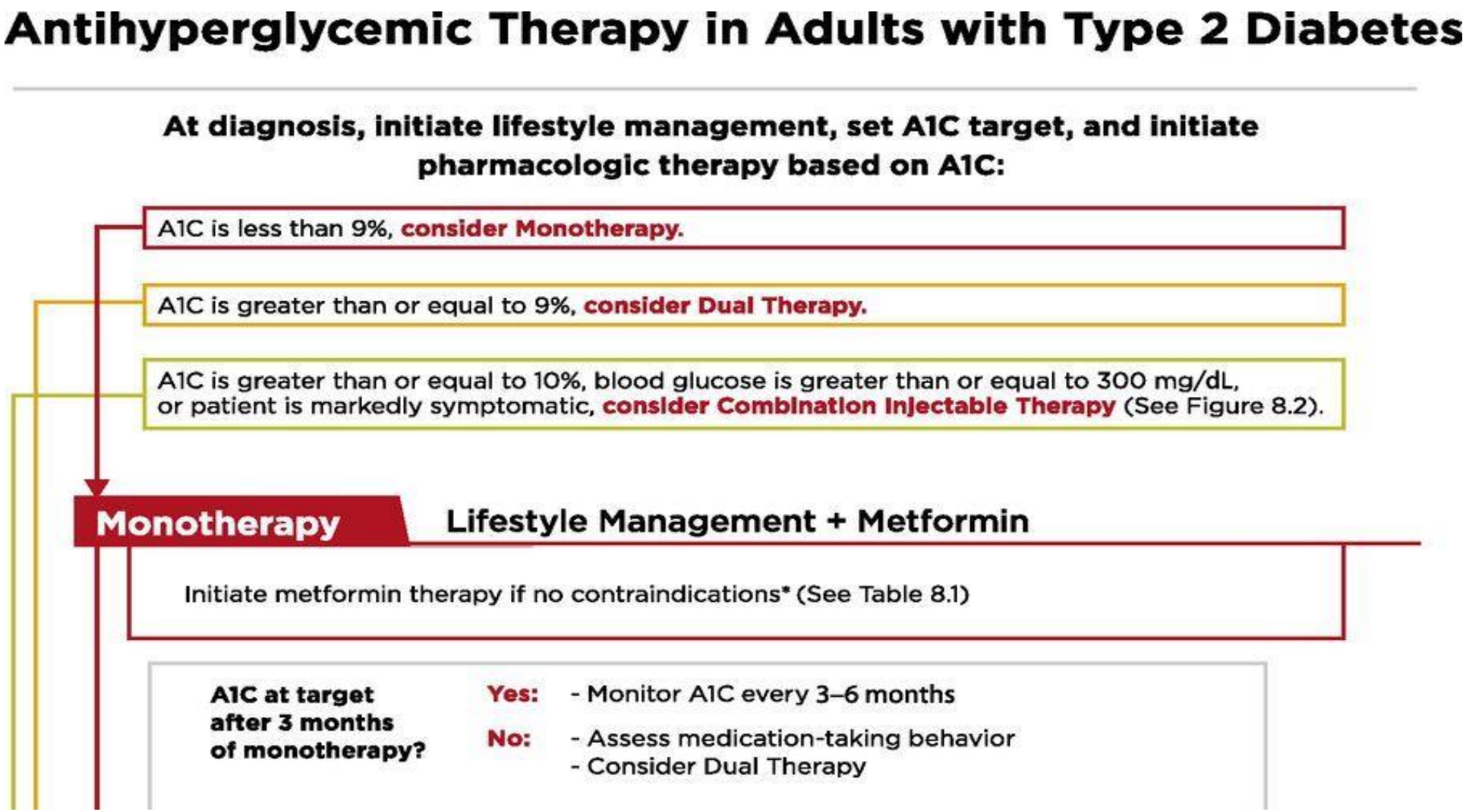
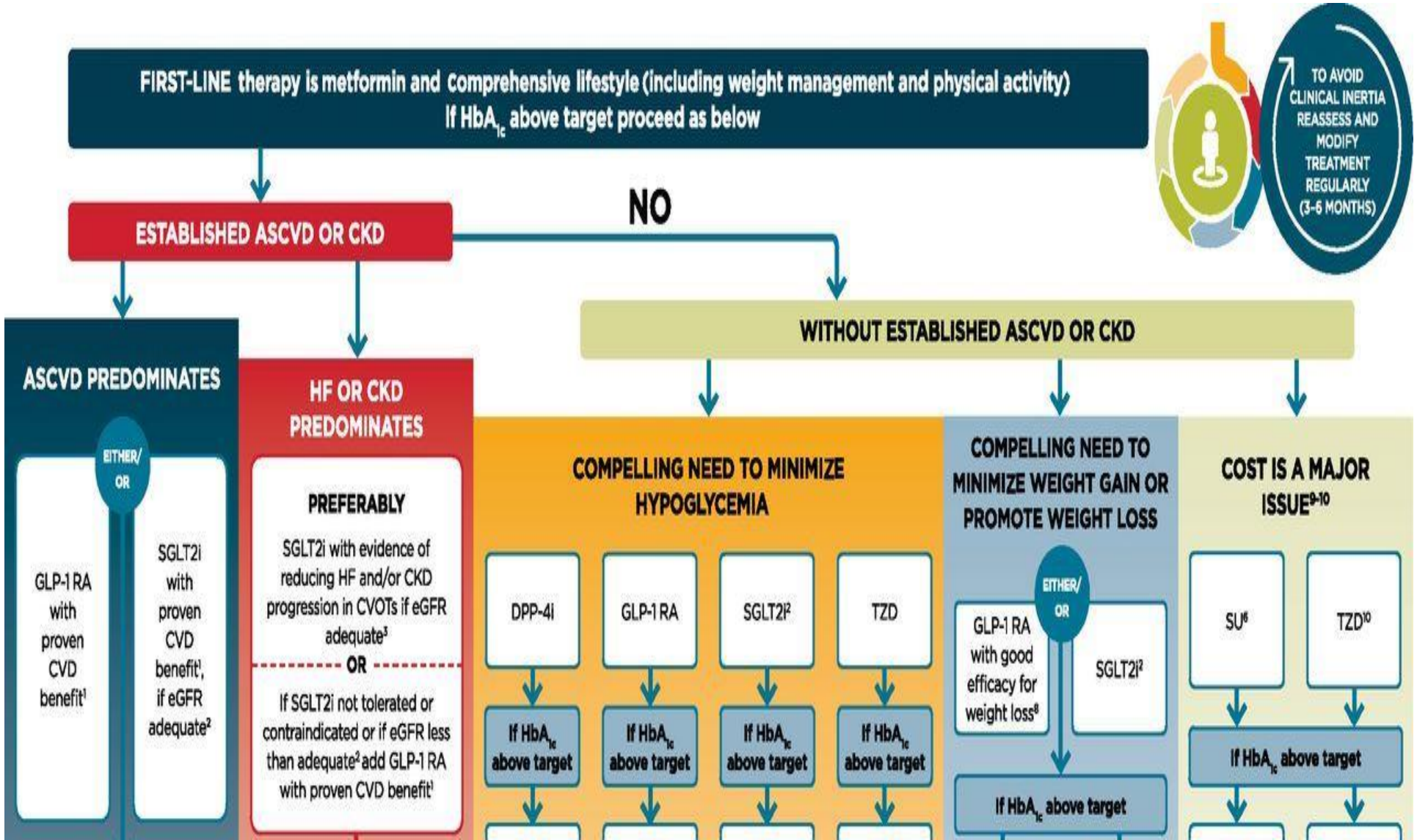
# Guidelines 2016



