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Need and Initiation for ICHOM Dataset including PROMS in Remote Monitoring Care Setting for Outcome-based Diabetic care in India

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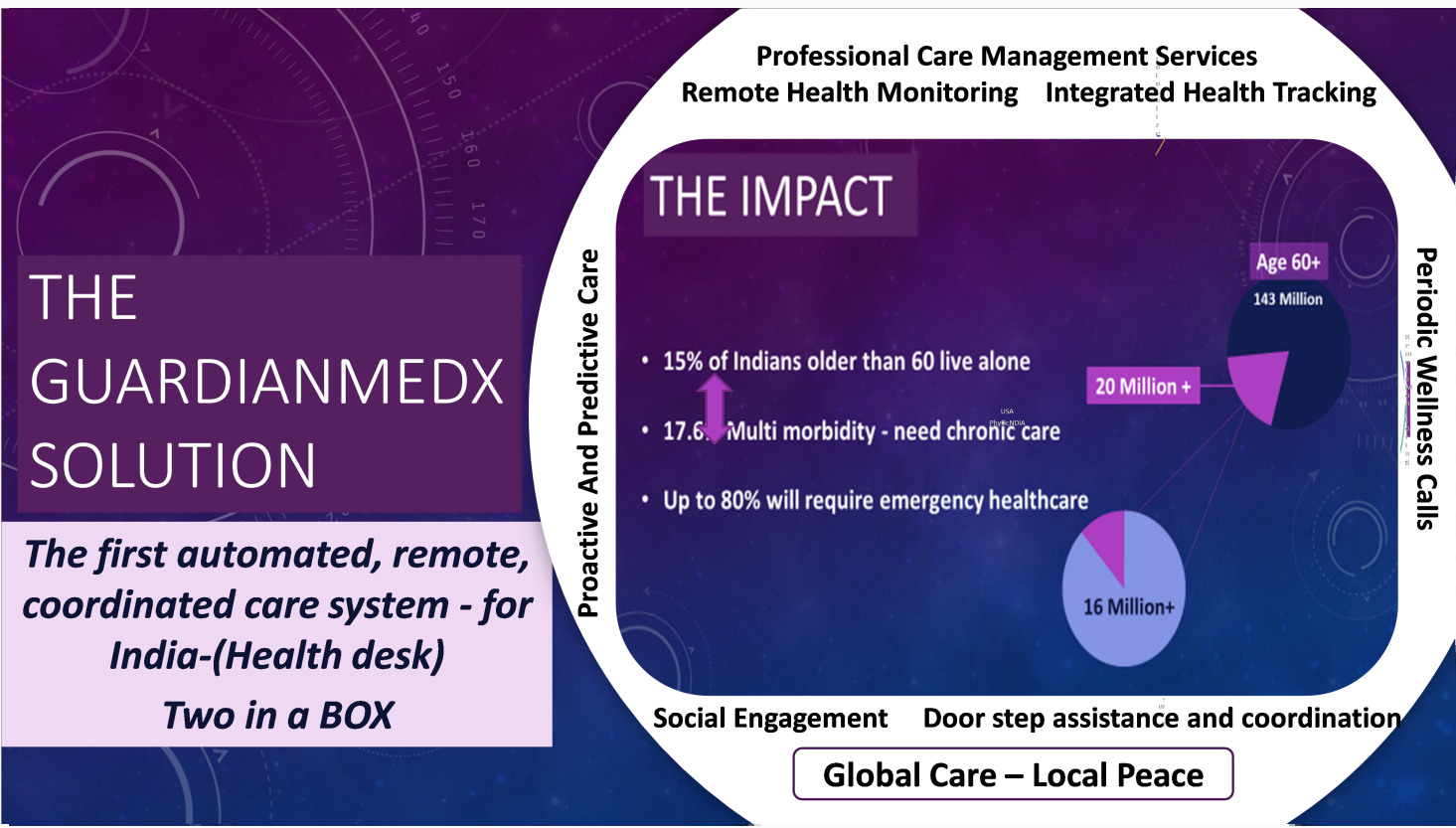
Background:

The diabetes burden in India is high- 74 million among its 1.4 billion population. Awareness and Patient Engagement is Poor. Cost accounted for 5-25% of the average Indian household earnings at about 31 B USD in 2017.

GuardianMedX is a comprehensive care plan offering personalized medical care with continuous monitoring and assistance. The goal is to improve seniors' wellness and reduce hospitalizations.

Problem Statement:

- No adequate studies combine clinical tracking, patient-reported outcomes, and social factors for practical and high-frequency data collection.
- Lack of evaluation of usage of standards for collecting such comprehensive data that can be socially tailored,
- The absence of Electronic Records and high-quality data for practical global learning



Research goals:

To evaluate and use comprehensive international data standard for diabetes management that facilitates

- Collection and Analysis of data on demographics, diagnosis, lifestyle, social factors, treatment, control, acute events, chronic complications, and patient-reported outcomes.
- Understanding the intricate interplay of factors affecting diabetes management and optimizing diabetes care cost-effectively with early diagnosis and remote and continuous monitoring at scale.
- Standards-based and can be tailored towards local social needs, but can be used for global learning
- To find the data standard conducive to high-quality data collection and emerging privacy-protected proofs for decentralized AI/ML as a stretch goal.

