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International Consortium for
Health Outcomes Measurement

Case Study:

Centro Integral de Atención del Paciente con Diabetes

Use case highlights

- Highly **successful adherence** and implementation of ICHOM Set
- Routine data collection and analysis of results performed efficiently to significantly **improve the delivery of health care**
- **Observable and measurable impact** on patient's quality of life, disease progression and satisfaction with care
- Implementation of **innovative and groundbreaking delivery of care model**, consisting of a comprehensive approach to the patient, covering all clinical aspects of the disease to **limit progression of disease and improve prognosis**
- **Demonstrated cost-effectiveness** of new model of care including ICHOM Set implementation
- Model case study for successful implementation of Sets and of value-based healthcare within the **public health sector**

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CAIPaDi - Instituto de Ciencias Médicas y Nutrición Salvador Zubirán

Centro de Atención Integral al Paciente con Diabetes - Center for Comprehensive Care of Patients with Diabetes

Diabetes-oriented center focused on wellbeing improvement and quality of life of patients living with diabetes through outcomes measurement and a value-based healthcare approach

Location: Mexico City, Mexico

Founded in: 2013

Type of organization:
Public sector outpatient specialty care services

Number of patients enrolled in past year:
>3000 patients

Clinical services:

- Endocrinology
- Diabetes education
- Nutrition
- Physical activity
- Clinical psychology
- Dentistry - focus on periodontics
- Psychiatry
- Ophthalmology / Optometrist
- Foot care
- Enfermery

https://www.incmnsz.mx/opencms/contenido/departamentos/CAIPaDi/versionenglish.html
Diabetes Res Clin Pract. 2019; 151:128–137. doi: 10.1016/j.diabres.2019.04.009

The CAIPaDi leadership & team

Dr. Sergio César Hernández Jiménez

COORDINATOR

SPECIALIST IN INTERNAL MEDICINE, ENDOCRINOLOGY AND DIABETOLOGY

Dr. Ana Cristina García Ulloa

MEDICAL CARE MANAGER

SPECIALIST IN INTERNAL MEDICINE, ENDOCRINOLOGY AND OBESITY

Dr. Diana Hernández Juárez
Internal Medicine and Endocrinology specialist

Dr Nancy Haydé Serrano Pérez
General practitioner

Dr. David Rivera de la Parra
Ophthalmologist

Mtra Liliana Pérez Peralta
Optometry expert

Lic. Verónica Yazmín Zurita Cortés
Optometry expert

Mtra. María Victoria Landa Anell
Clinical nutritionist

Mtro. Marco Antonio Malgrejo Hernández
Clinical nutritionist

Nut Valeria Miranda Gil
Clinical nutritionist

Mtra. Denise Liliana Arcila Martínez
Clinical psychologist

Mtro. Rodrigo Eduardo Arizmendi Rodríguez
Clinical psychologist

Dr. Héctor Rafael Velázquez Jurado
Clinical psychologist

Mtra Fernanda Garnica Carrillo
Clinical psychologist

Dr. María Teresa Alcántara Garcés
Psychiatrist

Dr. Alejandra Monserrat Estefanía Rodríguez Ramírez
Psychiatrist

Mtra. Liliana Andrea Villegas Narvaez
Physical activity manager

Mtra. Luz Elena Urbina Arronte
Physical rehabilitation therapist

ED María Luisa Velasco Pérez
Nurse manager

Mtra. Angélica Yadira Palacios Vargas
Diabetes nutrition educator

ED Claudia Lechuga Fonseca
Diabetes nutrition educator

ED Francis Evelin Rojas Torres
Diabetes nutrition educator

ED Héctor Manuel Infanzón Talango
Diabetes nutrition educator

Dr Arely Hernández Jasso
Dental surgeon

Dr Sofía Ríos Villavicencio
Dental surgeon

Lic Arturo Flores García
Clinical nurse

Lic Humberto del Valle Ramírez
Clinical nurse

Mariana Granados Arcos
Administration

Norma Sandra Sainos Muñoz
Administration

https://www.incmnsz.mx/opencms/contenido/departamentos/CAIPaDi/versionenglish.html

