



Digital Technologies and The Future of Nursing

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Disclosures and Disclaimers

Portions of this presentation were originally prepared for the National Academy of Medicine Committee on Clinician Well-Being, in November 2018, and for the IHI Leadership Alliance.

AVIA is a network of 44 health systems seeking to innovate and transform through the deployment of digital solutions. avia.health

Boards and advisory roles:

- Former: Aetna, Inc. – health insurer, board member
- Multiple advisory board memberships with companies developing digital services
 - Conflict disclosed: member, advisory board of [98point6](https://98point6.com), described in this presentation
- Co-founder of nonprofit HealthTech4Medicaid <http://healthtech4medicaid.org/>

No financial relationships with any other products, services, or companies described here.

Agenda

- Purpose: **To acquaint the Committee with emerging patterns of digitally-enabled care** that will profoundly change the role and responsibilities of nurses and other clinicians.
- Begin with general description of the clinical functions that are changing as a result of AI / Deep Learning.
- Follow with three examples of early stage AI-driven services that represent some of the most substantial changes.
 - **The services described here are intended to be illustrative only – 3-5 years from now we may face different versions, from different companies, but the trajectories and early estimates of impact are worth understanding.**
- Introduce some potential implications for the future role of nurses and the configuration of health services.

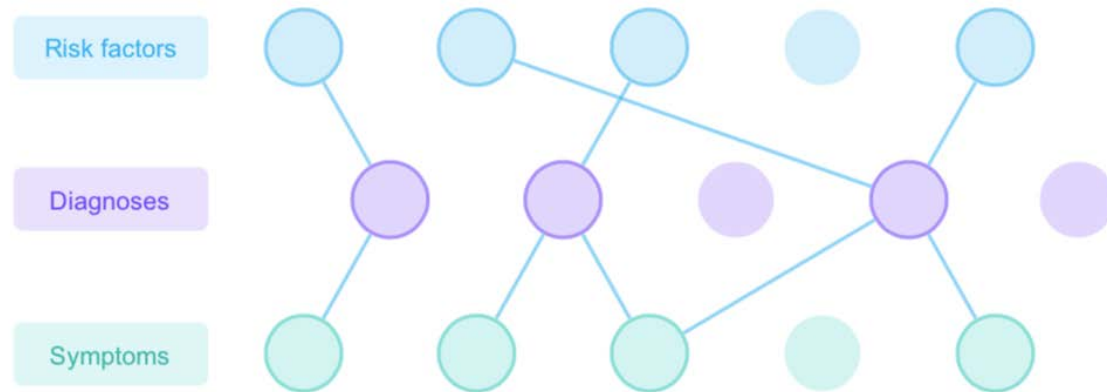
Implications for Clinical Care and Services (1)

- Five years from now, market traction is likely to confirm the consumer preference and clinical resource efficiency of applications of digital technologies such as telehealth and artificial intelligence.
- There are a multitude of unresolved questions, including bias, access, transparency, accountability, ownership of data and learnings, and others, which NAM and other leadership organizations are beginning to address.
- In planning for the wellbeing, effectiveness and fulfillment of the clinical professions, early evidence for potentially profound disruptions in roles and responsibilities should be considered.
- These changes will require the further preparation of nursing leadership to participate in and lead the associated transformations of health services, including the investment of resources and decisions regarding the effectiveness and adoption of new service configurations.

Virtual Triage: Access, Cost, Convenience ...

AI-fueled symptom checkers spread across the globe: interactive chatbots yield presumptive diagnoses + triage

Buoy uses a probabilistic expert system to analyze symptoms, risk factors, and diagnoses in real time.



We read +22,000 clinical papers covering 5M patients and +2,000 diagnoses to build this graph.

We've had to develop powerful automation and insight tools to enable extreme efficiency and accuracy.



Hello Molly, my name is GYANT, your personal health care companion.

My job is to help you identify any medical symptoms you might have and keep you healthy!

Yeah, I am a robot. A very sophisticated, charming and handsome robot, but a robot nonetheless. 😊

Alright, here's how it works: I'll ask you some simple yes-no and multiple choice questions.

