Zimam
Developing Careers
in Digital Health

DIGITAL HEALTH INNOVATION ECOSYSTEMS FORUM

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DIGITAL HEALTH INNOVATIONS FOR THE YEAR OF THE FAMILY

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INTRODUCTION

Health is not experienced in isolation. It is shaped within families, across generations, shared environments, inherited risk, caregiving relationships, and collective decision-making. From preconception and pregnancy through childhood, adulthood, and ageing, health trajectories are influenced as much by family context as by individual clinical encounters. Yet for decades, digital health systems have been designed primarily around the individual patient, fragmenting care, data, and responsibility across disconnected episodes and institutions.

The designation of 2026 as the UAE's Year of the Family presents a strategic moment to reconsider this paradigm. It invites a shift from individual-centric digital health toward family-centred systems that recognise the family as a foundational unit of wellbeing, prevention, and resilience. In an era defined by rapid advances in data interoperability, genomics, artificial intelligence, and consumer health technologies, the opportunity is not merely to connect systems, but to embed family context, continuity, and governance into the core architecture of national health strategies.

This white paper convenes insights from regulators, healthcare delivery systems, health information organizations, and independent digital health specialists to chart a course for implementing family-centric digital and genomic health across the UAE. The contributions collectively examine how structured datasets, standardized care pathways, and principled governance can enable proactive prevention, ethically managed data reuse, and intergenerational health intelligence. Technology itself is not the centrepiece; instead, the focus rests on enabling conditions, clear clinical workflows, trusted data stewardship, harmonization between public infrastructure and consumer tools, and authentic family partnership.

The first contribution by H.E. Mubraka Ibrahim the Chief AI Officer of Emirates Health Services lays the basis of the discussion around the Year of the Family by highlighting how the UAE aims to elevate family wellbeing as a national innovation priority.

Year of Family - From Interoperability to Intergenerational Intelligence:
Embedding Family-Centred Digital and Genomic Health at National Scale

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Enabling family centred digital health at national scale requires more than system connectivity. It demands deliberate data governance, standardized clinical pathways, and implementation models that allow health information to be captured consistently, reused responsibly, and governed securely over time. This is particularly critical in maternal and family health, where outcomes are shaped across a long care continuum from preconception and pregnancy through early childhood and long-term family wellbeing.

Globally, the absence of standardized family and maternal care pathways has limited continuity of care and constrained the secondary use of health data. Pregnancy related information remains fragmented and inconsistently coded, while pregnant populations are frequently underrepresented in clinical research, creating evidence gaps that slow innovation and reduce the effectiveness of personalized care. These structural limitations have prevented health systems from fully transitioning from reactive treatment models to predictive and preventive approaches.

The United Arab Emirates is well positioned to address this challenge. Existing health information exchange platforms and national digital health initiatives

already support secure data sharing across providers and care settings. The strategic opportunity presented by the Year of the Family is to move beyond exchange toward pathway aligned, standardized datasets that support both care delivery and ethically governed secondary use. When data is structured around clearly defined family and life stage pathways, it becomes possible to generate reliable longitudinal insight at scale.

International experience demonstrates that interoperability delivers the greatest value when anchored to clinical pathways rather than isolated data elements. Technical standards such as HL7 FHIR provide the foundation for structured exchange, while implementation frameworks such as the World Health Organization SMART Guidelines translate clinical guidance into digital artefacts, including data elements, workflows, indicators, and decision support logic. Family and maternal care pathways can be localized to the UAE's clinical, cultural, and regulatory context, ensuring consistency, scalability, and national adoption.

Standardized pathways unlock a critical secondary benefit: the generation of high-quality real-world evidence. Structured longitudinal datasets enable outcomes research, quality improvement, population health analytics, and the development of personalized care approaches, particularly for underrepresented populations. To sustain public trust, secondary use must be governed by design, with clear definitions of permissible use, consent models, access controls, and audit mechanisms embedded from the outset.

Genomic data further illustrates the importance of governance led system architecture. In hereditary conditions, recurrent pregnancy loss, and rare diseases, genomic insights can materially influence prevention, early intervention, and care planning. However, genomic data should not be broadly exchanged. A governed model allows the longitudinal family health record to reference genomic test availability, clinical relevance, consent status, and access pathways, while genomic data itself remains within secure environments. This approach protects privacy, data sovereignty, and ethical standards while enabling precision prevention.

At this stage of digital maturity, a new dimension of system responsibility emerges alignment between national healthcare systems and the rapidly expanding consumer AI health market.

