



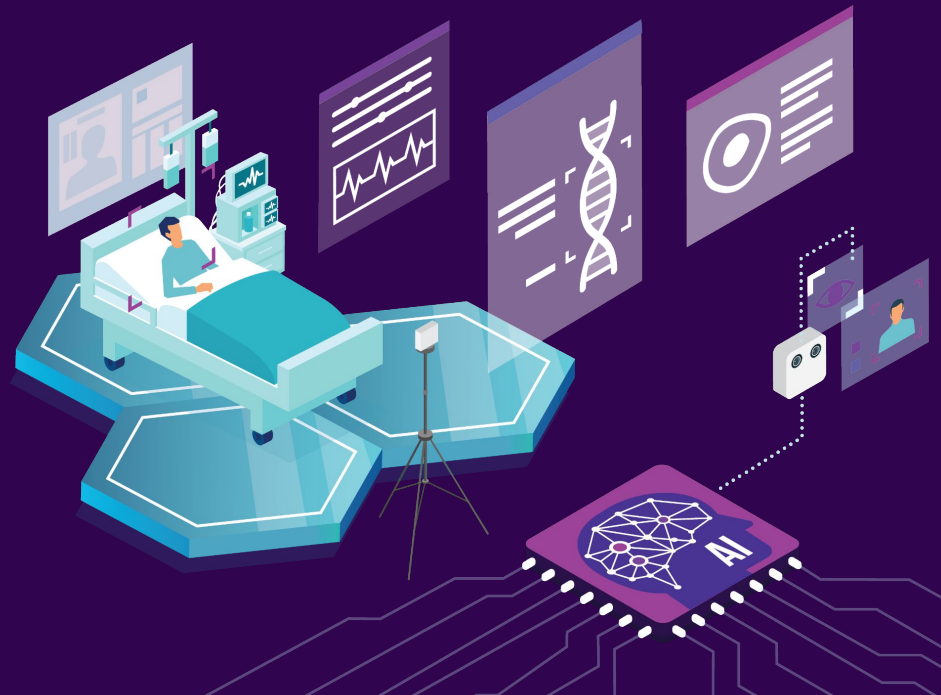
LookDeep

Virtual Nursing

Fall 2022



Within 10 years **Clinicians will demand a video camera** in every hospital room...



LookDeep Levels of Virtual Care Via Computer Vision + AI

Virtual Sitting


- Fall Prevention
- Increase Clinical Bandwidth on Floor
- Continuous Observation (decrease one on one sitter costs)

Virtual Nursing

- Addressing Nursing Challenges (burnout, nursing shortage etc.)
- Scale Expertise
- Improve Efficiencies

Virtual Medical Care

- Holy Grail - assistance with diagnosis of conditions (e.g. delirium) and patient trending (sepsis)
- Most Complex and will require FDA



Nurses cited burnout and high-stress work environments as the No. 1 reason for leaving their jobs*

Average cost of turnover for a RN
\$40,038

Up to 57% of nurses leave the profession in their first three years

Increase in patient/ratio is associated with Nurse burnout and dissatisfaction

* www.healthdive.com/news/burnout

https://www.nsinursingsolutions.com/Documents/Library/NSI_National_Health_Care_Retention_Report.pdf

Biggest Challenges Facing Nursing Today



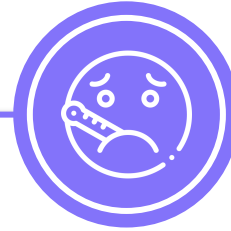
Retain / Recruit
Nurses



Nurse/Patient
Ratio
(Workload)



Less Experienced
Nurses

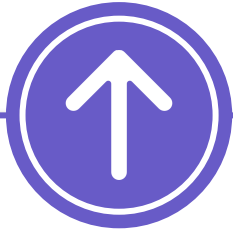


Sicker patients
(Med/Surg and
Beyond)

What could help?