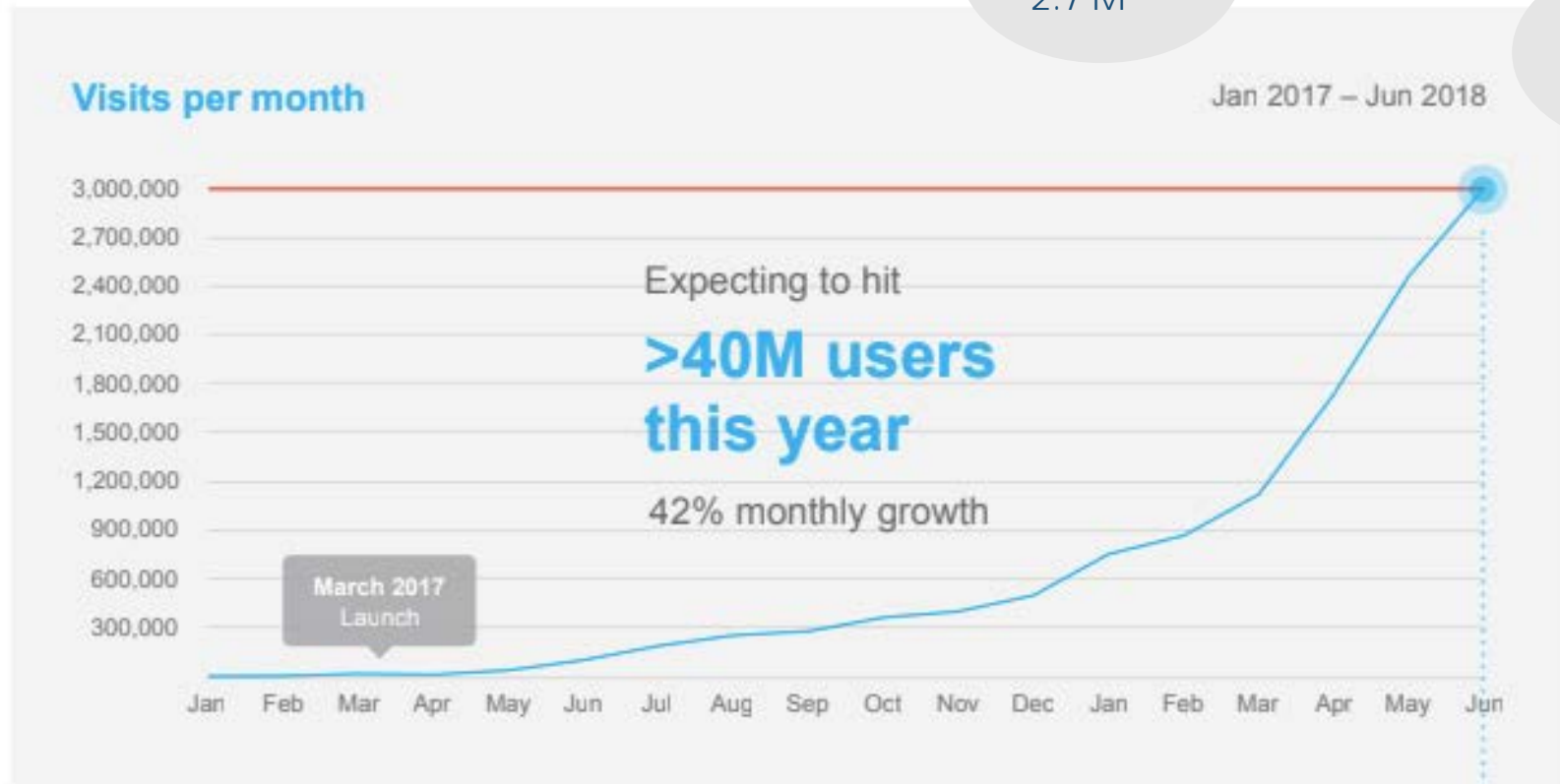
Then, I'll consult my database 🔍 and provide you with relevant information about possible causes and what to do next.

