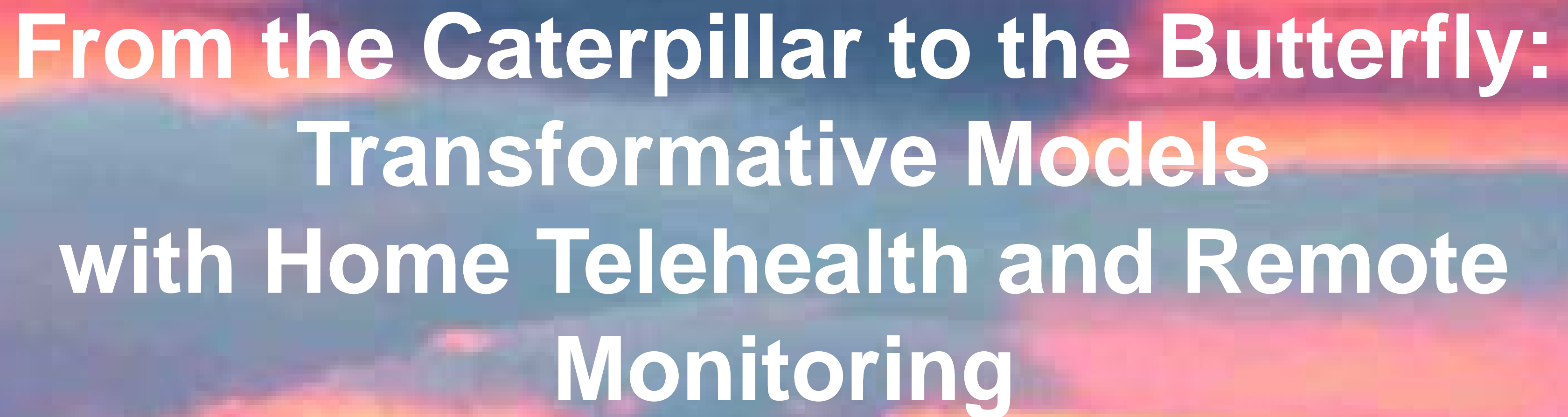

From the Caterpillar to the Butterfly: Transformative Models with Home Telehealth and Remote Monitoring

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What is the foundation of the current model of health care?

Hospital Origins

Hospital Middle English, from Anglo-French, from Medieval Latin *hospitale* hospice, guest house, from neuter of Latin *hospitalis* of a guest, from *hospit-, hospes* Date: 14th century

(Webster's online)

Hospital Origins

- Temples (Egypt, Greece)
- Teaching Hospitals (Academy of Gundishapur)
- Inns for pilgrims and travelers

Original Hospital Functions

- Worship
- Teaching
- Housing
- Isolation of the sick from society

Current Hospital Structure

- Industrialized
  - Shifts
  - Wards
- Risks
  - Stress
  - Infection

In-home and Remote Monitoring

- Modern era began in early 1990s
- Linda Roman, Drs. Mahmud and Sanders: project in Georgia targeted at prevention of admission

In-home and Remote Monitoring

- Seen as extension or “add on” to current care
- Adjunct care
- Avoidance of hospital admissions

“Tear down your wall”

Move care from Hospital/Clinic back into community and change the process of care.

Terminology needs to change from “In-home and remote monitoring” to one indicating “patient-located” care.

Patient Adherence Issues

- Patient non-adherence ≠ non-compliance
- "Patient-located care"
  - Changes ownership
  - Increase dialogue
  - Allows for collaboration and continuing education

“Remote Monitoring”

- Single measurement is not adequate
  - Illness is dynamic (eg. PTSD)
  - Normal is individual (eg. blood pressure)
  - Measure symptoms in environment in which they occur
  - Episodic vs. continuous measurement
  - Disease/illness always occur before the office visit

Technology Challenges

- Range of platforms which are expanding
- Appropriate pairing of technology and function
- Overlooking technologies (cell phones)
- Data over-load (good vs. bad data)