Method:

The research proof of concept is initiated and follows a two-phased approach.

Phase 1: Evaluation and Design phase of standards for data collection. Status: Completed.

- Synthetic datasets with hypothetical values are produced from earlier literature and the researchers' experiences.
- Data adequacy, baseline, and data mappings using the ICHOM diabetes datasets V5.0 are established for practical deployments in the Indian cultural setting.

Phase 2: Planning for high-frequency data collection. Status: In Planning

Based on data adequacy, calibration, and data acquisition to effectively use the ICHOM V5 datasets in Phase 1, planning has been initiated for data collection in Phase 2

- with a cohort of 40 patients from GuardianMedx
- and will be followed for a 3–9-month test period

Results:

The data calibration from Phase 1, using earlier studies for synthetic data for evaluating the data collection standards showed the ICHOM V5 dataset will be conducive to collecting and monitoring for Quality-of-Life Conditions

Figure 1: Diabetes to quality-of-life conditions

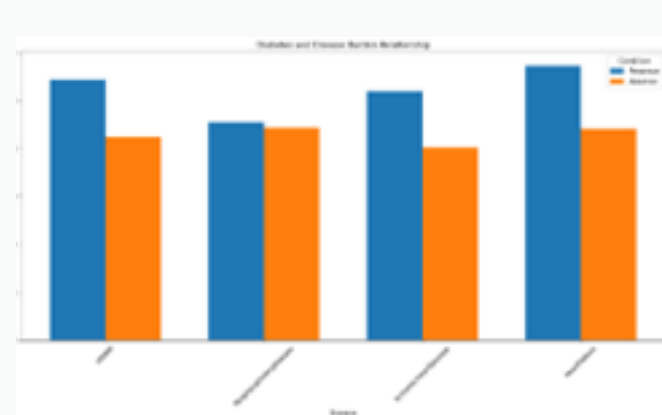


Figure 2: ICHOM WHO Scores (PROMs to Clinical Mapping)

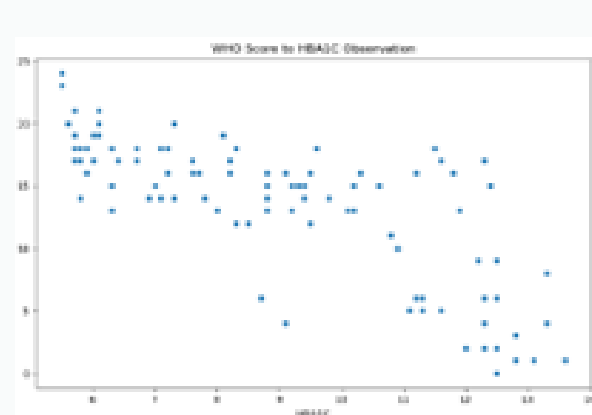
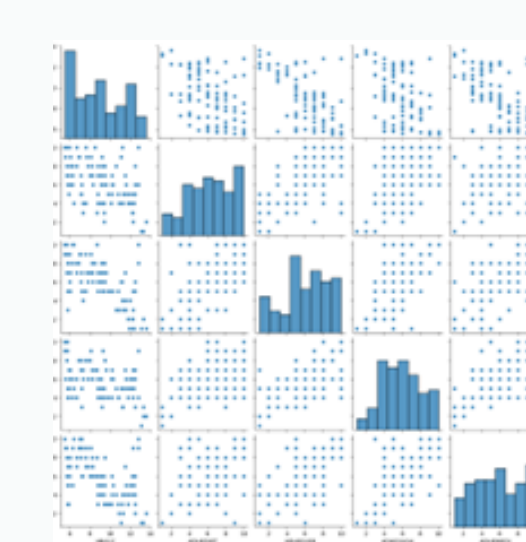


Figure 3: Granular Mapping : Adherence to HBA1C controls



Conclusions:

From GuardMedx clinical evaluation, the ICHOM V5 dataset for diabetes management and the ML models helped significantly advance outcome-based and cost-effective remote monitoring care, particularly in Hba1c control, tracking frequency, relationship to complications, and quality of life scores.

The study opens the possibility of alerts for action based on escalation predictions as the remote monitoring feeds come in for at-scale patient management for early interventions.

The study aims to promote interoperability between care providers and machine learning and privacy-protected techniques to retain data at the source to increase security and provide verifiable proofs for any prediction models driving agents for timely care alerts.

This research advances value-based care based on scaling needs in the Indian context and to effect and advocate for needed policy settings in India as health payment models emerge.