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Case Study

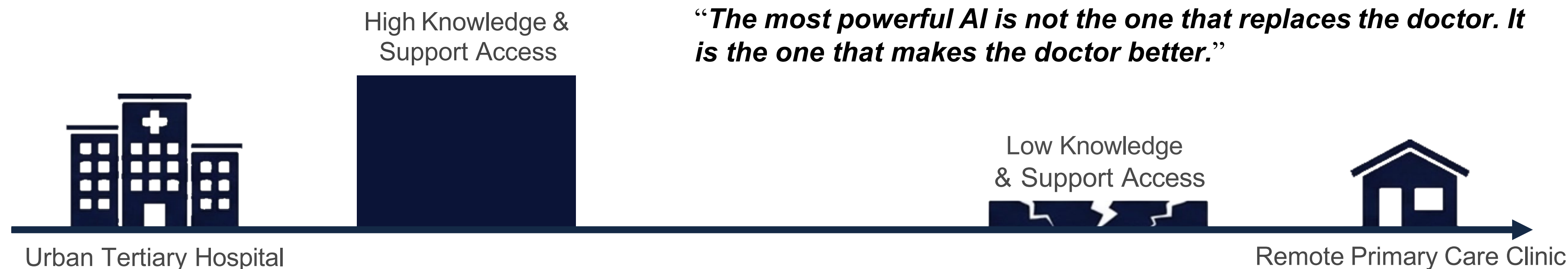
ClinMaster: From Good Data to Better Health Workers

A People-Centric AI Implementation Path

Tiantian Li
Founder/Chairman of DXY

Forum on Utilizing Artificial Intelligence to Promote Health Equity
Mandaluyong, Philippines, March 25, 2026

True health equity is structurally blocked by unequal access to clinical knowledge and decision support



Challenge

The Care Continuum is the global health system goal. However, patients experience different tiers of quality based on the local health worker's capacity.

Equity First

The value of AI in resource-constrained DMCs is **not** deploying an AI system for every node of the Care Continuum **but making the health workers who span this continuum stronger.**

People-Centric AI offers a vastly superior cost-to-impact ratio compared to traditional node-centric deployment.

Dimension	Path A Node-Centric AI Deployment	Path B People-Centric AI Deployment
Cost Structure	Path A requires continuous procurement/maintenance per node ($100Ks to Millions).	Path B is a knowledge infrastructure investment with scale effects (~$50 per person/year).
Infrastructure Reliance	Path A is highly dependent on stable networks, power, and hardware.	Path B embeds core value into human capacity, remaining effective even offline or in low-resource environments.
Risk Concentration	Path A risks total failure if a single system goes down.	Path B distributes risk because human capability does not disappear if a system fails or exits.
Health Equity Impact	Path A naturally biases resources toward urban centers.	Path B enables knowledge parity by making tertiary-level decision support equally accessible to grassroots health workers.
Sustainability	Path A requires continuous funding.	Path B creates self-reinforcing capability accumulation, building long-term health system resilience.

Note: A recent Lancet cluster-RCT (TRICORDER, 2026) across 205 NHS primary care practices found that **an AI stethoscope significantly improved cardiovascular detection when used, yet 40% of practices abandoned the device within 12 months**, with clinicians citing additional workflow burden as the primary barrier. — *Kelshiker MA, Bächtiger P, et al. Lancet 2026; doi: 10.1016/S0140-6736(25)02156-7*

ClinMaster - The DXY Case Study: A People-Centric AI framework to improve clinical capacity and patient outcomes.