**Reduce the
RN's workload**
especially related
to non-clinical
tasks



**Increase
confidence**
that patients
are safe



Mentor /Support
less experienced
nurses

LookDeep Virtual Nursing



What is Virtual Nursing?

Virtual Nursing is a model of care that **partners bedside staff with an experienced Virtual RN** who works from a Centralized Hub or Individual Site **that helps guide and support care for assigned patients.**

Levels of Virtual Nursing

Virtual ADT Nurse



Tasks that can wait for a mobile cart

- Virtual admission /discharge

Virtual Mentor Nurse



Enabled by easy video everywhere

- Mentorship - Mandatory (Assessments) or On-Demand
- Blood / Medication Verifications
- AI Nudges

Virtual Early Warning Nurse



AI that observes patient to support centralization

- Which patients need to have a mobility / CAM / Braden /etc. assessment?
- When should Patient X be turned
- Review EHR and AI Data to help better manage the population of patients inside the hospital



Reducing Cost Allows Nurses to Rely on Virtual Support Everywhere

Virtual eyes on every patient
— using technology to
promote safety

- ✓ Ubiquitous, Continuous AI Monitoring
- ✓ Always there/part of the room = norm.
Remove friction of mobile carts
- ✓ Tracks safety (location) and clinical
(movement) factors
- ✓ Reach more patients -> More equitable

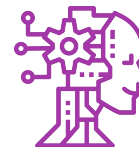
No cost for Hardware.



Dual Camera



Built in 2-way audio



Artificial Intelligence

LookDeep Virtual Admission/Discharge Nurse Workflow

Admission

1. **Bedside Nurse** performs complete Admission Assessment with Virtual Nurse transcribing into EMR
2. **Virtual Nurse** performs most of the Admission with the exception of the Physical Assessment

Workflow - Virtual Nurse

1. Complete Admission History
2. Review Medication History and Current Medication List
3. Initiate Plan of Care
4. Document Admission Vitals with the aid of the PCA at the bedside
5. Notify Bedside RN of any concerns or abnormalities

Workflow - Bedside Nurse

1. Perform Admission Physical Assessment
2. Conducts Procedures that can not be performed remotely ie. IV insertion

Tools

- Audio/Visual/Zoom Camera
- EMR Access
- Language Interpreter as needed
- PCA/Tech at bedside when Virtual Nurse is conducting visual assessment

LookDeep Virtual Admission/Discharge Nurse Workflow

Discharge

Requires multidisciplinary team based on patient

Workflow - Virtual Nurse

1. Review Discharge Instructions, medication list, follow-up instructions with patient
2. Perform talk-back verification of instructions with patient and or family
3. Schedule follow up appointments
4. Communicate with Care Manager
 - assist/coordinate Medical Equipment delivery and setup as needed
 - Schedule home health or other services required

Workflow - Bedside Nurse

1. Provides Patient Teaching as needed
2. Obtains signatures and gives discharge paperwork to patient and or family

Tools

- Audio/Visual/ Zoom Camera
- EMR Access
- Language Interpreter as needed

LookDeep Virtual Preceptor/Mentor Workflow

1. Predefined Responsibilities

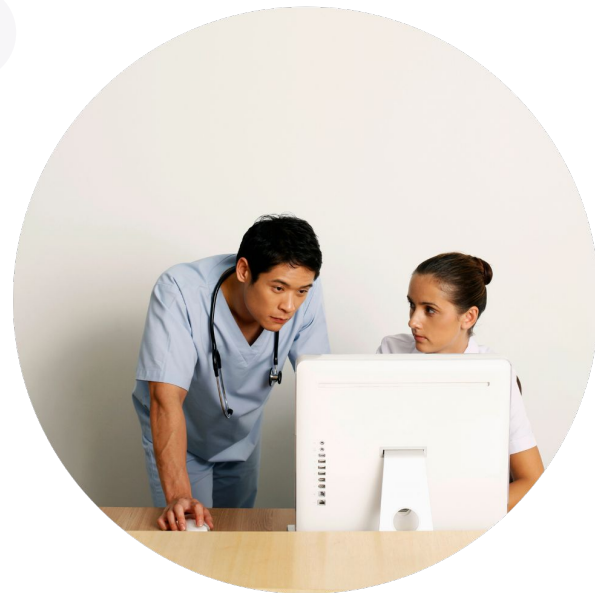
Virtual Nurse acts as a Preceptor to the New Nurse