AI enabled health tools are increasingly embedded in daily life through mobile applications, wearables, home diagnostics, digital coaching platforms, and large language model driven assistants. These tools are shaping how individuals and families perceive risk, seek guidance, and make health decisions, often well before any interaction with a healthcare provider. As a result, the future of family centred health will be shaped as much by consumer interfaces as by clinical infrastructure.

Healthcare systems must therefore evolve from being the primary entry point for health to becoming the trusted clinical and governance backbone of a broader consumer health ecosystem. When consumer AI tools operate independently of national health systems, they introduce risks of misinformation, inconsistent guidance, inequitable access, and fragmented care. When aligned effectively, they become powerful extensions of prevention, early detection, adherence, and long-term wellbeing.

This alignment requires clear definition of how consumer AI tools interface with formal care pathways. Standards for clinical validity, data provenance, explainability, escalation thresholds, and referral logic are essential to ensure that consumer facing insights reinforce rather than compete with professional medical judgment. Pathway aligned system design enables consumer tools to guide individuals to appropriate services at the right time, reducing unnecessary utilization while strengthening continuity of care.

As consumer AI health markets expand, governments play a critical role in safeguarding public trust while enabling innovation. Without coordinated oversight, markets risk becoming saturated with overinflated and poorly validated tools that promise personalized health outcomes without sufficient scientific or clinical

substantiation. Such environments can mislead consumers, delay appropriate care, and erode confidence in digital health.

Effective governance should focus on outcomes-based regulation rather than technology specific controls. This includes defining risk-based categories for consumer AI health tools, proportionate regulatory requirements, transparent labelling standards, and clear distinctions between wellness guidance and clinical decision support. Certification frameworks, post market surveillance, and real-world performance monitoring are essential to ensure sustained value.

Alignment between governments and technology companies is equally important. Shared responsibility models can incentivize ethical design, bias mitigation, continuous validation, and responsible commercialization. Public private collaboration enables consumer AI tools to align with national health priorities, cultural context, and preventive strategies, while preserving data sovereignty, informed consent, and individual rights.

Equally critical is the evolution of consumer mindset in an AI enabled health environment. Technology alone cannot improve outcomes without informed engagement. Consumers must be supported to move from passive consumption or algorithmic dependence toward active partnership in their health journey. National efforts to strengthen digital and health literacy are essential, helping individuals understand the role and limitations of AI, when professional care is required, and how personal data is governed and protected.

When consumer AI is positioned as an assistive capability embedded within a trusted national health framework, families engage earlier, act more preventively, and participate more meaningfully in long term wellbeing. Over time, this alignment reduces system burden while improving population outcomes.

This approach directly supports Vision 2031 objectives, including increased healthy life expectancy, reduction in preventable disease burden, improved healthcare

system efficiency, enhanced workforce productivity, and global leadership in advanced technologies. Embedding family wellbeing into digital health, genomics, artificial intelligence, and consumer health strategies strengthens system sustainability while reinforcing social cohesion and intergenerational resilience.

Equally important is the transformation of care delivery models to formally recognize families as active partners in health. Digitally enabled consent frameworks, caregiver engagement platforms, and culturally fluent AI tools reflect the UAE's social fabric and enable more effective prevention, adherence, and recovery pathways. This approach aligns with a foundational national principle articulated by UAE leadership:

"الإنسان هو أساس التنمية، والأسرة هي نواة المجتمع"

The human being is the foundation of development, and the family is the nucleus of society.

To fully realize the strategic opportunity of the Year of the Family, policy action must be decisive and coordinated. Priority actions include incentivizing family centred digital health pilots, integrating genomics into preventive care pathways, aligning consumer AI health tools with national governance frameworks, strengthening data and AI oversight mechanisms, and embedding family wellbeing as a measurable national KPI across health, innovation, and artificial intelligence strategies.

This contribution from Atif AlBraiki, Chief Digital & AI Officer, Dubai Health, illustrates how family-centred principles are being translated into operational initiatives across care delivery, genomics, and digital platforms, highlighting the role of integrated services in supporting families across the care continuum.

Dubai Health's Commitment to the UAE Agenda – Year of the Family 2026

ATEF AL BRAIKI

Chief Digital & AI Officer
DUBAI HEALTH

As the UAE celebrates 2026 as the Year of the Family, Dubai Health is proud to champion initiatives that strengthen family well-being and community engagement. Our approach integrates compassionate care with innovative solutions, ensuring that patients and their families receive holistic support across medical, social, and educational dimensions.