Good Data

- Global Data
- Local Data

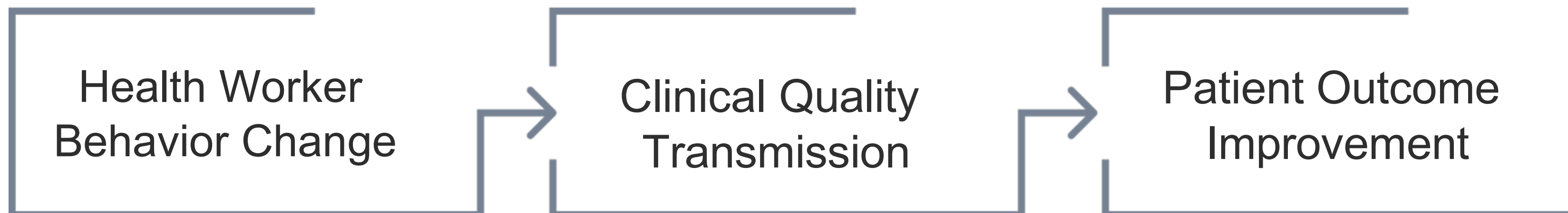
Right Approach

- Silent Safety Net
- Real Time Micro-Learning

Right Governance

- Regular Governance
- Expert Co-Governance

Ultimate Impact Chain



Pillar 1: Prioritizing 'Good Data' over massive data ensures clinical certainty and mitigates AI hallucination risks.

*"In many industries where giant data sets simply don't exist, I think the focus has to shift **from big data to good data**. Having 50 thoughtfully engineered examples can be sufficient to explain to the neural network what you want it to learn." — **Andrew Ng**, CEO & Founder, Landing AI."* ***(IEEE Spectrum, 2022)***

In early 2020, **DXY published the first COVID -19 tracking dashboard in the world**. Johns Hopkins University utilized DXY as its primary data source, validating the global reliability of DXYs 'Good Data' standard.

stream strategy. **Our primary data source is DXY**, an online platform run by members of the Chinese medical community, which aggregates local

1. High Certainty

Clear sourcing and evidence-based validation ensure primary care workers receive trusted support.

