## FROST 🕉 SULLIVAN



## ICU NURSE: DRAMATICALLY IMPROVING PATIENT CARE

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One-click access will make it easy to start a video interaction from any device. For instance, a user can click on a contact in the contact list on a mobile phone or smart watch. transfer the call to any screen (TV, computer), and bring in other devices as needed. Jason's day begins with a 6 a.m. video greeting from his wife, who's traveling for work and is two hours ahead of him—making it convenient for her to serve as his visual alarm clock. As he opens his eyes to the sound, and then sight, of Julie singing The Beatles' "Here Comes the Sun," he laughs, blows her a kiss, and then starts to think about his day.

It promises to be a long one. Jason is an ICU nurse at one of the largest hospitals in the state, and his shifts rarely leave him any downtime. But he loves the job; he's wanted to be a nurse since he was a boy, watching his grandfather in and out of hospitals and seeing how important the nurses' care was for him. And taking care of his patients is fulfilling work. As he reviews his to-do list for the day, Jason considers, not for the first time, how much nursing has changed since he first entered the field 15 years ago. He could never have taken care of so many patients in the past or been able to consult with so many other clinicians and physicians on cases. He is much better prepared to handle unusual cases, because he has access to experts and colleagues who are willing and able to collaborate in real time. He was able to open a remote-ICU unit in a healthcare clinic in his rural hometown. And he is seeing enormous improvements in patient outcomes, the result of better-quality care and effective follow-up.

Jason steps out of the shower, gets dressed in his bright blue scrubs, and grabs some coffee to go as he heads out to start his driverless car. On the way into work, he's able to check his messages text, video and even a few emails from some of his older colleagues. He clicks on a link to a live CME class taught by his favorite nursing school professor and spends the next 30 minutes learning a new technique for maintaining clean central lines—a critical issue in the ICU and one that could stand some improvement. At the end of the class, he asks the professor about the frequency with which the procedure should be performed within a 24-hour period, takes a test to show he has absorbed the material, and then registers to have the system send him a reminder to practice the new technique at least 10 times in the next week. The first time he does, he'll use his smart glasses to conference in one of his professor's assistants so she can supervise and provide expert guidance during the procedure.

Before he knows it, Jason is at the hospital. Downing one last gulp of caffeine, he walks quickly into the employee entrance, where he signs in using a biometric scanner—a quick facial-recognition check. His wearable devices auto-register with the hospital network and remain logged in as long as he doesn't take them off. For the rest of the day, he'll be able to order tests and medications for his patients, set up consultations, and access all patient data systems via his smart glasses and wrist watch using natural gestures and voice commands.

As he walks into the ICU, the patient monitoring dashboard is automatically pushed to his smart glasses and he can see at a glance which patients he needs to tend to first as he begins his rounds. Jason can see it's going to be a busy day and is thankful for the ready access he has to the highly skilled intensivists and eRNs in the central monitoring station. All he has to do is call for help, and both the bedside patient engagement system and his smart glasses are connected into a video conference with a central monitoring eRN, who can either control the camera on the bedside solution or leverage the "see-what-I-see" camera on Jason's glasses to gain eyes on the patient and provide Jason with real-time assistance. Because patients in this unit are often sedated and unable to communicate with their caregivers, Jason and his fellow practitioners call family members via video chat to provide updates or ask questions as needed. He often conferences in remote specialists for consults and teaching opportunities during rounds; the residents love this part of their day, when they get to collaborate with and learn from renowned specialists from around the world.

As the morning progresses, the central monitoring station monitors Jason's patients' vital signs. If trend analysis heads in the wrong direction, Jason is alerted on the lens of his smart glasses. This happens today as he is meeting via video call with the hospital's HR rep—who works in a corporate office across town—to discuss some new hires; they are looking to schedule remote interviews with recent nursing school graduates. Jason checks his team tracker status on his smart watch to see whether he is needed back on the floor. Everything is under control—the patient had woken with a start and knocked his finger-pulse monitor off, and one of his peers was already in the room—so Jason continues his meeting.

Having placed his lunch order from his smart watch during the meeting with HR, Jason is able grab his fare from the pick-up station with payment automatically made by the device. After a quick bite, Jason initiates a video call with a hospital pharmacist and a patient's spouse, who has questions about the long-term effects of her husband's medication. He also sets up a consult with an occupational therapist for the mother of a teenager who is recovering from a devastating car accident and is facing months of therapy and hard work. They conference in an insurance specialist to discuss costs and how to best pay for the boy's long-term care; he will be released from the ICU that evening, and suddenly his parents are able to move beyond thinking only about his immediate needs and start planning for a difficult, expensive future. They are grateful to meet with experts face to face without having to leave their son's side in the hospital.

As his shift comes to a close, Jason has two final consults: one with an admitting nurse in the ER in preparation for a patient being transferred into the ICU, and another with the surgical staff, who will be sending up a transplant patient early the next morning for post-op care. The latter is receiving a new kidney from a 3D Biomaterial printer, and Jason wants to make sure he has all the necessary medications and protocols in place for a speedy recovery. Finally, he connects a newly admitted patient's remote family members to the patient's bedside system, enabling virtual visiting hours—the family lives three states over and couldn't make the drive that night.

Ready to head home for the day, Jason automatically passes his caseload to his colleague, Melissa, as she enters the ICU with her registered smart glasses. Jason is able to debrief Melissa on the current status of critical patients via smart glass conference as he makes his way to his car. On the drive home, Jason places one last video call to his wife to sing a few bars of "Goodnight Sweetheart" from Sha-na-na. After that, he can finally relax with the latest episode of his favorite Web drama and a Coke—a perk of driverless cars and a great end to a busy day.



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