Majlis Al Amal in AlJalila Foundation (AJF) is spearheading programs that foster family connection and empowerment. These include providing Esaad membership cards to over 1,300 members, offering benefits that ease daily living. AJF is also collaborating with Al Tamimi & Company to launch a "Legal Clinic", supporting patients with law-related issues. To promote wellness and social bonding, AJF organizes community activities such as hiking trips and sports days, hundreds of patients and their families. Additionally, awareness sessions led by Dubai Health specialists equip family members with practical knowledge to manage health conditions effectively, reinforcing the role of education in family care.

Complementing these efforts, the Centre for Applied and Translational Genomics (CATG) at the Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU) is advancing family health through cutting-edge research and technology.

Key initiatives include coordination with Al Jalila Children's Hospital (AJCH) to refer specific cases and families for access to clinical research programs, and the provision of specialized genomic analysis software and models (Horizon). The lab is also driving genome screening and research in oncology and rare diseases, helping families understand hereditary health risks. Furthermore, genetic counselling services are provided to explain complex genomic results to patients and their families, ensuring clarity and informed decision-making.

Adding to this, the Family Medicine service line are introducing comprehensive services that prioritize preventive care and family support. These include standardizing on international immunization programs, premarital testing and genetic screening, and regular health maintenance screenings initiatives. Initiatives such as integrating the medical records of elderly patients with their Thukhr Club membership services provide streamlined access to appointments and screenings, while the Dubai Health app provides the care giver an option to enables authorized family members to manage their health records, lab results, and delivery on their behalf. Additionally, nursing assessments now incorporate questions to capture key elements highlighting the social determinants of health (SDOH) to identify patients living alone or requiring assistance. Planned enhancements include bundled services for premarital and pregnancy care and expanding EPIC Care Companion pathways beyond pregnancy and epilepsy to cover broader family health needs.

Through these initiatives, Dubai Health reaffirms its commitment to the UAE's vision for the Year of the Family—creating a future where families are at the heart of healthcare innovation and community well-being.

As family-centred care moves from strategy to system design, fundamental questions emerge around how health data is represented and used. In this section, Dr Henrique Martins explores the concept of the "digital health family," examining the implications for electronic health records, data models, and digital interventions when families, rather than individuals alone, are treated as units of care and engagement.

Conceptualizing the Digital Health Family, opening implications for EHRs, Data representation and Digital health interventions

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Most Digital Health applications and interventions have been designed to "empower", "protect", "health promote", help diagnose, monitor, or even help treat – Digital Therapeutics -, the Individual. Too often, family is referred to as a "collection" of relevant genomic information, associated with Genomics, and other Omics related research and diseases. It is too often reduced to a "biological" connection between "individuals" that, at best - and now with the "quasi glorified and sanctified" Artificial Intelligence (AI) tools – with enable the "discovery" of new diagnosis or make that easy. HOWEVER, Family and digital health can relate far beyond these IMPORTANT, yet narrow perspectives.

We first need to understand health is "lived" in a family context, always, and specially if our concept of Family, extends beyond the biologically connected individuals, to accommodate strongly connected others, sometimes a special neighbour, or even someone living in the same house, or a set of other 2-3 non-kinfolk individuals. Family in this sense is therefore a micro-health ecosystem, where several individuals share environmental (e.g. housing), behavioural (e.g. salty/fatty

food habits) and of course biological (e.g. common genetic traits associated with certain propensity for disease) risks. Family is also a sense-making and alert environment for early detection of signs of diseases (e.g. signal for dementia, depression, anxiety, skin lesions, etc); sense making for “dealing with” a new diagnose for a chroming, or life-threating high-burden disease, or a restful “place” for those in palliative and end-of life situated care and caring.

Family, in its digital and health literacy collective level, is a “health information” unit, and well as now with AI and social media (e.g. Snapchat, WhatsApp, etc) – micro social groups of health information and promotion.

We would need more space to dissect and discuss these elements and how they inform a much-needed revolution or at least evolution on Digital health systems and tools that were built on the concept and the hegemony of individually. For example, most Electronic Health records (EHRs) are not designed to easily record “significant others”, their identify (including linkage to their EHRs) in a way that a wider representation of this “family” unit can be made in primary and secondary use of (family) health data. Data representations, need to evolve beyond family trees or genomic linkage to more meaningful and flexible representations, and finally designing for impacting the individual, yes, BUT in the context of his/her family in the broader sense, and making use of its own literacy and capacity. These are just three examples of areas we would need a paradigm shift in coming years for a Digital Health Family!