# *Guidelines 2018*



# Guidelines 2019



# *Dosing*

- ***T2DM***
- Initial 500mg po q12 hr or 850mg po qDay with meals; increase dose in increments of 500 mg/week or 850mg/ 2 weeks
- Maintence dose 1500-2550 mg/day
- ***PCO (off-label)***
- 500 mg for 1-2 weeks then 500mg twice a day for 1-2 weeks then 500mg three times a day or 850mg twice a day for 1-2 weeks then 1g twice a day or 850mg three times a day

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# Common side effects of Metformin

- Stomach pain
- Nausea and vomiting
- Bloating
- Gas
- Diarrhea
- Constipation
- Heartburn
- Weight loss
- Headache

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# *Contraindication and cautious use*

- ***Contraindicated:***
- Renal / hepatic disease
- Acute MI
- Diabetic ketoacidosis
- ***Caution:***
- 80 years old patient
- History of CHF

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# *pharmacokinetics*

- Bioavailability: 50-60%
- Peak plasma: 2-3 hr
- Metabolism: Not by liver
- Half-life: 4-9 hr
- Excretion: urine (90% by tubular secretion)

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METFORAL®1000
Metformin HCL 1000 mg
30 Film Coated tablets
Free Medical Sample
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METFORAL®500
Metformin HCL 500 mg
40 Coated tablets
نموذج طبي مجاني
FREE MEDICAL SAMPLE
METFORAL®850
Metformin HCL 850 mg
20 Coated tablets
نموذج طبي مجاني
FREE MEDICAL SAMPLE

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# *Thanks for listening*