

## Internal Medicine: A short story written during medical school

Vincent Czerwinski

Student, University of Kansas Medical Center

After a long shift, Rick was desperate to have some time to himself. He walked slowly across the beach- the spot he always found himself drawn to in the brief interlude between shifts. He spent a precious moment of time off absorbing the sights and sounds of the coast. Not that there was much to see, covered under the blanket of night. I could be anywhere in the world, Rick thought to himself. Do I really want to spend my moments off at [the beach]? Rick looked down and saw a hermit crab scuttling across the sand. Picking it up, he turned the animal over to inspect its legs. Instead of the flailing appendages he expected, Rick found himself looking at the exposed, undulating foot of a conch. Despite the intrusion, the creature made no attempt to cower in its home. The slimy foot bulged impossibly outwards, at once totally extruded yet still stably adhered to the carapace. Rick quickly tossed the shell on the ground and began walking away. It wasn't a luSignal according to the book, but Rick knew his time was limited.

Suddenly, Rick found himself back in the Emergency Department of New Langone Medical Center. Even if inexorably chained to the institution, he couldn't help but appreciate the modern, minimalist design of the academic center. Staff milled around him tending to patients, passing by him as if he didn't exist. That qualified as a luSignal-inarguably. He looked up at the clock and noted that the seconds hand failed to move forward. Another luSig.

Sighing, Rick pinched the skin on his forearm, lifting it two inches. When he let go, it remained elevated, as if suspended by an invisible clamp, instead of returning to a relaxed position. No avoiding the inevitable. How long had his break been? Not more than an hour. Rick navigated his way into an unoccupied room in the department and shut the door behind him. The sparsely decorated space featured a neatly folded bed, vitals monitoring equipment, and a bedside table.

"Dr. Rick Martin, clocking-in," he said to no-one in particular.

"Dr. Martin," came a voice from nowhere in particular. "You know the protocol, two luSignals and it's time to acknowledge."

"Was I over?" Rick asked innocently.

"The hermit crab," the voice responded matter-of-factly, "that turned into a conch."

"I must have missed that."

"We both know you didn't, Dr. Martin." The voice continued, "Just because it's not formally documented

doesn't mean it's not a luSignal. The disciplinary committee will almost certainly understand it to qualify under the category 'transforming object.' If you continue to be tardy for your lucid shift then your transgressions will be formally documented and filed," the voice paused. "Again."

"I understand. I'm lucid now, let's begin. As I recall, there were five patients needing management before I went to sleep. We'll start with Mrs. Barnette."

"Julia Barnette, age 64," began the voice. "Presented to the Emergency department with a chief complaint of pain upon urination." As the voice spoke, Rick visualized the patient in the previously empty bed before him. There was a pause as the computer with whom Rick was speaking to accessed the patient's records. "Her vital signs are significant for blood pressure 91-over-65 and fever of 101.3 degrees Fahrenheit." The array of monitors at the patient's bedside came to life reading out the vitals as the computer relayed them. "Physical exam revealed a costovertebral angle tenderness." The patient clutched her flank. "Patient reports no hem-"

"I remember her now," Rick interrupted. "Kidney stones. Likely infected. Urology didn't want her?" As he spoke, the rest of the patient's details manifested themselves in his imagined room. She had frail skin, silvery white hair, and forlorn resignation that accompanied those who knew that hospital visits were a new fixture in their lives.

Another pause from the computer as it analyzed the Urology note. "They were of the opinion that the stones would not require specialty care, as hospital guidelines state that stones under 5mm are to be passed without surgical assistance."

"Any update on urine or blood cultures?"

Another pause. "Microbiology has yet to update."

"Ok, let's continue to treat possible infection empirically, maintain fluids, and administer fentanyl for pain control." Rick continued, "Petition Urology once more as this patient's complications warrant specialty care. If I have to, I'll cart her over there myself when I'm awake."

"I'll update the orders." Another pause. "Nursing has received."

And so, they continued their work. Rick's fifth and final patient was Mr. Kyle Palmer, an 11 y/o boy having an allergic asthma attack. Upon sending orders for epinephrine and concluding his treatment, Rick turned to leave.

"Ok, that's it for me," Rick announced.

"Thank you, Dr. Martin," replied the voice. "Have a good rest of your night."

