**Introduction**

In 2019, the countries with the highest numbers of adult Diabetes were China, India, USA and Pakistan. It is projected that in the coming years, these numbers will change drastically, pushing Pakistan up the ladder to surpass USA, with numbers increasing from 19.4 million in 2019 to 37.1 million in 2045.

Type 2 Diabetes can be prevented by early intervention. With early detection and appropriate treatment, diabetic complications can also be prevented. Complications include:

- Diabetic retinopathy - one of the leading causes of blindness in the working age population.
- Cardiovascular disease - diabetes and elevated blood glucose is associated with an approximate doubling of risk.
- Renal failure - diabetes, HTN, or a combination of both cause 80% of end stage kidney disease globally.
- Neurovascular damage - nerve and/or vascular damage lead to Diabetic Foot and other lower limb complications, affecting 40-60 million people with Diabetes globally.

As a result, SHINE launched its Diabetes, Hypertension and Hyperlipidemia program in 2021 to screen patients in Gharo, District Thatta and identify patients early on, in order to prevent complications and disease severity.
**Goal of Program**

Because of high consumption of sugar in everyday lifestyle and lack of awareness, the incidence of Diabetes in the rural district of Thatta is quite high. Infact, our data indicates that there is a higher prevalence among younger populations. Therefore, our program was formed with the following goals:

1. **Identification of adult population of Gharo at risk of Diabetes, Hypertension and provide early intervention:**
   - Objective 1: Screen patients between the ages of 35 – 65 years for Diabetes.
   - Objective 2: Use a medical protocol for medications for Diabetes prevention.
   - Objective 3: Create and share educational material for beneficiaries of Diabetes and Hypertension awareness.
   - Objective 4: Conduct outreach programs to ensure 30% of the population in Gharo is screened for Diabetes, and counseled on its complications.

2. **Provision of a lifestyle intervention via dietary counselling:**
   - Objective 1: Engage a dietician for consultation at the Gharo clinic.
   - Objective 2: Create a dietary plan for the population of Gharo, which is consistent with local economic and agricultural conditions.
   - Objective 3: Create easily accessible information regarding the benefits and harm of certain food types.
Staff & Team Members
THE AWESOME PEOPLE BEHIND THIS PROJECT

DR. FARZANA NAQVI
PROGRAM DIRECTOR

DR. MARVI MEMON
PROGRAM HEAD-PAKISTAN

DR. SYED UZAIR
MAHMOOD
PUBLIC HEALTH SPECIALIST

DANISH SAAD
DATA ENTRY OPERATOR
397 total screenings

156 identified as pre-diabetic

117* patients identified as Diabetic

86 registered in the DHH program

*No case of Diabetic eye, foot or kidney complication detected
### Financial Snapshot

#### Annual Costs

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>Human Resources</td>
<td>Rs. 996,000</td>
</tr>
<tr>
<td>Medicine and Supplies</td>
<td>Rs. 1,882,000</td>
</tr>
<tr>
<td><strong>Total cost of project</strong></td>
<td><strong>Rs. 2,878,000</strong></td>
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</tbody>
</table>

#### Per Patient Cost Breakdown

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
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<tbody>
<tr>
<td>Cost per Patient/mo</td>
<td>Rs. 2,855</td>
</tr>
<tr>
<td>Lab per Patient/mo</td>
<td>Rs. 774</td>
</tr>
</tbody>
</table>
A 50-year-old male came with the complaint of continuous bleeding from the wound site after a factory accident. He also suffered from feeling thirsty for the most part of the day. On further examination at the SHINE Humanity Garibsons clinic, he was diagnosed with Type II Diabetes Mellitus and is now being treated successfully with medication and nutritional counselling.
Process Mapping
THE PATIENT FLOW OF THE DIABETES PROGRAM

Patient/attendant enters clinic

Randomized selection of individual for testing

Consent, Registration and Vitals to detect hypertension

HBA1C test

non-diabetic

Nutritional counseling

diabetic

Consultation by doctor dedicated for diabetes program

Baseline hematology tests Lipid profile to detect hyperlipidemia

Diabetes awareness videos and session by LHW

Patient exits the clinic and follows up in 3 months
Patient Demographics

- Females: 67.9%
- Males: 32.1%

Number of patients:
- 35-40 yrs: 50
- 41-50 yrs: 40
- 51-60 yrs: 20
- 61-65 yrs: 10
Hypertensive patients

- Female: 80.8%
- Male: 19.2%

Hyperlipidemia patients

- LDL
- Cholesterol
- Triglycerides
Patient Attrition data

30% of patients identified as Diabetic did not follow up on their treatment

Medication/patients

<table>
<thead>
<tr>
<th>Medication Type</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin+Glipizide</td>
<td>16</td>
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<tr>
<td>Metformin only</td>
<td>20</td>
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<tr>
<td>Cholestrol medication</td>
<td>12</td>
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<tr>
<td>Hypertensive medication</td>
<td>25</td>
</tr>
</tbody>
</table>
Thank you for your contribution!