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**CORONA VIRUS (COVID-19)
STATE EMERGENCY
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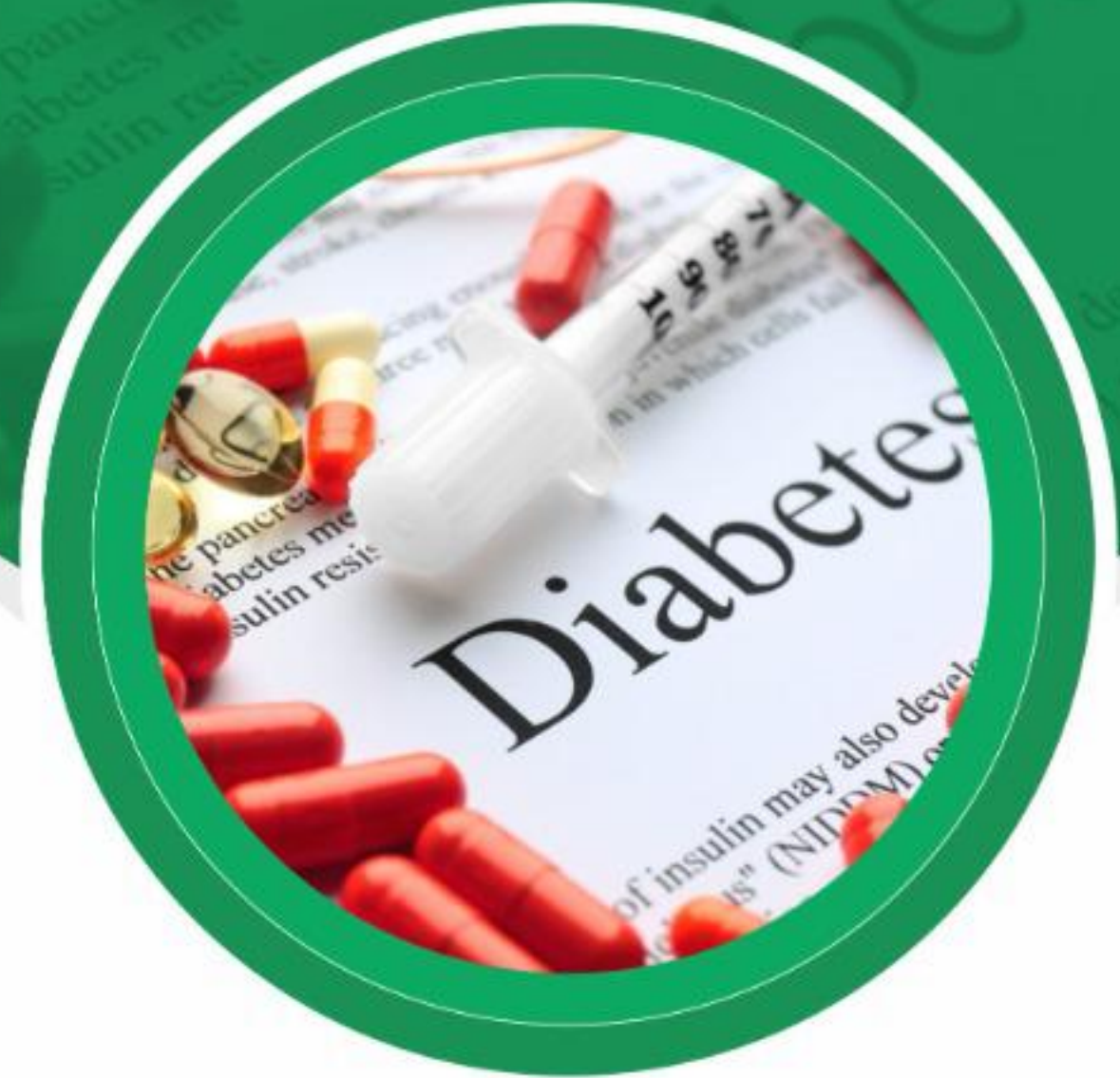