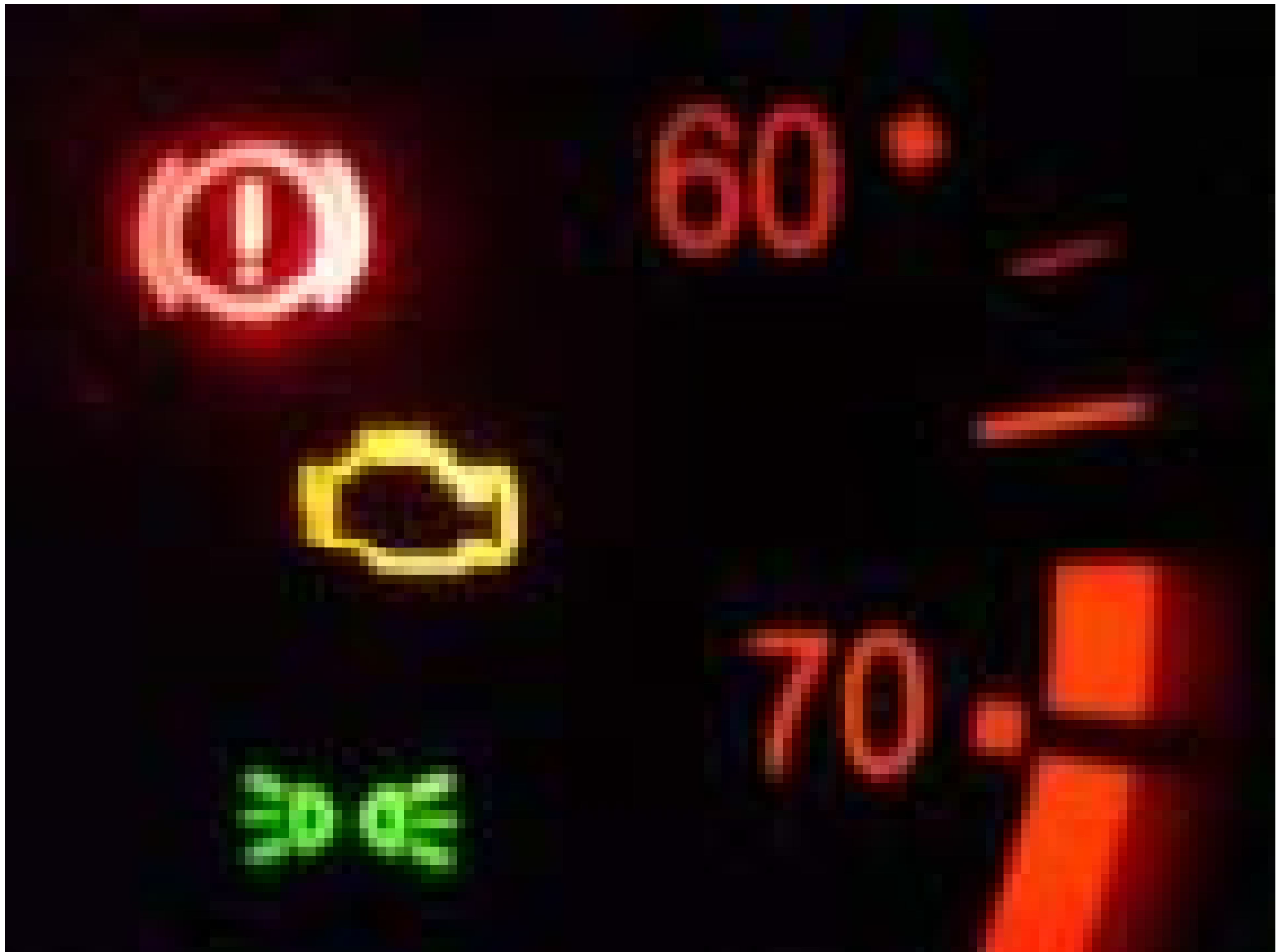
Providers cannot stay current on medical knowledge base and/or incoming patient data.

Humans are creative, interact well with each other, display flexible and adaptive thinking, and discern larger patterns.

Technology can process large amounts of data with high accuracy and fidelity.