Workflow - Virtual Nurse

1. Helps new nurse with specific tasks for a prescribed period of time - observes/directs: suctioning, changing bandages, hydrating drips (onboarding preceptor)
2. Assesses New Nurse charting
3. Escalation alarm condition as appropriate
4. Communicate any concerns with the RN overseeing the Less Experienced RN on the unit

Workflow - Bedside Nurse

1. Virtual Nurse Performs Physical Assessments with the Less Experienced nurse for a prescribed period of time
2. Or RN overseeing less experienced RN's on the unit will assist with the physical assessment



LookDeep Virtual Preceptor/Mentor Workflow

2. On Demand preceptor or mentor. No formal requirements for New Nurse to use preceptor.

Workflow - Virtual Nurse

1. Available to assist when New Nurse calls
2. Escalation path
3. Med Rec., 2nd set of eyes as needed

Tools

- Audio/Visual/ Zoom Camera
- EMR Access
- Bed Alarm
- Language Interpreter as needed



LookDeep Virtual Rapid Response Workflow

Rapid Response

- Quickly Detect and Predict signs of Pt. Deterioration
- Prevent Complications

Workflow - Virtual Nurse

1. Frequent rounding via video
2. Follow up on EMR / Apache Alerts
3. Chart worsening trends (including AI dashboard)
4. Engage Bedside Nurse and others (Dr.s) as needed
5. Coordinate communication in urgent and emergency situation

Workflow - Bedside Nurse

1. Standard Pt. Rounds & Charting
2. Perform assessments as needed
3. Collaborate with Virtual Nurse as needed

Tools

- Audio/Visual/Zoom Camera
- EMR Access
- Bed Alarm
- Clinical Decision Support Resource
- Language Interpreter as needed
- PCA/Tech at bedside when Virtual Nurse is conducting visual assessment

LookDeep Virtual Medication/Blood Product Second Signature

(May be used for all Virtual Workflows)

Medication Second Signature: needed for giving High Risk Medications (Insulin/Heparin)

Workflow

1. Bedside Nurse acquires medication
2. Virtual Nurse performs medication verification via camera
3. Virtual Nurse and Bedside Nurse document in the EMR