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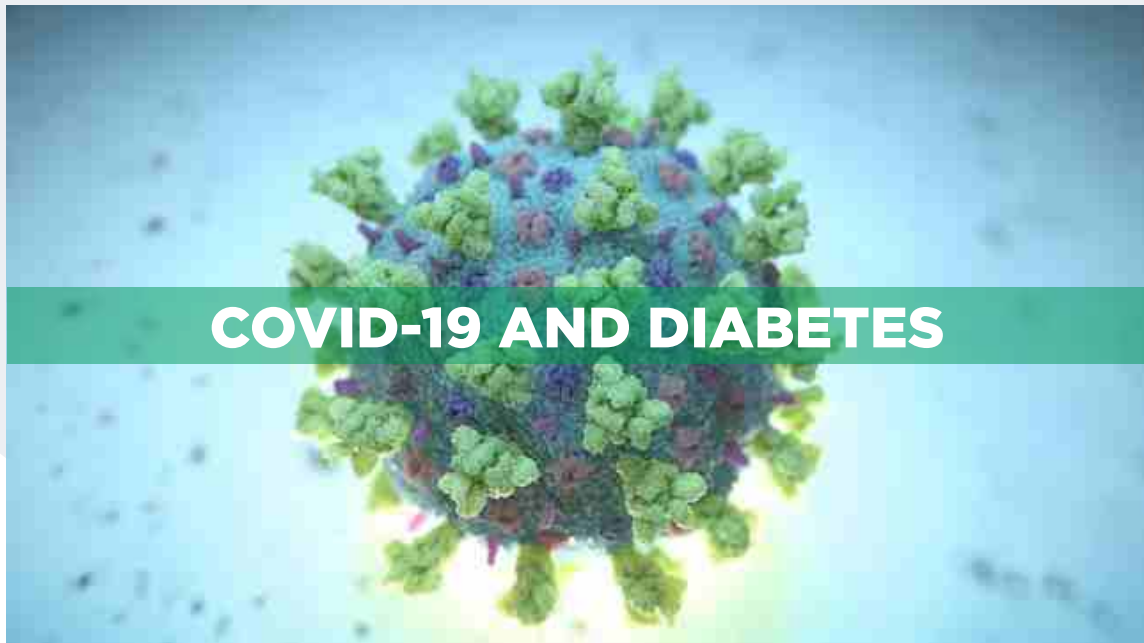
GUIDELINES FOR THE MANAGEMENT OF
DIABETES MELLITUS
DURING COVID-19 PANDEMIC