Rick stepped out of the room and back onto the beach. Back when Rick had first been taught to lucid dream, he would have treasured these few moments- when the lucid shift was concluded, and the rest of the dream was available to explore. Now, modifying the content of his dream only reminded Rick of work, and so he accepted whatever his subconscious served to him. Enveloped in night, he walked towards the waves and sat down as he always did: at the

point where the breaking waves just reached his feet. Rick sat motionless on the beach. The tide progressively rose until he was up to his neck. Rick sat motionless. The tide splashed against his face and eventually covered his head.

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Eventually, Rick woke up. He was in his office, in New Langone Medical Center. The clock read 5:27AM, and the seconds hand was moving predictably forward. Rick pinched the skin on his forearm, and when released it relaxed. He sat up and began removing the meshwork of electrodes covering his scalp. Once off, he looked at the device in his hands. This was DreamCAP, the advancement which enabled him and other professionals around the country to work their lucid shifts. The machine transmitted information to the user through direct stimulation of the auditory nerve, enabling communication to people as they slept. DreamCAP also traced the pattern of cortical behavior and processed these signals into responses. All Rick had to do was recognize he was dreaming, and he could begin lucidly communicating along a two-way channel. The wires connecting the electrodes converged to a thick cord which fed into a processing station on his desk. This processing station connected to the hospital database, providing a feed of patient information. Finally, the problem of doctors not getting enough sleep had been solved. A display on the processing station displayed the message ‘Remember to enjoy your shift.’

Rick grabbed his hygiene bag and headed down the hall to the bathroom. In the bathroom, Rick began brushing his teeth. He looked at the mirror. Dark circles hung beneath his eyes. The harsh angularity of the lines on his face contrasted with the soft glow and rounded edges of the chic bathroom. There are worse prisons, Rick thought to himself, in an attempt to psyche himself up for the next shift. Working through your dreams decreased the quality of sleep, that much was clear, but it also enabled the hospital administrators to skirt the 80-hour work week maximum that had been imposed following the nationwide adoption of the Libby Zion Law. In the increasingly bureaucratized healthcare system, time spent working while awake was categorized, billed, and counted separately than work done while dreaming. The toll extracted from physicians was one of the few similarities between the two types of work.

Rick finished washing himself and packed away his hygiene bag. He returned from the bathroom to his office where he made a cup of coffee and finally headed back to the Emergency Department. As he walked through the halls, he acknowledged his coworkers with a curt nod and was pleased to see that they responded in turn. Upon arriving in the ED, Rick approached James, the colleague who had been covering the conscious shift.

“Dr. Hartman,” said Rick.

“Dr. Martin,” replied James.

“Did I say anything weird in my sleep?” joked Rick.

“Ha-ha” responded James. “Thanks for petitioning

kidney-stones to be transferred to Urology, I don’t know why they didn’t take her the first time.”

“Must’ve been half-asleep when they were looking at her.” Another well-worn joke between the two of them.

“The only other matter is the fifth patient on your docket, Kyle Palmer.” Seeing Rick’s confused expression James continued, “I looked at the neurolog from your lucid shift, it seems like you disconnected after your fourth patient.”

Rick was confused. He clearly remembered treating the young man. “Allergic asthma, right?” Rick asked. “I sent in orders for epi.”

“That is Kyle Palmer,” replied James, “but nursing never got the orders. Don’t worry too much about it, Rick. I went in and managed it myself.” There was a moment of silence between them, as both physicians processed the implications of this finding. “Maybe recalibrate your DreamCAP. I’ve had some trouble with mine as well. Still,” James thought out loud “I wonder why you remember seeing them.”

“Who knows?” Rick said brusquely, ready to move on. “I’ll worry about it later. Thanks for covering Palmer.”

“No problem,” responded James as he rose from his desk and began to leave. “Remember to enjoy your shift.”

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Rick worked methodically through his patients during the day. After this conscious shift was done, he only had one more cycle of sleep-conscious shifts and then he would have the rest of the week off. He might actually head to the beach.

With another five minutes remaining in his shift, Rick still had four patients to attend to. He’d managed time well today, despite the quickly compounding exhaustion. He could see another patient during his conscious shift and then manage the three remaining ones lucidly. With so few patients he might actually get a good night’s sleep. Rick’s next patient was in room 26C- Micheal Rodruigez, age 34. Vitals were unremarkable, save for an elevated heart rate. The intake nurse had noted that Rodruigez dislocated his right shoulder, apparently ‘while putting his shirt on.’ With a sense that this case would be fairly cut-and-dry, Rick headed into the room. An X-ray had been ordered and the technician was on the way over.

