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Oxevision in practice: Brief reports | January 2023

Investigating the impact of implementing Oxevision at Central and North West London NHS Foundation Trust

Background

Central and North West London NHS Foundation Trust (CNWL) partnered with Oxehealth to improve the safety and quality of their inpatient care.

The trust integrated Oxevision into routine clinical practice on 10 wards (5 Older Adult, 4 Psychiatric Intensive Care Units [PICUs], 1 Low Secure Unit [LSU]) between November 2020 and March 2021. Oxevision is a contact-free, vision-based patient monitoring system that delivers vital sign and activity insights to clinical teams.

Methods

A mixed methods study was conducted to evaluate the impact of implementing Oxevision on ward safety and on the quality and efficiency of care at CNWL.

A before-and-after quantitative analysis of incident data (from routine incident reports) and financial data was completed.[1] Outcomes investigated were: falls (Older Adult wards only); self-harm (PICUs and LSU only); assaults (all wards); use of restraints (PICUs and LSU only); and monthly bank and agency spend related to enhanced observations (all wards). 7-12 months of baseline (pre go-live) data and 7-12 months of post go-live data were collected (length of evaluation periods varied by ward) and percentage change was calculated for each outcome. To allow for a fair comparison between the two periods, data were weighted to 100% occupancy and annualised.

Staff, patient and carer feedback was collected via questionnaires (staff: N = 151; patients: N = 89; carers: N = 15) 5-6 months after Oxevision went live. Interviews and focus groups with staff were also carried out. Outcomes examined included: staff and patient safety; quality of physical health monitoring and care in general; and patient disturbance and privacy. Respondents were asked both open- and closed-ended questions. For the latter, staff were required to state whether they believed each outcome had improved with the introduction of Oxevision on a scale of 1 to 6 (1: strongly disagree; 6: strongly agree), and patients answered on a scale of 1 to 5 (1: much worse; 3: no difference; 5: much better).

[1] One of the Older Adult wards was identified as an extreme outlier with regard to incident and financial data and was therefore excluded from these analyses. Another Older Adult ward was identified as an extreme outlier with regard to financial data only and was therefore excluded from this analysis. Potential confounding factors were evaluated via interviews with Ward Managers; however these are not described in this brief report.

Findings

Incident data

- Across the 4 Older Adult wards, there was a 43% decrease in bedroom falls at night and a 36% decrease in ward falls at night (falls taking place anywhere on the ward, including the bedroom)
- Self-harm incident rates were too low to conduct a meaningful analysis[2]
- There was a 29% reduction in assaults across the 4 PICUs and a 57% reduction across the 4 Older Adult wards. On the LSU, assaults increased by 15% but the sample size was relatively low (pre go-live *N* = 18; post go-live *N* = 21)
- Use of restraints decreased by 26% for the PICUs. The number of restraints occurring on the LSU was too low to conduct a meaningful analysis[3]

Financial data

- Bank and agency spend related to enhanced observations decreased by 14% from the pre to the post go-live period across the 8 wards included in the analysis, demonstrating a positive return on investment (ROI)

Staff, patient and carer feedback

- Feedback suggested that ward safety for both patients and staff improved after Oxevision was implemented - 99% of staff, 67% of patients and 79% of carers reported that patient safety had improved[4] and 89% of staff felt better able to manage their own safety

  "The system really helps when monitoring an aggressive patient and preparing to go into the bedroom... We're at least not going in blindly and putting ourselves at risk."

  Staff member, Older Adult ward

  "It was about three o'clock when I woke up and rushed to the bathroom...hitting my shoulder and head against the wall...a staff member came straight to my room to check on me. The system had alerted him that I had gotten out of bed and he came to check on me in case I needed any assistance...It felt very reassuring to know that they came to check on me so quickly".