National Health Mission - Tamil Nadu

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GUIDELINES FOR MANAGEMENT OF PATIENTS WITH DIABETES MELLITUS WITH COVID-19 INFECTION



1. DIABETES MELLITUS & COVID-19 INFECTION - AN INTRODUCTION

- Diabetes Mellitus is a chronic metabolic disorder which can lead to acute or chronic complications, if left untreated. The prevalence of Diabetes mellitus is increasing worldwide and the rural urban divide is becoming narrower too. The prevalence of the disease in India is about 77 million (7.7 crores) in 2019 and is projected to increase to 101 million by 2030. The type, duration and the degree of metabolic control play a significant role in determining the incidence of Diabetes related complications and subsequent organ damage. Thus, this metabolic disorder can be termed as the modern pandemic of this century.
- COVID-19 disease is a new viral disease caused by a novel corona virus called n-SARS CoV- 2 virus. The morbidity and mortality due to this infection is significantly more among people with the immunocompromised and the elderly people and also among those who are with Hypertension, Diabetes, CAD, and Respiratory illness.
- Hence, in the present scenario, we are currently dealing with a twin pandemic of a highly contagious viral infection and a rapidly increasing metabolic disorder, the combination of which could possibly result in a worse outcome.

2. GUIDELINES FOR MANAGEMENT OF DIABETES MELLITUS DURING THE COVID PERIOD

- Patients with Diabetes Mellitus (DM) may be at an increased risk of acquiring COVID-19 infection, especially if they are not under good control, primarily because of their lowered immunity.
- Hence all patients with Diabetes should ensure that they achieve & maintain a good glycaemic control.
- The target blood sugar levels for glycemic control in these patients during this pandemic period can be a Fasting Blood Sugar level of < **120 mgs %** and a Post-Prandial Blood Sugar level of < **180 mgs %**.
- These patients with Type 2 Diabetes Mellitus should continue their medications-**OHAs/Insulin** in the same dosage if their blood sugar levels are under control. If they are uncontrolled, their oral medications have to be increased or they should be switched over to Insulin as per protocol.
- All patients with Diabetes should have nutritious diet plan which helps to boost their immunity. They should follow physical exercise regimens strictly at home, if not able to go out. Yoga should be routinely practiced. They should stop smoking / Alcohol intake and have adequate sleep.
- All patients with Diabetes should take care of their co-morbidities like Hypertension, Dyslipidemia, CAD etc. They should continue their medications without fail and contact their doctor if they are not under control.

- Elderly DM patients particularly above 65 years should take extra care to avoid movement outside their home altogether and those staying indoor should be aware of dehydration in hot weather & also to take immune boosting diet.
- All patients with Diabetes should immediately report to the health care provider, if they have symptoms like cough, fever, vomiting, abdominal pain or SOB. They should have adequate stock of medications like insulin, syringes, oral anti-Diabetic drugs, drugs for co-morbidities, Blood Glucose monitoring strips and glucose powder for use in case of an unexpected hypoglycaemia etc.,
- All patients with Diabetes should necessarily follow universal precautions like mask wearing, physical distancing, frequent hand washing, maintenance of personal hygiene etc.,
- They should be encouraged to download **Arogya Setu app** and use it for surveillance of COVID-19 infection. They should also be encouraged to use tele-medicine consultation platforms like **e-Sanjeevani OPD** or any other online medical consultation platform for remote consultation and availing OPD services like receiving opinion, e-prescription etc., without physically attending the hospital.



3. MANAGEMENT OF TYPE I DIABETES MELLITUS

- Patients with Type 1 Diabetes Mellitus should continue Insulin without fail and up--titrate the dosage, if uncontrolled. They should take plenty of fluids to avoid dehydration and check for ketones if they have symptoms like vomiting, abdominal pain or fever.

4. MANAGEMENT OF GESTATIONAL DIABETES MELLITUS

- Patients with Gestational Diabetes Mellitus should check their blood sugars frequently using Self-Monitoring of Blood Glucose (SMBG) and follow diet plan. If still uncontrolled, they should be started on Insulin as per the standard protocol guidelines.

5. GLUCOMETER FOR SELF MONITORING OF BLOOD GLUCOSE

- To be practical in COVID situation, Glucometer can be very well used for monitoring the sugar value in DM.
- Non-Covid DM patients who are not under control need to be closely monitored and the blood sugar tested frequently (weekly once) under the direct supervision & guidance of PHC Medical Officer.
- Patients with diabetes should monitor their blood sugar levels more frequently using Self-Monitoring of Blood Glucose (SMBG) if possible and continue their medications without fail
- Non-Covid DM patients who are under control can be given 2 months drugs but their blood sugar levels are to be monitored once a month (weekly once if possible) in the nearby HSCs under the supervision of the local PHC Medical Officer.