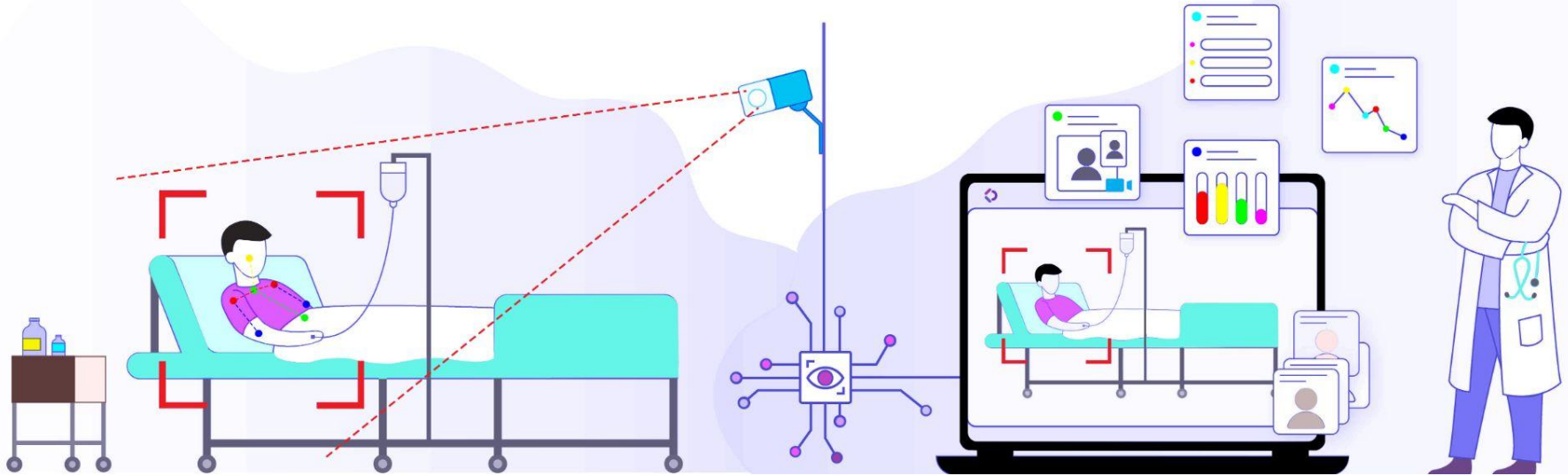
Blood Product Verification

Workflow

1. Bedside Nurse obtains blood from blood band
2. Virtual Nurse & Bedside Nurse perform blood verification procedure together
3. Bedside and Virtual Nurse document in the EMR

Yet without AI, Virtual Nursing only shifts where work occurs

Continuous AI video monitoring is the only way to maintain scope of care and reduce work



Reduce the RN's workload



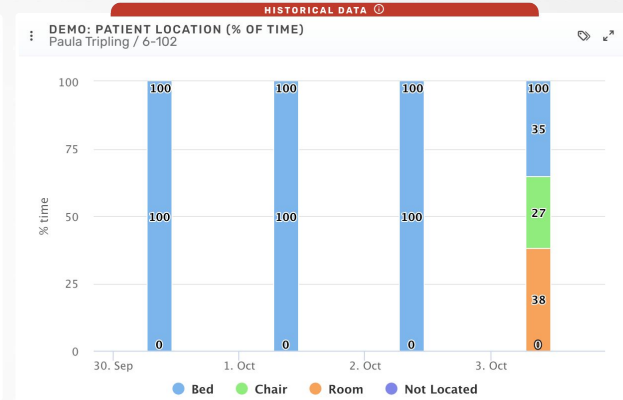
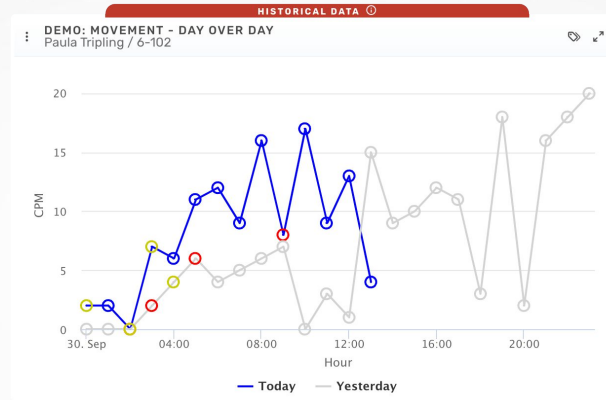
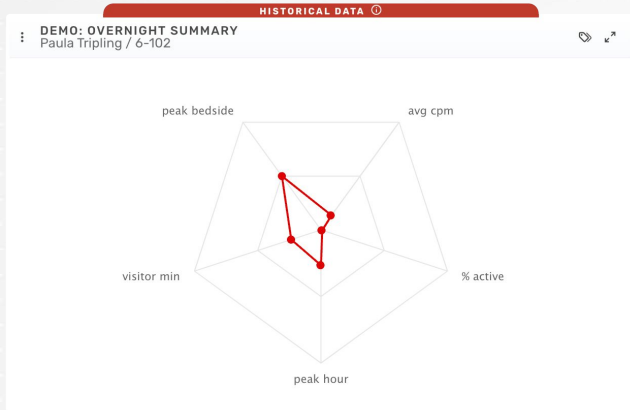
Increase confidence that patients are safe