  Patient, Older Adult ward

- 90% of staff felt that Oxevision helped them to identify physical health deterioration in patients and 92% said that the system made it easier to adhere to policy for taking physical health observations post-rapid tranquillisation

  "When we've given our patients rapid tranquillisation medication they usually stay in their rooms and have a cool off period. During this time we need to monitor their physical health, but...it's very hard to approach them. The system has been very useful in situations like this where we need to make sure we're checking on vital signs even if the patient doesn't want to see us."

  Ward Manager, PICU

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[2] Across all wards: pre go-live *N* = 5; post go-live *N* = 6.

[3] Pre go-live *N* = 4; post go-live *N* = 5.

[4] 94% of patients and 100% of carers thought that patient safety had improved or at least been maintained.

[5] 92% of patients and 100% of carers perceived the quality of care to be better or at least the same as before.

- Almost all staff (93%) felt able to provide patients with higher quality care due to Oxevision being implemented - a view also expressed by 61% of patients and 77% of carers[5]
- 89% of staff reported that the system supported them to manage patient risk. This led to less restrictive practices being used

"The system has been helpful in supporting care plans. We have some patients who can be quite restless at night and our observations don't help this. In MDT meetings we have been able to agree on using Oxevision remote observations at night in order to help them get better sleep."

Ward Manager, Older Adult ward

"I like that the system can help prevent restrictive interventions or restraints from happening. It's great for us because we don't want to do any of that, and ideally it's always a last resort. In that sense it's a very good system and it's helpful as an extra tool."

Nurse, PICU

- 80% of staff said that Oxevision created more time to engage with patients, while 94% of patients and 71% of carers felt that staff had the same amount or more time to engage

"Less time writing reports, more time with patients. Less time walking around and we've got a better rapport with [patients]. Doing more activities as well. We're able to open the garden or open the gym for them."

Staff member, PICU

"Staff interact with us a bit more, we only see them less at night. I think they've always been very busy, but you can see that they have more time for us with the Oxehealth system. We still get a good amount of interaction with them."

Patient, PICU

- Most patients (67%) reported being able to sleep better at night due to staff disturbing them less. 89% of staff and 62% of carers also felt that Oxevision helped to reduce sleep disturbance

"I've been in the mental health system for a total of 7 years, since I was 18. Before, the staff would come in all the time during the night, turn on the lights, and would wake you up. It was very stressful, especially when on medication. Now, they don't disturb sleep as much and I think the system is great for that."

Patient, PICU

- 76% of patients and 93% of carers said that patient privacy was either improved or maintained with the introduction of Oxevision.

"I don't feel like it's impacting your privacy in a bad way."

Patient, PICU

Discussion

The results of this mixed methods study indicate that implementing Oxevision at CNWL supported clinical teams to deliver various improvements in safety and care quality and efficiency on wards that had the system in place.

Reductions were observed in falls, assaults and restraints. Bank and agency spend relating to enhanced observations also decreased, demonstrating a positive ROI. Staff, patient and carer feedback was positive for the majority of respondents across all study outcomes. While most patients reported that privacy improved or was maintained with the introduction of Oxevision, a small proportion felt their privacy was negatively impacted, highlighting the importance of good education around the system.

During the course of this study, CNWL had several projects running to reduce assaults and falls which could have contributed to the reductions observed in these incidents. Nevertheless, overall the findings suggest that, by adopting Oxevision into existing clinical practice on mental health inpatient wards, clinicians can improve safety, the quality and efficiency of the care delivered, and the experiences of staff and patients.

ABOUT

oxehealth®

Oxehealth is a global leader in vision-based patient monitoring. The company was spun out of the Oxford University Institute of Biomedical Engineering and is dedicated to helping clinicians deliver safer, higher quality and more efficient care.

oxevision®

Oxevision is Oxehealth's vision-based patient monitoring system. It uses an infrared-sensitive camera that works with cleared medical device software to deliver vital sign and activity insights to clinicians. These enable staff to intervene proactively and to plan care in inpatient mental health settings.