6. GLUCOMETER FOR FIRST TIME DM SCREENING

DM Screening can be done by Checking RBS using Glucometer and the guiding values are presented below;

- RBS: 140 - 199 mg/dl
(can be managed with Diet plan and Life style modification)
- RBS: ≥ 200 mg/dl (OHAs/Insulin should be started)
Repeat FBS/RBS before starting OHAs/Insulin

7. BLOOD SUGAR VALUES TO BE MAINTAINED IN KNOWN DM ON TREATMENT

- FBS < 140 mg /dl
- PPBS < 180 mg/dl
- RBS < 200 mg/dl

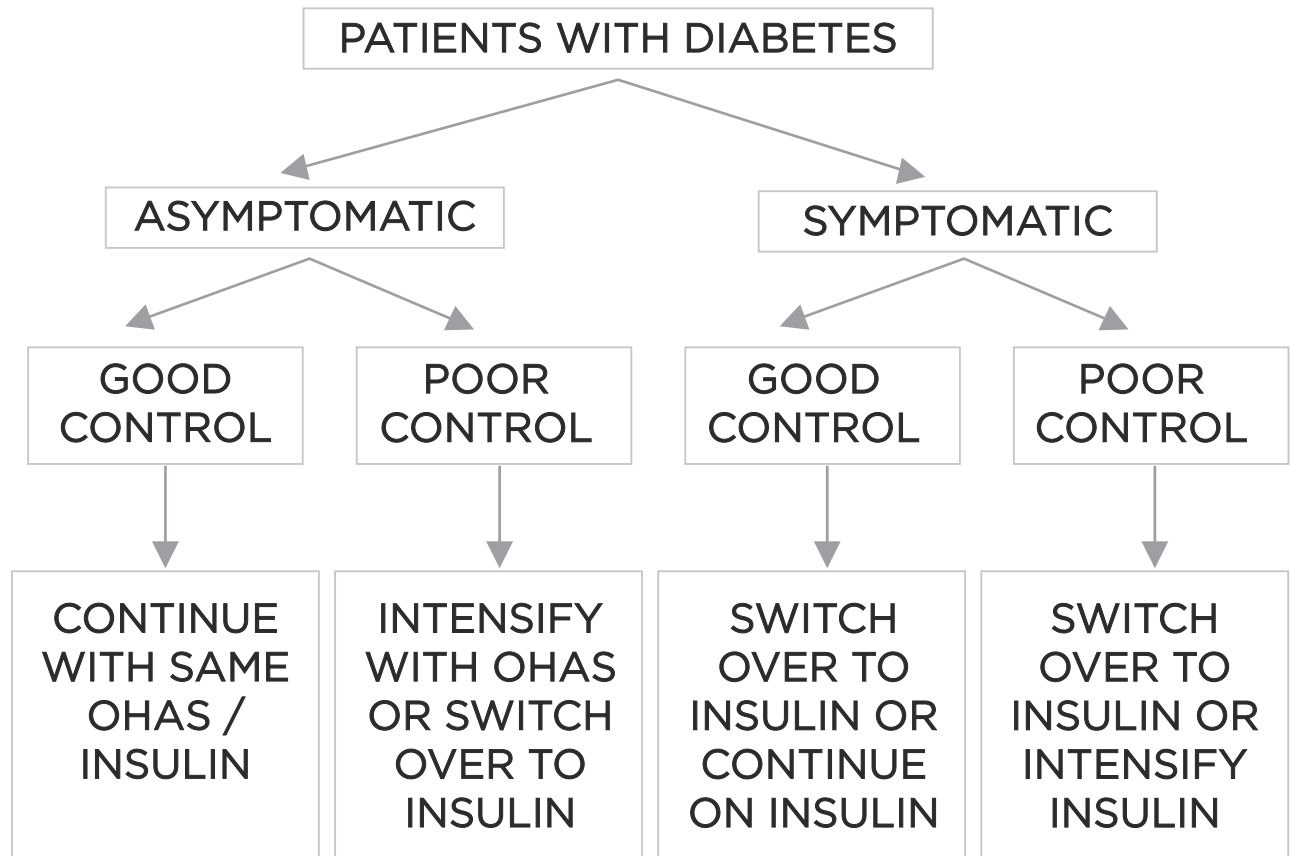


8. GUIDELINES FOR TREATMENT OF DM IN COVID-19 PATIENTS (NON-HOSPITALISED)

- Patients with Diabetes who are asymptomatic and under good control can be continued with the same OHAs/Insulin. Patients with Diabetes who are asymptomatic but not under good control should be intensified with OHAs or switched over to Insulin
- Patients with Diabetes who are symptomatic and under good control should be switched over to Insulin or continued on insulin. Patients with Diabetes who are symptomatic and not under good control should be switched over to Insulin or Insulin treatment intensified.
- It is advisable to avoid drugs like SGLT2 inhibitors & patients on Metformin should be followed up closely to withdraw the drug, if they develop symptoms or any complications
- GDM patients should be treated with ONLY insulin. Diet rich in **Vitamins C & D, Zinc & Proteins** should be taken. **Physical activity & Yoga** should be practiced. Drugs for the treatment of other associated conditions like Hypertension/Dyslipidemia/CAD etc. should be continued.



9. FLOWCHART FOR TREATMENT OF DM IN COVID-19 PATIENTS (NON-HOSPITALISED)