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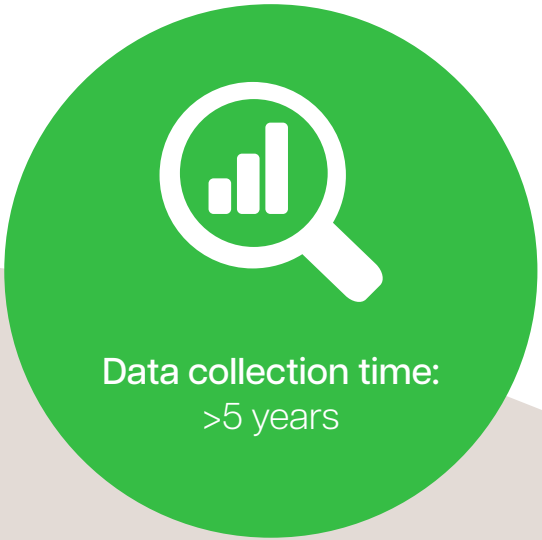
Experience implementing ICHOM Sets

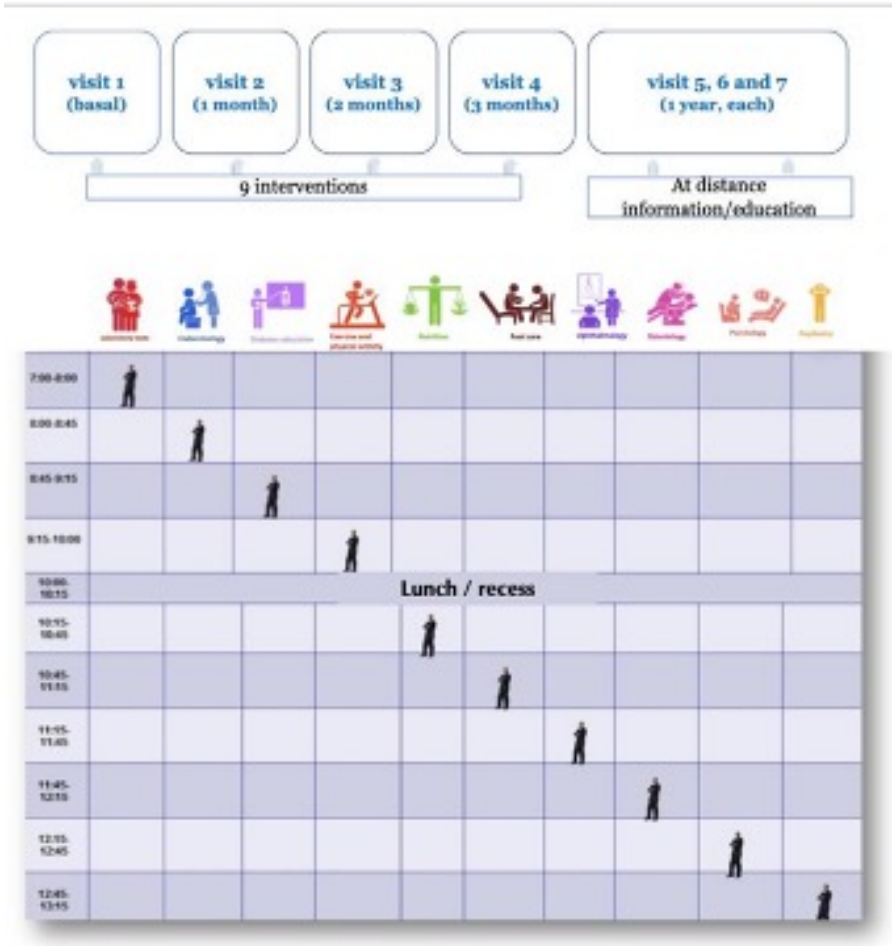
Family of Sets:
Cardiometabolic Sets

Sets implemented:
Diabetes



Data collection time:
>5 years

Clinical pathway



Resource investment

Healthcare Resource	1st Year	2nd year and plus
CAIPaDi Cost - per patient	1st Year	2nd year and plus
Total Cost (2019 USD) - per patient	$2,706	$582

Each consultation represents approximately $559 USD per patient.
The first year of treatment includes 4 visits, after which each visit becomes annual (unless more visits are necessary due to individual circumstances).