“Mr. Rodruigez,” said Rick, invigorated by the recognition of a familiar patient “good to see you again.”

“Hello doctor,” said Micheal. “I’m sorry to bother you again like this.”

“It’s not a problem, we’ll be able to get you sorted out.”

“It feels like it’s happening more and more.” Micheal’s normally upbeat voice betrayed his concern. “So make sure you really get it right this time.” He joked.

“The more it happens the worse it’ll be,” explained Rick. “The socket will wear down and it’ll fall out more and more easily. How did it happen this time?”

“I was playing soccer and all of a sudden I just felt it happen. Then I called my friend who drove me over.”

Rick mentally noted the inconsistency in the story- it was out of character for Micheal to lie. "Well, you know the drill," he said to Micheal "we'll get an X-ray, give you some pain meds and pop it back into place." As if on cue, the X-ray technician arrived and began gingerly positioning Micheal for his X-ray. "They're going to take some pictures, ok?" Rick said, exiting the room.

Once outside, Rick pinched the skin on his forearm. When released, it sloughed back down. So Micheal was being deceitful. Rick flagged down a nurse.

"Prepare propofol for the patient in 26C," Rick instructed the nurse "and let's also grab some ketamine, just in case."

"You got it, doc," the nurse replied, moving to grab the anesthesia.

Rick went back to 26C and inspected the X-ray tech's film. Textbook right anterior dislocation. "Shouldn't be too hard to get you fixed up," Rick said walking over to Micheal. "Just try to be careful with it, like I said- it'll only happen more frequently." The nurse, having prepared the medications, entered the room. "Let's start him off with [high dose] of propofol."

The nurse attached the syringe full of the milky white anesthetic to Micheal's IV. As the drug entered his system, Micheal's eyes fluttered, and he relaxed. With Micheal on his back, Rick gently placed Micheal's right arm against his side, and held Micheal's elbow bent 90 degrees extended forward. Rick glanced at Micheal to make sure he wasn't in excess pain, and not seeing any obvious distress, began slowly rotating the forearm away from the midline.

"I feel it! I feel it!" exclaimed Micheal, suddenly tensing up.

"Ok, Micheal, just relax," said Rick. "Breathe with me: in-and-out, in-and-out." Turning to the nurse, Rick said "Another [moderate dose]."

The nurse pushed in Propofol. Micheal seemed to relax, but when Rick started rotating his arm again, he cried out, "I still feel it! I feel everything!"

"Another [moderate dose]," said Rick, still holding Micheal's arm. The nurse complied. Rick waited for Micheal to relax, but fear had settled upon Micheal, and Rick could feel the tension in his patient. The clock was ticking, and every second that went by, Rick was one step closer to the propofol being metabolized and no longer controlling Micheal's pain. Rick briefly wondered if Micheal was lying about the pain, hoping that a shot of fentanyl was in his future. "Let's try one more, same size." After a moment of hesitation, the nurse complied, and pushed almost all of the remaining drug into Micheal's arm. Rick paused for a precious second and then gradually began to move Micheal's arm once again.

"Doctor, I still feel it! I feel everything! It hurts, doctor," Micheal wailed, resisting with all his might against Rick's attempt to rotate. "Please doctor, the pain- help me!" Tears ran down the Micheal's face. Probably not faking.

"Give him the ketamine, [high dose]," Rick told the nurse.

The nearly-depleted syringe of Propofol was exchanged for a new one, containing a clear liquid. The substance entered Micheal's arm, and Rick felt him relax. Expression vanished from Micheal's face as the dissociative took hold. Rick began moving Micheal's arm once again.

"I feel it, I feel it, I feel it," Micheal whispered. Despite the protest, Micheal's arm remained relaxed. Rick continued to rotate, feeling for the socket. "I feel it, I feel it." Rick persisted, and eventually the tension gave way. The shoulder snapped back into position with a satisfying "thunk." Relief washed over Rick. He waved in the X-ray tech, who had been waiting in the hall.

"I'm almost positive it's back in place, but let's take a picture just to cover our bases," Rick said to the tech. "You're good to take off, thanks for your help," he said to the nurse as he stepped outside the room.

The X-ray tech re-imaged Micheal's shoulder. "Man, this guy is really out of it," he said to Rick.

"What's he saying?" asked Rick.

"He just keeps repeating: 'I see myself, I see myself,'" responded the tech.