In conclusion, if health is at start and end, a “family-affair”, despite always the primacy of respecting individuals’ choices, digital health needs to mimic this, not only in advanced AI and analytics in genomics but in data collection, information creation, and digital health interventions using the Family as a “unit” of intervention and care.

Effective family centred digital health relies on governance and standardized pathways, not just connected systems. Drawing on European Commission initiatives and regional experience, Dmitry Etin, etza GmbH, Austria, explores how structured data stewardship can enable consistent, ethical, and longitudinal care.

Supporting Family-Centred Care Through Data Governance

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Family-centred care requires more than connected systems. It depends on consistent clinical pathways, standardised data capture and governance models that allow information to be reused beyond individual encounters. In maternal and family health, this is particularly important, as outcomes are shaped across a long continuum, from family planning and preconception through pregnancy, birth and early childhood.

Globally, the lack of standardisation in maternal pathways has limited both continuity of care and the secondary use of data. Pregnancy-related data is often fragmented, inconsistently coded and difficult to analyse at scale. At the same time, pregnant women are frequently excluded from clinical trials due to perceived risk, resulting in evidence gaps that affect treatment decisions. This combination has constrained personalised care and slowed innovation.

The UAE is well positioned to address this challenge. Existing health information exchange infrastructure, including Malaffi and national initiatives such as Riayati, already support data exchange across providers. The strategic opportunity for Family Year 2026 is to move beyond exchange toward standardised,

pathway-aligned datasets that support both care delivery and responsible secondary use.

International experience shows that interoperability delivers the greatest value when it is anchored to defined clinical pathways. HL7 FHIR provides a flexible technical foundation, while frameworks such as the World Health Organization SMART Guidelines translate clinical guidance into digital artefacts, including data elements, workflows and indicators. Antenatal and maternal care pathways already exist in this form and can be localised to the UAE context. This supports consistent data capture across settings and creates a reliable basis for analytics, quality improvement and research.

Standardising maternal and family care pathways also unlocks a critical secondary benefit. Structured, longitudinal data makes it possible to generate real-world evidence in populations that are underrepresented in traditional trials. When governance frameworks define permissible uses, consent models and access controls, pregnancy and family health data can inform population studies, outcomes research and the development of personalised care approaches.

Genomic data illustrates the importance of governance-led design. In hereditary conditions, recurrent pregnancy loss and rare diseases, genomic insights can significantly influence care planning. However, genomic data should not be broadly exchanged. A governed model allows genomic data to remain within secure environments, while the longitudinal health record includes standardised references indicating test availability, clinical relevance, consent status and access pathways. This supports clinical decision-making and secondary use without compromising privacy.

For Family Year 2026, success should be measured not only by connectivity, but by consistency and reuse. Indicators should include reduced variation in maternal pathway data capture, improved follow-up of newborn screening results, earlier

identification of high-risk pregnancies and increased availability of high-quality real-world data for research. Governance metrics, such as consent completeness and auditability of access to sensitive data, are equally important.

By standardising family and maternal care pathways and embedding data governance from the outset, the UAE can position family-centred care as both a clinical and data-driven national capability. It strengthens continuity of care, supports responsible secondary use and supports personalised medicine. It also requires sustained data governance capability spanning pathway design, data standards, consent models and secondary use policies. With the backbone already in place, the UAE can take interoperability to a practical level by defining a small set of family care pathway data profiles and a governance operating model for adoption across providers, in an area where international approaches remain largely generic.

Building on this governance-led foundation, a family-centred data ecosystem also enables a broader, life-course approach that connects early health interventions to long-term population outcomes and national longevity objectives.

Through governance-led frameworks and standardized family pathways, Dr. Lamya Rezig, Health Tech & Deep Tech Expert, Startup & Board Advisor, GA / France, demonstrates how structured maternal and family data can transform care across generations, enable precision interventions, and position the UAE as a global leader in family-centred, longevity-focused health innovation.

Extending Family-Centred Care to Longevity and Genomic Precision: Activating the Strategic Value of Data

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This section does not propose an investment thesis in isolation. It examines how robust data governance, standardised pathways and clinically grounded use cases create the conditions under which sustainable innovation, public–private collaboration and long-term value generation can responsibly emerge. The primary objective remains improved health outcomes and population resilience; economic and investment opportunities are presented as consequential benefits of this foundation.