10. GUIDELINES FOR TREATMENT OF DM IN COVID-19 PATIENTS (HOSPITALISED)

	MILD	MODERATE	SEVERE
CONDITION OF THE PATIENT	<p>PATIENTS ON OHA/INSULIN</p> <p>MILD SYMPTOMS OF COVID + HEMODYNAMICALLY STABLE + GOOD GLYCEMIC CONTROL</p>	<p>PATIENTS ON OHA/INSULIN</p> <p>CLASSICAL SYMPTOMS OF COVID + HEMODYNAMICALLY STABLE BUT WITH UNCONTROLLED HYPERGLYCEMIA</p> <p>NOT ON RESPIRATORY SUPPORT</p>	<p>PATIENTS WITH COMPLICATIONS (LIKE DKA /HHS) OR WITH CO-MORBIDITIES</p> <p>HEMODYNAMICALLY UNSTABLE / ALTERED SENSORIUM</p> <p>PT ON VENTILATORY SUPPORT</p>
DIET	ORAL FEEDS	ORAL FEEDS	PT ON RT FEEDS /NPO/ORAL FEEDS
OTHERS		PT ON METHYL PREDNISOLONE /HCQS	PT ON METHYL PREDNISOLONE /HCQS
TREATMENT	<p>SWITCH ALL PATIENTS TO INSULIN /STOP OHA</p> <p>MONITOR BLOOD SUGARS EVERY 2-3rd DAY</p> <p>IF PATIENT CONDITION DETERIORATES, CHECK BLOOD SUGARS SOS</p>	<p>SWITCH ALL PATIENTS TO INSULIN /STOP OHA</p> <p>MONITOR BLOOD SUGARS DAILY (2-3 TIMES)</p> <p>IF PATIENT CONDITION DETERIORATES, CHECK BLOOD SUGARS SOS & START ON INFUSION IF CBG > 300MG/DL</p> <p>CHECK URINE KETONES/ABG</p>	<p>START THE PATIENT ON INSULIN INFUSION</p> <p>CHECK CBG HOURLY INITIALLY FOLLOWED BY 2nd HOURLY</p> <p>IF FALL IN BLOOD SUGARS NOT SATISFACTORY INCREASE INFUSION BY 48 UNITS. GIVE SUBCUTANEOUS INSULIN ALONG WITH INFUSION FOR EACH MEAL</p> <p>CHECK URINE KETONES /ABG</p>
AIM	<p>MAINTAIN</p> <p>FBS < 110mg/dl</p> <p>PPBS/RBS < 140mg/dl</p>	<p>MAINTAIN</p> <p>FBS < 140mg/dl</p> <p>PPBS/RBS < 180mg/dl</p>	<p>MAINTAIN</p> <p>FBS < 180mg/dl</p> <p>PPBS/RBS < 250mg/dl</p>