"Ketamine is a helluva drug," conceded Rick. "Propofol wasn't doing the trick." The tech finished his shot and walked out of the room joining Rick outside.

"Looks pretty good," the tech stated.

Rick examined the new X-ray. "It's back in. You want to take a look at him again?"

"Sure, no one else needs an X-ray shot right now," agreed the tech.

The two walked back into the room. Micheal, still deep in his dissociation, turned to the tech, "I see us. I see myself, with my arm back in place. I see you, with the X-ray machine." Micheal turned and looked directly into Rick's eyes "I don't see you, doctor. You're not here, doctor."

If Rick was unsettled, he didn't show it. "Ketamine is a helluva drug," said the tech.

"Helluva," agreed Rick. "Well, that's the end of my shift. Thanks for your help." The two turned and began to leave Micheal's room.

"Doc," declared Micheal from his bed, "you're not here. You're at the beach."

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Rick closed the door of 26C. The tech walked away from Rick, without saying a word. Rick's coworkers slipped by him, as he stood mutely. A luSig? Rick thought to himself. He looked down and pinched his arm. He let go and the skin relaxed. All at once, Rick became acutely aware of how exhausted he was. Rick grabbed his lucid shift patient list and scanned the contents as he walked back to his office. Upon reaching his office, Rick pushed against the bar of the door. It wouldn't budge. Rick was surprised, he never locked his office door. The most expensive object in the small space was his DreamCAP, and Rick would be thankful to find the

object stolen. Rick pushed the bar once again. Still, the door didn't move. Rick looked down at the mechanism and saw his error- the door had a handle. Rick turned the knob and the door yielded. Rick tested his forearm again. Once again, it relaxed back down. Rick entered his room, collapsed into his chair. As his eyes closed and the world faded around him, he saw the glowing monitor on his desk display 'Remember to enjoy your shift.'

Rick was back at the beach. He knew a few minutes to enjoy before the computer called him into work. As long as he stayed on the beach, he'd be able to feign ignorance-pretend not to see the signs indicating he was dreaming. Rick sat at the water's edge and allowed the waves to gradually rise. A wave hit his open eyes, and when his vision cleared, he was in New Langone Medical Center. Damn the luSigs, Rick thought, pinching his arm. The skin remained predictably elevated. "Ok, computer," Rick called out. "Let's get this over with."

"Welcome back Dr. Martin," said the computer.

Rick strode into the department room where he would visualize his patients. "Three on the docket, let's deal with Karen Fisher."

"Karen Fisher, age 34," began the voice. "Presented to the Emergency department with a chief complaint of a new rash covering her hands and upper legs." As the voice described the patient, Rick walked to the bed and yanked away the covers. He saw an array of angry red boils covering the patient's arms and legs.

"Sexual history?" Rick asked bluntly.

A pause. "Since breaking up with my boyfriend last year I've had nine new partners," said Karen.

Rick consulted a lab-print out that had materialized at Karen's bedside. Platelets: 151, D-dimer: 47, PT: 2 seconds. Normal clotting, Rick thought to himself. White blood cells: 15, ESR: twice normal level. Likely infectious. STD? "I suspect this is syphilis," Rick announced. "We'll order a confirmatory test and circle back for treatment. In the meantime, we'll begin IV penicillin prophylactically. Any questions?"

The computer said nothing.

"I'll go ahead and order the medication then, and I'll check in on the lab results later," said Rick clearing the encounter from his mind.

Rick prepared himself for the next encounter.

"Next patient Robert Perry, age 46," announced the computer. "He is currently sleeping. Presented with diabetic metabolic acidosis. Patient received IV fluids and insulin."

Rick approached the bedside and once again regarded the materializing lab sheet. Na+: 141, Cl-: 106, HCO<sub>3</sub><sup>-</sup>: 23. 141 - 106 - 23 = 12, Rick thought. 12 is less than 15. Non-anion gap. Seems like the treatment is working. "Well, as long as the patient is not in anion-gap, there doesn't appear to be the need to modify treatment," said Rick. Easy enough. "Maintain insulin and hydration, if the patient's condition worsens redraw labs-".

"Rick, get the fuck up," said the voice of Dr. James Hartman. "Wake up Rick."

Rick was confused. It wasn't like Dr. Hartman to send direct transmission via DreamCAP, and even rarer for him to swear while doing so. The room where Rick was working began shaking, and suddenly he was torn from his dream and looking his colleague in the face. "Wha-?"

