Aged care services, *A perspective.*

As the life expectancy of us, the human beings is increasing thanks to the fraternity of medical sciences we have increasing numbers of aged members in our societies. Our progress in exploring further on human physiology has not yet reached a level where we are able to control the process of aging itself. That solution (if and when comes) will present its own set of challenges; by then I hope Elon Musk would have organised the colonisation of Mars and other planets; that is another thought for another day. The focus of this thought document is how software and technology are going to continue to contribute to caring for the aged in formal and informal setups.

Societies in different parts of the world respond in different ways to their aged members. However, the "CARE" factor is common across the board. The care happens in their family homes, part in homes part in common access environments, different types of aged care facilities and in many different ways. Socio-economic situation or status of the society and country plays an important role in the way "CARE" is provided.

Affordability of care provisioning due to mass and rapid production capabilities of healthcare equipment large and small; along with support from the governments, impetus on creating a healthy ecosystem to produce all types of care givers have enabled peaceful, enjoyable and comforting environment for our elders. Aged care organisations in large number of developed and developing countries are playing more and more important role in this endeavour. They are now facing challenges to ensure scalability and future readiness in their services and business.

Aged care organisations running large residential facilities may want to integrate and collaborate with government agencies along with hospitals, home care agencies, assisted living facilities, retirement communities, day care centres for seniors, palliative care providers, remote care service providers and hospice care providers more than ever before to provide an all-round coverage to the entire society.

An aged care organisation running large facilities may need,

- Electronic Health Records
- Care management solution.
- Communication systems
- Telehealth and Telemedicine systems
- Staff & facility management
- Financial and billing systems
- Data analytics & business intelligence
- Staff training and assessments
- Epidemics and pandemics management
- Compliance management
- Third party integration features

Upgrading (by now almost all walks of healthcare are computerised/automated in some shape or form already) these systems is often trickier than building from the scratch. Rebuilding from the bottom up all over again may not and need not be the best approach, considering the cost, important user level factors such as training, maintenance and support. Roll out planning if not

done well may lead to compromised uniformity and usage disparity. Ultimately there is a risk service disturbance if not disruption.

As technology consultants we remember the most important principal (relevant today) of automation is, that we constantly must strive towards increasing the return on investment of an enterprise on its IT investments and reduce the cost of ownership gradually over a period of time (in a predictable manner).

The upgrades we do today must enable the aged care organisations with

- Compliances with constantly changing regulations and data standards like FHIR, HL7, GDPR, HIPAA and others.
- The ability to support and integrate artificial intelligence and machines learning.
- Capabilities to process and analyse large amount of historic data to build learning models.
- Extensive and comprehensive integration and connectivity features with other systems
- Seamless usage across a range of user interaction systems such as mobile devices, PCs, monitoring systems, alert mechanisms etc.
- Built in learning and guidance systems for the caregivers seamlessly.
- Solution to address Spiritual wellbeing and emotional health management of the residents

In the near future we may look forward to (among many other features)

- Providing constant cognitive support to the residents through AI based systems.
- Highly accurate prediction systems which will immensely help the expensive resource management challenges of the care organisations.

Imagine a robot that discusses with me the topics you like. Be it your family, friends, places, things, subjects, political opinions and everything that you hold dear in my mind and heart. Of course, such system can never replace my own people talking those things with me, but it can definitely fill some void that may help my mental and emotional alertness. Through what we know so far emotional wellbeing is a major factor for a healthy individual of all ages.

Imagine having amassed decades of data about thousands of aged residents right from their demographics, general health conditions, treatment plans, routines, medications, periodically collected health parameters, early life information and many many more important or mundane pieces of data is now at your disposal that can be analysed and fed into a ML system. One when we mine it will bring out fascinating information that the organisation would never have imagined; Two relate that learning to the present patients and you will land in the holy grail of prediction. After having arrived here (after thorough testing and tweaking the model) the organisation can ensure availability of resources to address predicted situations as and when needed. This is a HUGE step forward!

-Imtiyaz K.