Of course, whatever you tell me will stay strictly between us! 🤝



All clear?

Consumer acceptance



HOUSTON
2.7 M

PEORIA
1.22 M

DETROIT
800,000

TAMPA
1.8 M

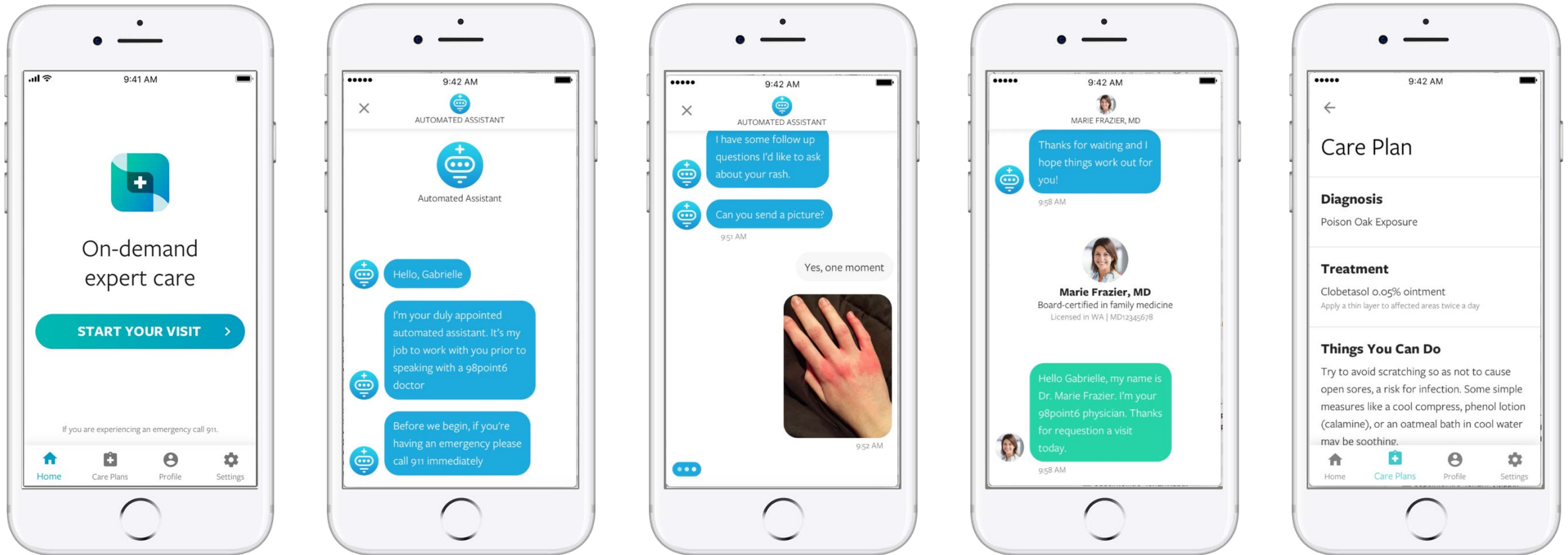
CVS Chatbot Uses AI To Connect Patients To The Right Treatment



1 year, 3 months to 3M visits per month



Completely Virtual Primary Care Today



Service extends beyond episodic care, including answering medical questions, diagnosis and treatment, prescriptions, labs, referrals, follow-up, reminders and more. Available on iOS, Android and web platforms

Early Learnings, Leading Indicators

System Design

- Available today in 43 states + D.C., accessible to 95% of U.S. adult pop (238M)
- Salaried physician team licensed in all 50 states
- 100,000 members under contract by end of year