Mentor /Support less experienced nurses

Assisting at Decision Points

AI for Continuous Overnight, Mobility, Location Assessment



Track Overnight “Rest” Quality

Top 3 causes of Delirium:
Reactions to infections, changes in the environment, dehydration

Understand Movement In Bed

2.5 million Acute Care Patients in US suffer from HAPI (hospital acquired pressure injuries) due to lack of moving

60,000 Die from HAPI

See Patient Location Evolution

“The most fundamental decision clinicians need to make is whether a patient is medically fit to leave the hospital...”

Nursing Times 112:25. 14-15. Kathy Oxtoby 2016.

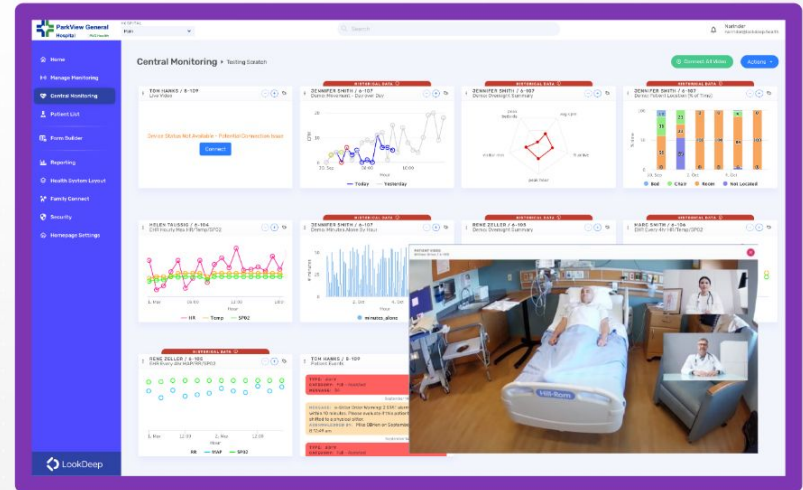
LookDeep Early Warning / Virtual Rapid Response Workflow

AI Data use to “sort” patients for virtual attention (per use case, e.g. lack of mobility during day and in bed → investigate for pressure injury)

Patient 1	Patient 11	Patient 21
Patient 2	Patient 12	Patient 22
Patient 3	Patient 13	Patient 23
Patient 4	Patient 14	Patient 24
Patient 5	Patient 15	Patient 25
Patient 6	Patient 16	Patient 26
Patient 7	Patient 17	Patient 27
Patient 8	Patient 18	Patient 28
Patient 9	Patient 19	Patient 29
Patient 10	Patient 20	Patient 30



Virtual Resource uses system + EHR data to drill into highlighted patients first, conduct on-demand video visit, and trigger clinical bundles



LookDeep Virtual Nursing

Benefits of Virtual Nursing



Enhances Patient Safety & Coverage



Increases the Speed of Intervention



Drives Workflow Efficiencies



Supports Retain and Recruitment of Nurses



Minimizes Variations of Care



Improves Staff Balancing & Labor Costs

Virtual Nursing → Virtual Care: **The Virtual Hospital Command Center**





LookDeep

Thank You!
Appendix

Be Present for Every Patient at Every Moment

LookDeep Virtual Nursing Solution



Virtual Nursing Care Models:

- **Virtual Admission/Discharge Nurse** - Admission/Discharge tasks/Shift Report, Med. Rec., 2nd set of eyes
 - **Virtual Preceptor/Mentor** - Real-time support to assist with a procedure or escalation for those less experienced, Med. Rec., 2nd set of eyes
 - **Virtual Rapid Response Nurse** - Recognize, Evaluate & Analyze patients, review charts, labs remotely, Med. Rec., 2nd set of eyes
- Bedside Nurse** - Focus on Tasks requiring “hands on” skills and “in person” physical assessments

LookDeep Technical Planning

- **Wired - Wifi - Network Health**
- **Two-way audio/one way Video/night vision**
- **EMR - Clinical Decision Support System Integration**
- **Active Directory**
- **ADT**
- **Nurse Call/ other tools (vocera/voalte)**
- **Camera Availability:**
 - In every room, for every patient at anytime
 - Mobile Cart, Wall Mount, HW/SW, large display for viewing
- **Remote Location**
 - Command Center (current EICU or E-sitting users), space, additional PC, Display, headset
 - Remote RN Anywhere - PC, Headset, Home intranet setup, off site support



Why LookDeep?

