Beyond the Luxury Divide: Can Digital Education Translate Personalised Lipid Care into Egyptian Practice?

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Scan for References

Background

- ❑ Familial Hypercholesterolaemia (FH), an inherited life-threatening disease, affects 1 in 250 individuals worldwide. More than 90% of cases in low- and middle-income countries remain undiagnosed until premature coronary events occur. However, once diagnosed early, FH is highly treatable. [1][2]
- ❑ Cutting-edge precision medicine is predominantly developed in high-resource systems, creating a major translational barrier for physicians in developing nations.
- ❑ To our knowledge, this is the first evaluation of a free, context-adapted digital CPD programme in Egypt, benchmarked against UK published data, with a proposed laboratory-led pathway.

Aims

- Identify gaps in FH knowledge and practice among Egyptian clinicians using published UK data as a benchmark.
- Evaluate learning following a free, context-adapted digital CPD programme.
- Explore self-reported practice change and implementation barriers three months later.

Methods

Phase	Intervention	Key Metrics
Phase 1: Baseline Assessment	Cross-sectional survey (n= 184) across Alexandria University Hospitals Baseline questionnaire adapted from Pang et al., 2017 (permission granted) and piloted locally.[4]	Compared against the UK international benchmark dataset from Kwok S, et al. BMJ Open 2016.[3]
Phase 2: Digital CPD	British Council-funded digital modules. (zero-cost training)	- Asynchronous modules + 6-h live webinar on resource-adapted care - Evaluated via anonymous, independent cohorts.
Phase 3: Evaluation	Kirkpatrick Framework (Levels 1–3) [5]	**L1:** NPS. **L2:** Pre/Post median scores via Mann-Whitney U. **L3:** 3-month clinical follow-up (n=12).

Analysis & Governance: Data were analysed in RStudio v2026.09 using Chi-square and Mann-Whitney U tests, with ethical approval from the Alexandria University Faculty of Medicine IRB (Serial: #0308215).

Results

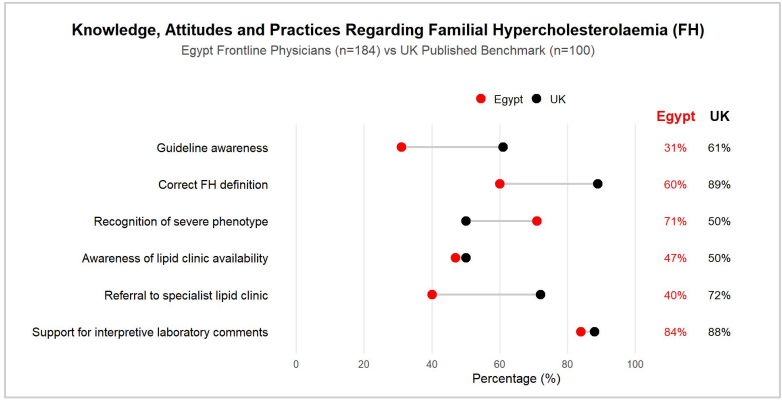


Figure 1 | Dumbbell Plot Comparing Egyptian Physicians (n=184) vs UK Benchmark (n=100)

1. Baseline Implementation Gap (Egypt vs. UK Benchmark)

- **Guideline awareness and recognition:** Egyptian physicians reported lower guideline awareness (31% vs 61%) and lower recognition of the severe phenotype (39% vs 74%).
- **Referral and resources Barriers:** Specialist lipid clinic referral was lower (40% vs 72%), linked to a lack of structured lipid clinics and restricted drug access.
- **Shared diagnostic opportunity:** 84% of Egyptian clinicians endorsed laboratory interpretive comments prompting FH evaluation, close to the UK figure (88%).

2. Immediate Knowledge Gain (Kirkpatrick L1 & L2)

- **L1 Reaction:** Strong engagement, with a Net Promoter Score (NPS) of +67 and high acceptability of the adaptation to Egyptian constraints.
- **L2 Learning:** Median scores rose from 75% pre-course (n = 50) to 100% post-course (n = 52) (Mann-Whitney U, $p < 0.001$), with most post-course scores at or near the maximum across cascade screening, phenotype recognition and guideline-directed combined lipid therapy

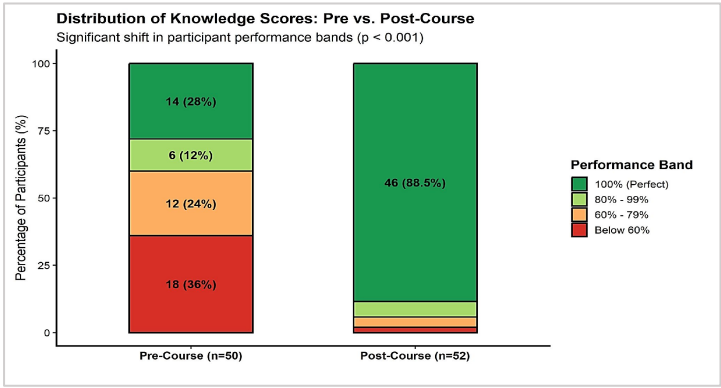


Figure 2 | Pre- vs Post-Intervention Diagnostic Knowledge Gains

Clinical Translation & System Bottlenecks (Kirkpatrick L3)

3-month follow-up (n = 12)

- ❑ Knowledge of core lipid management was high immediately after the course and at 3 months (92–100% correct).
- ❑ 11 out of 12 participants reported changing at least one clinical practice and 5 initiated or escalated therapy.
- ❑ Barriers were mainly system-level, not knowledge gaps: access to Lipoprotein (a) and genetic testing (5), no lipid referral pathway (4), institutional barriers (4), formulary (3).

Limitations

- ◆ **Level 3 Sample Size (n = 12):** Practice change was self-reported over a short follow-up window without electronic health record audits.
- ◆ **Repeated Cross-Sectional Design:** Pre- and post-course evaluations measured independent cohort samples to preserve learner anonymity rather than paired individual tracking.
- ◆ **Single Institutional Network:** Evaluated within Alexandria University Hospitals; nationwide multi-governorate scaling is needed.
- ◆ **Possible ceiling effect:** post-course scores at 100%

Conclusion: From Digital Learning to Personalised Care

1. Laboratory interpretative reporting represents a promising, low-cost opportunity to prompt earlier FH recognition. Its impact on referrals, treatment and patient outcomes requires prospective evaluation.
2. Free digital CPD was associated with higher post-course diagnostic assessment scores in Egyptian physicians, demonstrating the feasibility of delivering specialist education without travel or course fees.
3. However, reported practice changes were accompanied by persistent system-level barriers, including limited access to testing, referral pathways and treatment.
4. **The challenge is not only to teach personalised medicine, but to build the clinical and laboratory pathways that make it possible.**

What can the Pathology Department at Alexandria University Hospital do now?

- ❑ Add interpretive comments to markedly abnormal lipid profiles.
- ❑ Prompt clinicians to consider FH and family assessment.
- ❑ Support appropriate use of ApoB and Lp(a), where available.
- ❑ Develop clear referral and testing pathways with clinical teams.
- ❑ Monitor whether laboratory prompts lead to onward evaluation.

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