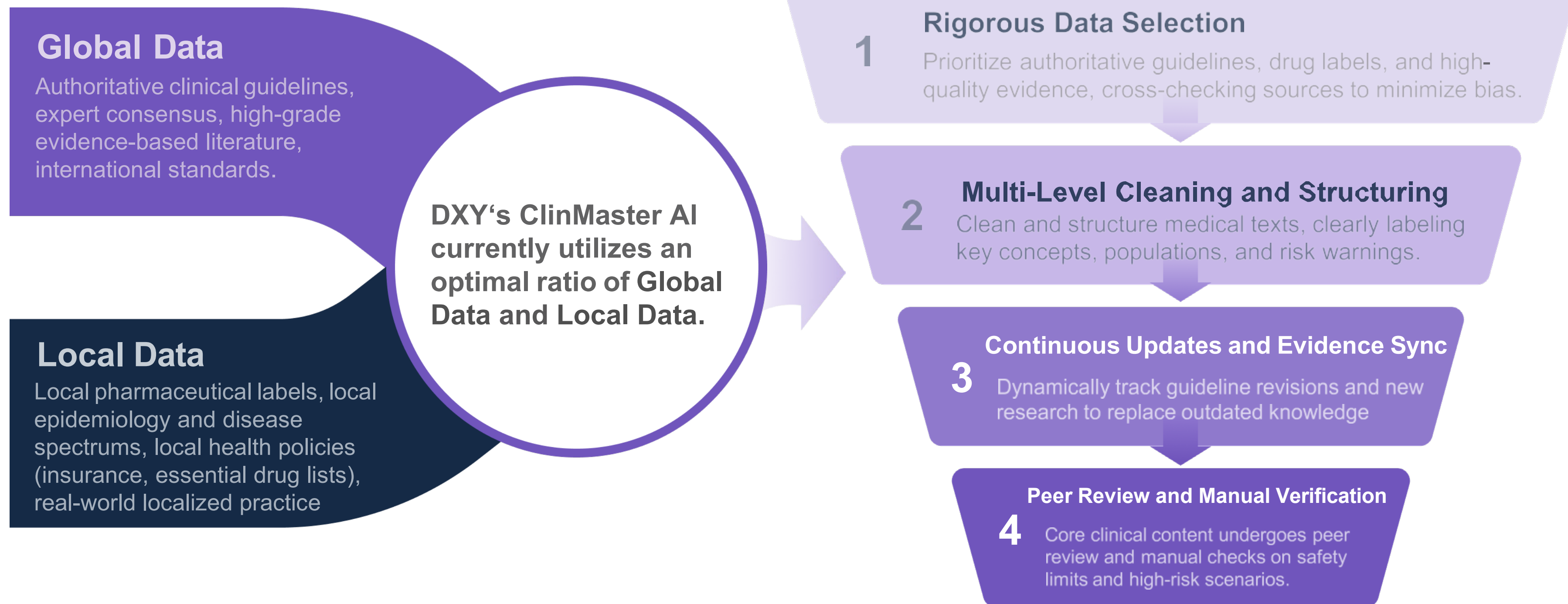
2. Strong Explainability

AI outputs include applicability conditions, evidence grades, and uncertainty boundaries, protecting the worker's clinical autonomy.

3. Controllable Risk

Clear logic auditing allows rapid root-cause correction, preventing unverified AI errors from causing harm in remote grassroots settings.

Pillar 1: A Dual-Track Architecture blends global authoritative knowledge with critical local knowledge to create a trusted data source.



Note: Of the 40 million papers indexed in PubMed, only a small fraction directly informs point-of-care clinical decisions, reinforcing the case for rigorous curation over volume.

Pillar 2: A 'Silent Safety Net' acts as a vital safeguard for high-risk clinical decisions, especially in primary care

AI should not replace judgment; it should act as a **silent guardian** that intervenes automatically during complex diseases, high-risk drug interactions, off-label uses, and severe incompatibilities.

90.7%

Total risk warnings coverage on 2 million queries

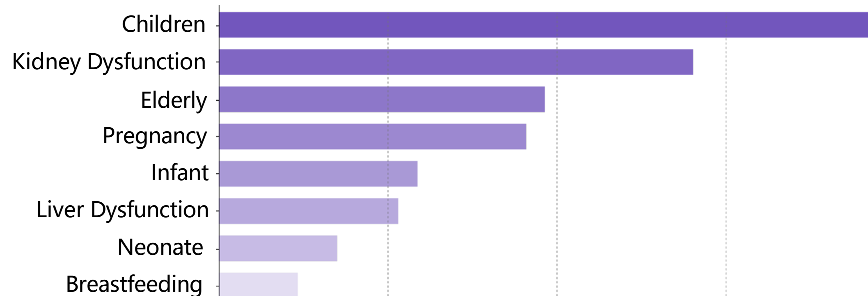
46.2%

High-risk warnings (complex diseases, high-risk meds, special populations, complex dosage adjustments…)

44.5%

Medium/Low-risk warnings (routine conditions, stable chronic disease, and meds with well-established safety profiles…)