**11. PROTOCOL FOR ASYMPTOMATIC
COVID PATIENTS WITH DM**

DIABETIC PATIENTS ON OHA/INSULIN WITH GOOD GLYCEMIC CONTROL	DIABETIC PATIENTS ON OHA WITH INADEQUATE CONTROL	DIABETIC PATIENTS ON INSULIN WITH INADEQUATE CONTROL
CONTINUE THE SAME OHA/INSULIN	STEP UP DOSE OF OHA OR SWITCH TO INSULIN	STEP UP THE DOSE OF INSULIN OR START INFUSION BASED ON VALUES

**12. DIETARY SUPPLEMENTS
WHICH CAN INCREASE IMMUNITY**

FOODS RICH IN PROTEIN	FOODS RICH IN ZINC	FOODS RICH IN IRON	FOODS RICH IN CALCIUM	FOODS RICH IN VITAMIN C
Eggs	Liver	Red meat	Fish	Indian Gooseberry
Milk	Chicken	Cheese	Milk	Lime,
Spinach	Dark	Nuts	Whole Grains	Orange and
Milk	Chocolate	Broccoli	Like Wheat, Rice	Lemons
Almonds	Legumes	Yogurt	Broccoli	Tomatoes
Curd	Oats	Eggs	Vegetables	Potatoes
	Toor Dhal		Potatoes	Broccoli
			Green Beans	Green and
			Quinoa	Red Peppers

13. KEY RECOMMENDATIONS FOR MANAGEMENT OF DM PATIENTS IN GOVT. HEALTH FACILITIES

Patients should be encouraged to use SMBG at home, which is affordable nowadays, and monitor their BS values. If they are under control, they should continue the same management and if not under control, they should immediately contact their doctor through phone or WhatsApp or Tele-consultation portal etc. for further advise and follow them.

14. ROLE OF MEDICAL OFFICERS

Diabetic patients who are asymptomatic and under good control can be managed in the nearby Govt. healthcare facility like the nearest GH, Urban PHCs etc., itself. Such patients attending the tertiary Govt. Hospitals can be referred to the nearest such Centre, where they can get their monthly drugs and visit the tertiary referral centres only once in 3 months or in between if they are referred by the concerned Medical Officer. The Medical Officers in these centres can be trained in the basic management & referral protocols through online virtual training programs.

15. PROVISION OF DRUGS

In view of COVID-19, well-controlled patients attending tertiary care hospitals can be provided with drugs for 2-3 months which will help reduce the footfall in such centres. Availability of insulin & OHAs universally across all centres has to be ensured, except maybe the newer drugs like Gliptins or SGLT2 inhibitors.



16. PROMOTION OF TELE-MEDICINE

Promotion of tele-medicine facility can be initiated from the tertiary care hospitals to the various peripheral hospitals on weekly/ fortnightly/monthly basis which will be very helpful for pregnant patients with DM, Type 1 children & others with complications who are at high risk. The patients can access esanjeevaniopd.in and avail free OPD services. By utilising services through this online platform, Patients can avoid physical movement to meet a doctor