Computer Vision + AI for Patients



Visitor-minutes

Bedside Activity
*Average by hour
or by minute*

Hourly Scurry
*Peak hourly bedside
activity*

Patient Activity Level

Time Active
*Percent of total
activity*

Patient Location
In bed, chair, etc.

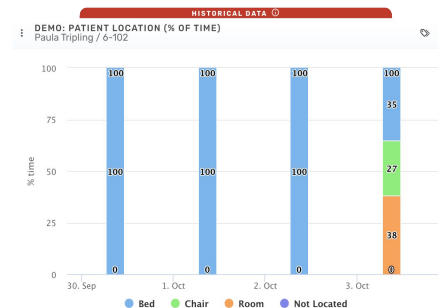
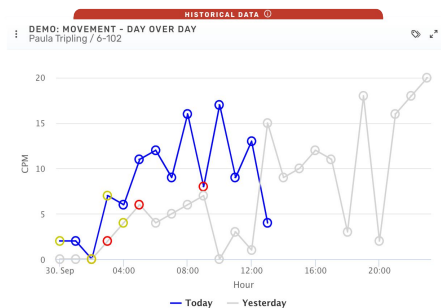
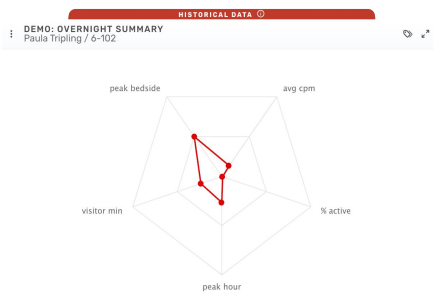
AI + Video Enables Better Information and Enhanced Nursing Workflows

AI Observations...

- How has patient movement/mobility changed today from yesterday?
- Were they 'restless' overnight- movement / visitor amount & intensity
- Spending their time, in bed, in the chair? has that changed over their stay?
- AI Nudging; perceives that the patient needs more attention for their safety

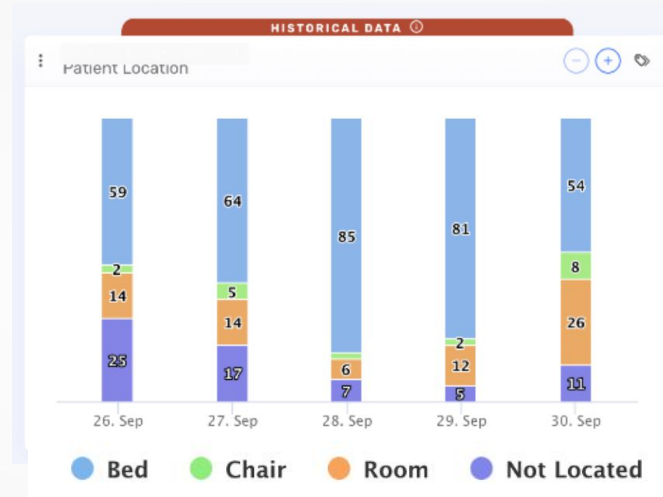
Help guide & prioritize your next actions:

- Does a patient need some type of assessment: Braden, RAAS, BMAT, CAM
- Should they have / priority of PT or OT consults?
- Do we need to schedule a Team Discharge Review?



Assisting at Decision Points

AI for Continuous Overnight, Mobility, Location Assessment



See Patient Location Evolution

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