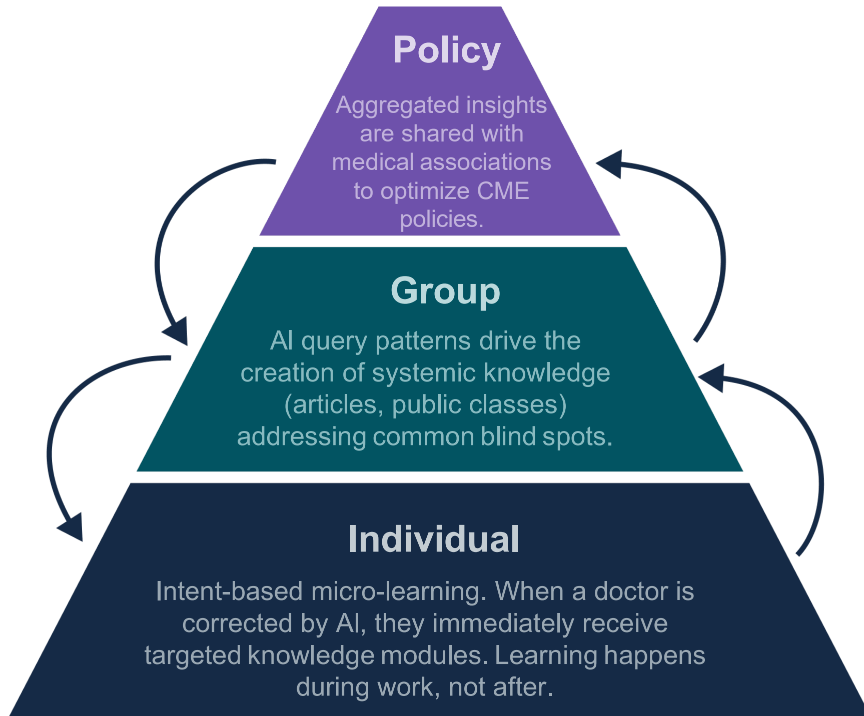
High-risk special populations



Conclusion: Children (including infants and neonates) account for **~44%** of high-risk population warnings triggered, followed by kidney dysfunction (**20.1%**) and elderly patients (**13.9%**). This highlights three high-risk areas: **precise dosing for children, complex multi-disease management in the elderly, and safety balance with organ impairment.**

Pillar 2: Real Time Micro-Learning prevents AI reliance and reverses clinical skill decay within the daily workflow.

Long-term reliance on AI may erode independent clinical reasoning. DXY ClinMaster counters this by embedding learning directly into the answers.



Top 5

Most Common Clinical Errors

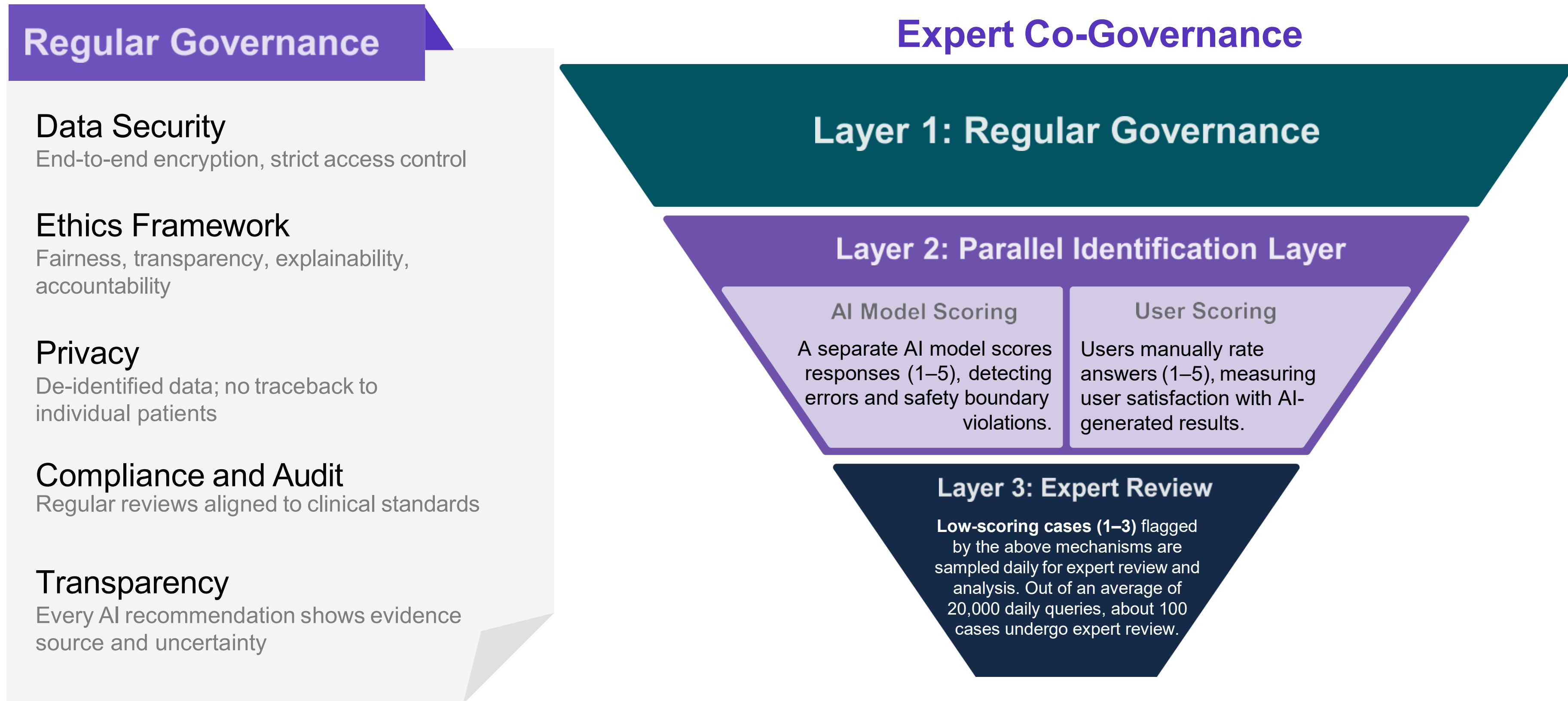
- Dosing errors in special populations
- Treatment conflicts in multimorbidity
- Misreading abnormal lab results
- Unwarranted changes in drug form/route
- Improper off-label use