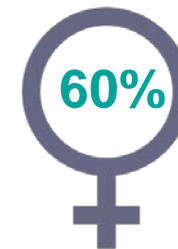
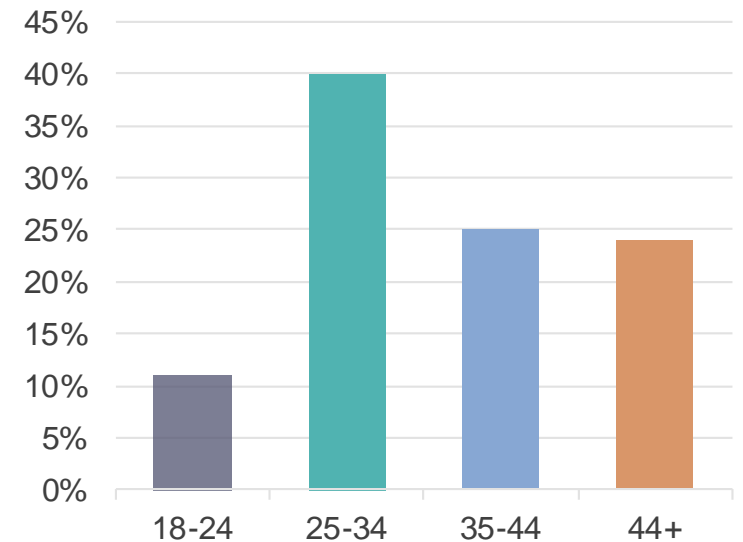
Resolution Rate, Patient Acceptance

- Over 200 different conditions treated per month
- **95% of conditions/questions resolved without need for in-person care**
- Over 25% of visits are returning users with a new condition or question
- Average patient wait time of less than 30 seconds
- Over 30% of visits are requested from non-traditional settings (coffee shop, airport, during commute, from work, etc.)
- Net Promoter Score higher than Apple and Netflix, Kaiser, health plans, and current primary care

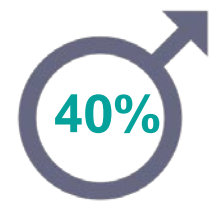
Affordable Cost

- Employers: \$1 PEPM
- **Global access: unlimited primary care at US\$10 per year through foundations**

Early Use By Demographics



Female



Male

Behavioral Economics Today: Achieving Lasting Change

Habits are formed through a series of repeated triggers, behaviors, and rewards.
On average, it takes 66 days of repetition to form a habit.¹