Beyond maternal and neonatal outcomes, a family-centred care model built on structured data lays the foundation for a broader longevity strategy and creates a unique, nationwide digital asset. Maternal, perinatal and early childhood data are among the most powerful predictors of long-term health trajectories including cardio-metabolic and neurodevelopmental outcomes when collected longitudinally [1][2][3]. The strategic value of this data extends beyond individual care: interconnected and governed datasets enable the identification of intergenerational risk profiles and inform targeted prevention strategies, establishing the foundations of a predictive and personalised health ecosystem [4].

Genetic Screening Across the Lifecycle: From Clinic to Ecosystem

Extending genomic screening across the entire family lifecycle from pioneering programmes such as Abu Dhabi's newborn genomic sequencing, which detects actionable variants in approximately 1 in 300 infants [5][6], to carrier screening and adult monitoring generates a longitudinal and structured flow of genetic–phenotypic data. When coupled with national health information exchange platforms (Malaffi, Riayati) and standards such as HL7 FHIR, this data enables personalised care plans while also establishing the technical and governance prerequisites for advanced translational research and targeted therapeutic development [5][7].

Rare Diseases and Pharmacogenomics: A Model of Focused Innovation

The prevalence of rare diseases and founder variants within Emirati families, supported by initiatives such as the UAE Genome Programme, creates well-characterised family cohorts that represent strategic assets for research and development [8][12]. Improved diagnostic precision unlocks access to targeted pharmacotherapies and gene-based treatments [13][14]. More broadly, family-level pharmacogenomic data enables treatment optimisation and reduction of adverse drug reactions, providing a measurable and clinically grounded use case for integrating genomic data into routine health records [8].

The Year of the Family 2026: A Catalyst for Structuring Public–Private Partnerships

The alignment of the Year of the Family 2026 with the national genomics and precision medicine agenda creates a window of opportunity to establish structured public–private partnerships around shared strategic objectives:

- Developing population genomic databases to characterise founder variants, a prerequisite for attracting targeted R&D in rare and complex diseases [12].

- Accelerating rare disease clinical trials by leveraging integrated care networks and identified family cohorts, addressing significant unmet global needs [14] [16].
- Launching longitudinal cohorts linking newborn screening outcomes to long-term health and economic results, generating high-quality real-world evidence to evaluate the impact of early interventions [5][17].

These initiatives extend beyond research programmes. They structure an ecosystem in which clinical excellence, data governance and innovation capacity reinforce each other. In a context where global orphan drug markets are growing at double-digit rates and the UAE is positioning itself as a regional life sciences and clinical research hub, rigorous family health data governance becomes the foundation of trust required for high-value, high-impact partnerships [16][18].

From Governance to Strategic Asset

By treating maternal and family data governance not only as a protective framework but as the foundation of a national strategic asset, the United Arab Emirates can position family-centred care at the intersection of clinical excellence, digital innovation and long-term population resilience. While this approach requires sustained investment in governance, analytics and capability building, it enables the country to define and export an integrated care model data-driven, genomics-enabled and longevity-oriented that addresses both national priorities and global health system challenges [1][3][18].

CONCLUSION

The Year of the Family 2026 presents a unique inflection point to reimagine health as a family-centred ecosystem, where digital health and family care are not separate pursuits but mutually reinforcing forces that can mobilize a new horizon for healthcare. Centring families within clinical pathways reinforces the need for longitudinal, standardized care and structured data, opening unprecedented opportunities to leverage real-world evidence and advance personalized medicine beyond its traditional focus on genomics and rare diseases.

Digitally enabled consent frameworks, caregiver tools, and connected clinical pathways provide the foundation for a cultural shift in healthcare, normalizing family engagement, supporting informed participation, and strengthening care networks. Integrating lifecycle-based genomic and pharmacogenomic data further demonstrates how family-centred approaches can deliver clinically grounded, scalable pathways that link newborn screening, rare disease cohorts, and adult care into governed ecosystems that advance both personalized care and translational research.

Governance is central to this paradigm, ensuring that digital health tools are safe, equitable, and aligned with national priorities. When family-centred health data is captured longitudinally and governed responsibly, it becomes a national strategic asset—enhancing maternal and early-life outcomes, enabling predictive, intergenerational insights, and supporting population resilience, prevention, and longevity across the life course.

The UAE exemplifies how a culture of family-centred care, paired with existing digital infrastructure, provides fertile ground for innovation. The Year of the Family offers an opportunity to formalize public–private collaboration around trusted data governance, aligning clinical excellence, national priorities, and innovation capacity. By doing so, the UAE can generate sustained health impact while establishing a globally exportable model for family-centred, genomics-enabled, and digitally integrated care.

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