Artificial Intelligence

- AI (pattern recognition, algorithmic support and treatment guidance) needs to be incorporated at all levels of clinical care.
- Needs to be at all levels of platforms (sensors, conduits)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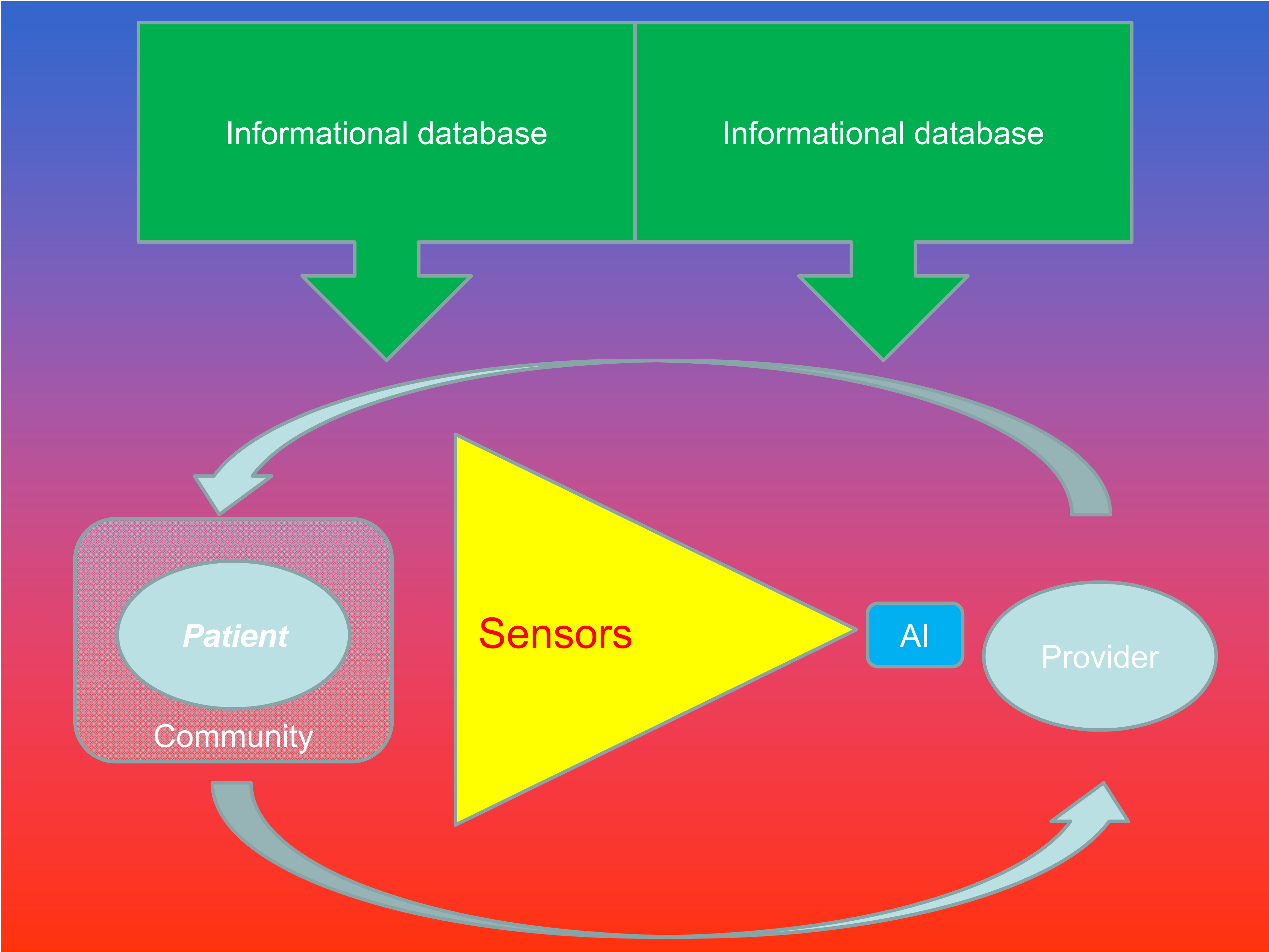
Community Based Treatment

- Technology facilitated collaterals and community interaction
  - Family
  - Community
    - Work
    - Social
    - Environmental


Informational database
Informational database
Patient
Community
Sensors
AI
Provider

New Health Care Team

- Patient
- Provider
- Family/community
- IT
- Engineer

System Re-engineering

- Provider: Use and integration of technologies into care
- Administrator: Changing administrative and financial models
- Patients: Collaborative models of care

Conclusions

- Health care model must change
- True patient centered care at patient location
- Technology platforms involvement
  - Sensors
  - Translation level
  - Database level

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