Healthcare Resource	1st Year					2nd year and plus
XXX	1	2	3	4	5	6+
XXX	4	4	4	4	4	4
XXX	1	0	0	0	1	1
XXX	1	1	1	1	1	1
XXX	1	1	1	1	1	1
XXX	1	1	1	1	1	1
XXX	1	1	1	1	1	1
XXX	1	1	1	1	1	1
XXX	1	1	1	1	1	1
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XXX	1	1	1	1	1	1
XXX	1	1	1	1	1	1
XXX	1	1	1	1	1	1
XXX	1	0	0	0	1	1

Cost-effectiveness of a self-management and comprehensive training intervention in patients with type 2 diabetes up to 5 years of diagnosis in a specialized hospital in Mexico City

Summary of outcomes measured: PROMs

Patient-Reported Outcomes	Measures (PROMs)	Results
Psychosocial wellbeing	WHO-5 (Well-Being Index) 5 items	**HADd ≥8:** Anxiety and depression screening At baseline: 30.4% 4 years on: 18.3% **MINI*:** At baseline: 21.5% 4 years on: 12.8%
Depression	Patient Health Questionnaire (PHQ-9) 9 items	
Diabetes distress	Problem Areas in Diabetes (PAID) 20 items	**Average score** At baseline: 38.9 4 years on: 14.8

*MINI International Neuropsychiatric Interview

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Clinical Reported Outcomes	Measures (CROMs)	Results
Survival	Vital Status	Visit 2 (1 month): 1 death Visit 8 (4 years): 3 deaths
Disease control	Glycemic control (Fasting glucose and HbA1C) Blood pressure control Lipid profile control	HbA1c <7% visit #1 : 37% HbA1c <7% visit #6: 59.3% BP 130/80 visit #1: 50.6% BP 130/80 visit #6: 68.7% LDL-c <100 visit #1: 34.3% LDL-c <100 visit #6: 59.3%
Chronic complications	Treatment complications Nervous system complications Micro and macrovascular complications	Amputations (total): 0 Nephropathy (at 2 years, n=681): 0.3% Dialysis (total): 0 Cardiovascular event (at 2 years, n=681): 0.3%
Health services utilization	Healthcare utilization (i.e. hospitalization & emergency room utilization) Financial barriers to treatment	US$ 7264 saved on complication-related treatments and management
Acute events	Diabetic ketoacidosis Hyperglycemic hyperosmolar syndrome Hypoglycemia	Ketoacidosis/EHH (at 2 years, n=681): 0.1% Severe hypoglycemia (at 1 year, n= 772) : 0.9%

at baseline, 1 month, 2 months, 3 months and 12 months

Long-term effectiveness of a type 2 diabetes comprehensive care program. The CAIPaDi model. Diabetes Res Clin Pract. 2019; 151:128–137. doi: 10.1016/j.diabres.2019.04.009
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Elements of success and lessons learned

1. Systematization of procedures - patients must always go through the same care pathway and all aspects of consultation must be covered by all professionals

2. Have a structured approach to patient care and follow this structure while maintaining an individual approach to each patient

3. Investing in electronic tools will make all aspects of implementation, as well as data collection and analysis, more feasible and practical

4. Treat each patient in a comprehensive manner, the individualisation of patients within a standardized model is essential to achieve results in patients and enhance patients' adherence to treatment

5. Give mental health equal importance as other clinical aspects as it is key in a patient's wellbeing

6. Continuous analysis of data is essential for improvement of process and acknowledgement of real impact on patients' overall well-being

Challenges in implementing the Set

Achieving patient adherence to treatment:
the healthcare team must ensure that the patient remains motivated and committed to the programme

Achieving professionals' adherence to the programme:
institutional resources and infrastructure must ensure that the healthcare team remains committed to the programme

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References

- Hernández-Jiménez S, García-Ulloa AC, Anaya P, et al. Cost-effectiveness of a self-management and comprehensive training intervention in patients with type 2 diabetes up to 5 years of diagnosis in a specialized hospital in Mexico City. BMJ Open Diab Res Care 2021;9:e002097. doi:10.1136/ bmjdrc-2020-002097
- Hernández-Jiménez S, García-Ulloa AC, Bello-Chavolla OY, et al. Long-term effectiveness of a type 2 diabetescomprehensive care program. The CAIPaDi model. Diabetes Res. Clin. Pract. 2019; 151:128-137. doi:10.1016/j. diabres.2019.04.009
- Implementación de indicadores ICHOM en CAIPaDi oct 2013- sep 2021
- Interviews with Dr. Sergio César Hernández Jiménez and Dr. Ana Cristina García Ulloa