Top 6

Most Forgotten Blind Spots

- Pharmacokinetics and drug compatibility
- Precision dosing in special populations
- Drug interactions and combination limits
- Safety stratification and drug switching
- Differentiating similar drugs or diseases
- Interpreting atypical lab results/scoring system

Pillar 3: A dual-track governance mechanism: Regular + Expert co-governance



Validation: Encouraging signals, honest challenges

SATISFACTION TRAJECTORY

4.67 ➡ 4.83 **+3.4% in 5 months**

Driven by Good Data feedback loop, safety net and expert co-governance, the system gets better as it is used.

USER HOSPITAL LEVEL AND FREQUENCY

Hospital Level	User Percentage	User Frequency
Tertiary (Tier 3)	68.6%	4.9 queries/user/month
Primary (Tier1/2)	22.7%	4.0 queries/user/month
Unidentified	8.7%	3.7 queries/user/month

Note: The low proportion of Tier 1 hospital users reflects the generally limited adoption of digital tools across China's primary care sector, rather than a pattern specific to ClinMaster.

What the usage pattern tells us

"Equity is not achieved when the tool is available. It is achieved when the last-mile clinician chooses to use it."

TERTIARY HOSPITALS USERS

Complex cases, multimorbidity, and special populations generate higher clinical uncertainty, naturally triggering more frequent use of decision support. This sustained engagement under the most demanding conditions validates the reliability of the knowledge base and safety net. **They know what they don't know.**

PRIMARY CARE USERS

Primary care users generate fewer decision support queries, yet this lower frequency may itself mask a deeper challenge. Clinicians operating in familiar patterns are less likely to recognize when their own prescribing carries undetected risk. **They don't know what they don't know.**

What lies ahead: A long journey, a clear path

PRODUCT

Balance guidance with education

- Optimize the ratio of clinical answers to embedded learning, so that knowledge acquisition occurs within the workflow itself. For primary care clinicians, **learning burden is workload burden.**

REACH

Multi-platform passive activation

- Surface common blind spots through DXY apps, DXY WeChat, and DXY professional communities, enabling clinicians to recognize knowledge gaps through **routine exposure.**

PARTNERSHIPS

Professional and institutional alignment

- **Collaborate with medical associations and CME authorities** to translate AI-derived clinical insights into structured educational frameworks anchored in professional consensus.

EVIDENCE

Longitudinal research collaboration

- **Partner with academic institutions** to develop research examining the link between AI-assisted decision support, physician behavior change, and patient outcomes.

"***Systems can be switched off. Human capability cannot.***"

We invite development partners and DMC member countries to build Path B together: your good data, your right approach, your right governance, for your health workers.