17. INDICATION OF INSULIN

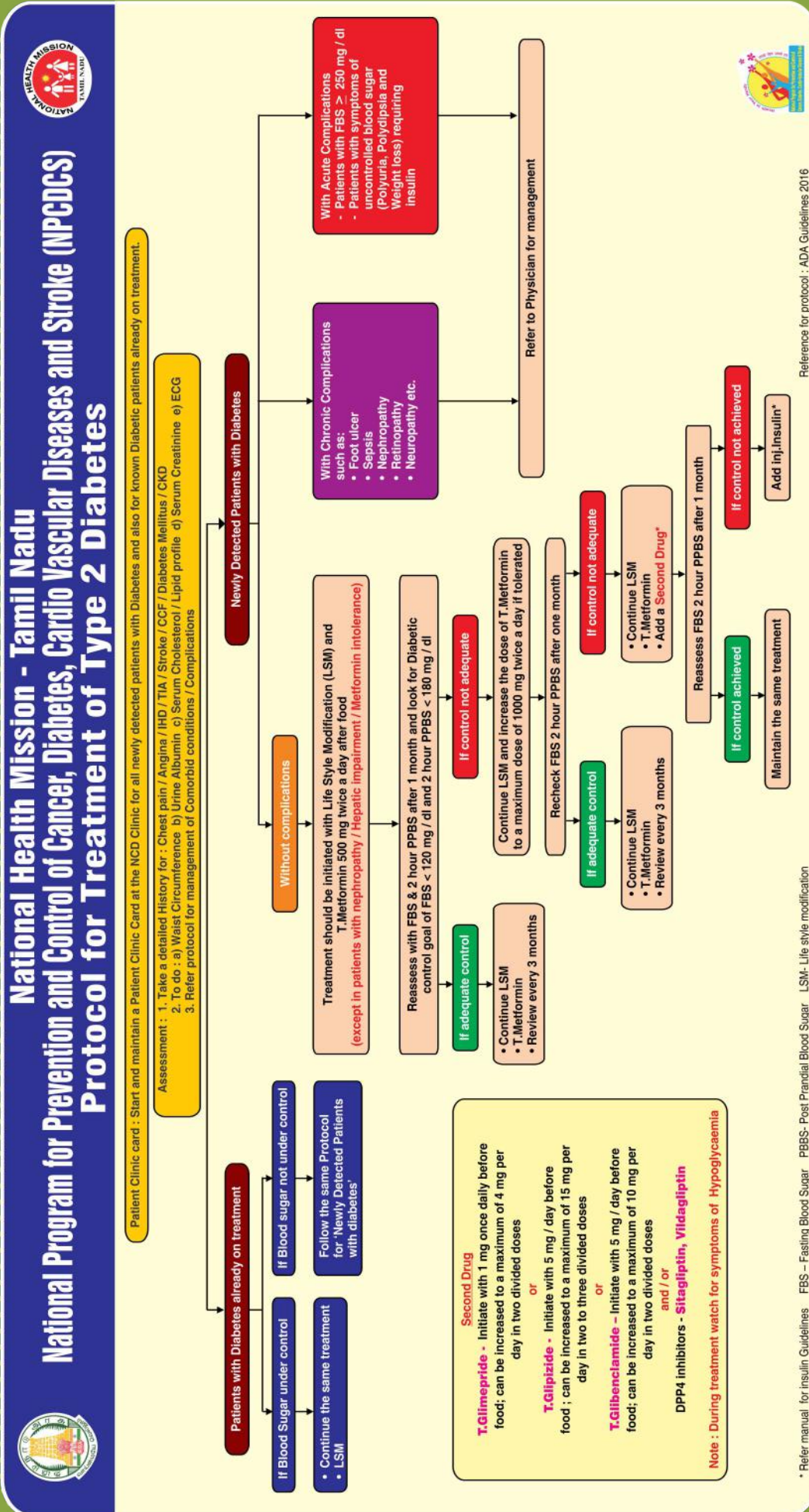
All Type 2 Diabetic patients with diabetes related complications like Diabetic Nephropathy with CKD, Diabetic Retinopathy with Blindness, Diabetic Neuropathy with DFS, Diabetes related CAD and Cardiomyopathy are indications for human insulin.

18. EMERGENCY HELPLINE NUMBER

An emergency Statewide Helpline number 104 is exclusively available for DM patients and publicized widely so that Diabetic patients can call this control room for guidance in case of emergency.



19. PROTOCOL FOR SCREENING OF DIABATES MELLITUS



Reference for protocol : ADA Guidelines 2016



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