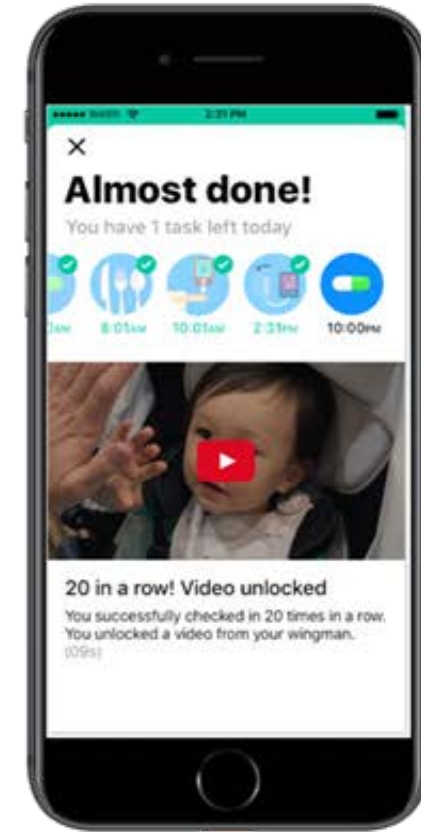
Trigger



Behavior



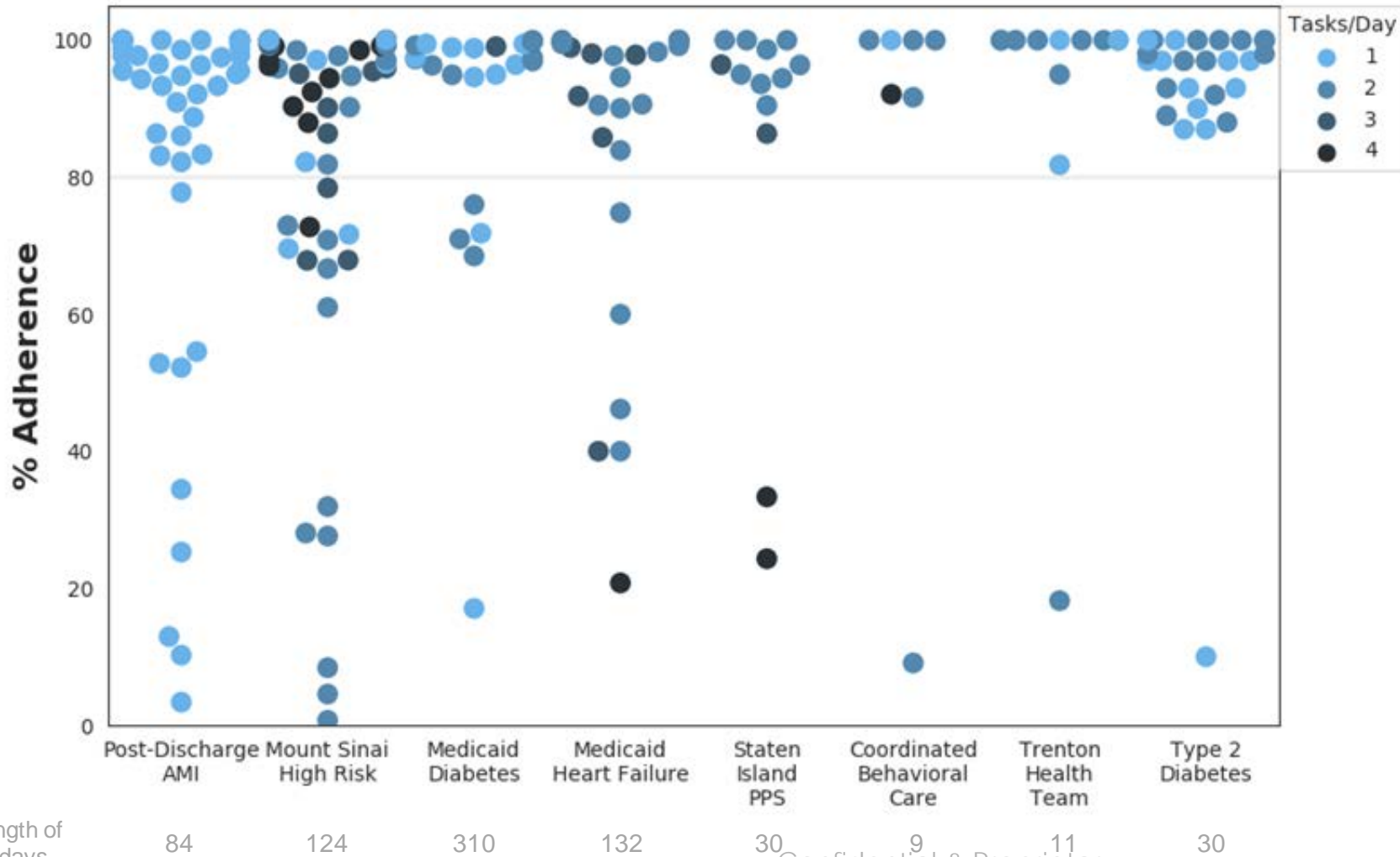
Reward





Wellth produces 89% average care plan adherence

Focus on high-risk Medicare/Medicaid populations



89%
Average Daily Adherence

86%
Of Users ≥80% Adherent

Average length of program in days

Implications for Clinical Care (2)

- Five years from now, market traction is likely to confirm the consumer preference and clinical resource efficiency of similar applications of AI.
- These implications – from the examples presented and from other emerging solutions – suggest these effects, at a minimum:
 - Rapid and extensive leveraging of nurses and all clinicians, resulting in fewer and different clinician resources needed per population covered
 - Clinician roles evolve to consultation on population management, resolution of complex cases, and increasingly limited direct patient care engagement except for complex chronic and acute episodes, trauma.
 - Struggles for individual clinicians, professional organizations, education and training programs, and policymakers in challenging, adjusting to, and regulating these changes may shift the nature of clinician wellbeing discussions.