"Rick, your neurolog was empty," said Dr. Hartman. "What's going on?" Dr. Hartman looked at Rick's desk. "You didn't even put your damn DreamCAP on before you went to sleep!"

"I- I don't- I was in the rooms with the patients!" said Rick. "Karen Fisher, Robert Perry. I saw both of them!"

"Christ," said James. "You dreamt it, Rick. You never even put your cap on. Listen, I'll call in Rebecca, but help with patients until she gets here." James paused. "And figure out what the hell is going on with your DreamCAP. We can't afford to have you dropping shifts like this."

Rick nodded. "I'll head there right now." The two physicians walked together in silence back to the emergency department. Once they arrived, James handed Rick a sheet of patients. Rick headed towards the room where Karen Fisher was. Rick walked into the room.

"Name and age?" he asked.

"Karen Fisher, age 34," began the patient.

"You presented to the Emergency department with a chief complaint of a new rash covering your hands and legs," said Rick, walking to the bed. He yanked away the covers and saw an array of small purple bruises covering the patient's legs.

"Sexual history?" Rick asked bluntly.

A pause. "Since breaking up with my boyfriend last year I've had no new partners," said Karen.

Rick consulted a lab-print out that had been placed at Karen's bedside. Platelets: 49, D-dimer: 741, PT: 6 seconds. Normal clotting, Rick thought to himself. White blood cells: 7, ESR: normal level. Likely infectious. STD? "I suspect this is syphilis," Rick announced. "We'll order a confirmatory test and circle back for treatment. In the meantime, we'll begin IV penicillin. Any questions?"

Rick heard nothing.

"I'll go ahead and order the medication then, and someone will check in on the lab results later," said Rick walking out of the room.

Rick walked into the next encounter.

Next patient Robert Perry, age 46, thought Rick as he inspected the sleeping man. Patient presented with diabetic metabolic acidosis. They received IV fluids and insulin.

Rick approached the bedside and once again regarded the lab sheet on the bedside table. Na+: 142, Cl-: 105, HCO<sub>3</sub><sup>-</sup>: 18. 142 - 105 - 18 = 12, Rick thought 12 is less than 15. Non-anion gap. Seems like the treatment is working. Well, as long as the patient is not in anion-gap, there doesn't appear to be the need to modify treatment. Easy enough. Rick left the room and approached the nurse, "Maintain insulin and

hydration, if the patient's condition worsens redraw labs."

Rick worked through another two patients. As he was headed towards his third, Dr. Hartman intercepted him. "Rick," he said, "syphilis? For Karen Fisher? She has DIC Rick- an internal bleeding crisis. How did you not catch that? Did you not look at the bruises all along her legs, or her labs? I had to admit her to the ICU. She's not going to make it. And Robert Perry," he continued, "he's clearly in anion gap. I had to call anesthesiology to intubate him."

"What?" protested Rick. "I calculated it. He wasn't in anion gap. And Karen- she didn't have bruises, she had syphilis lesions."

"Look Rick, Rebecca just arrived," said Dr. Hartman. "I don't know what to tell you. Maybe after you get some sleep, you should look back at those patients' charts again. You're cut Rick. Christ," exasperation crept into James' voice. "You've done enough damage for one night."

Rick left the Emergency Department and went to his car. He pinched his forearm. When released, the skin sloughed back down. This nightmare was real.

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Back at home, Rick dug around his nightstand. He found the syringe: Dremantidone. Developed shortly after the widespread adoption of DreamCAP, the drug was a combination of Zolpidem, commonly sold as Ambien, and a THC-analog. While not psychoactive, the THC derivative

capitalized on a side-effect of the drug: inhibition of dreams. Rick inserted the needle into his arm and pushed the elixir into his bloodstream. As he tipped back and the world faded to black around him, Rick felt relief. Finally, he could escape the hell of these last few days in the blanket of a dreamless night.

Yet somehow, despite the drug, Rick was back on the beach. Exasperated, he pinched the skin on his arm. Upon seeing the result, he resignedly turned back to the beach. The ocean lapped gently against the shore. Rick felt himself pulled inexorably towards the swelling sea. Enveloped in night, he walked towards the waves and sat down as he always did: at the point where the breaking waves just reached his feet. Rick sat motionless on the beach. The tide progressively rose until he was up to his neck. Rick sat motionless. The tide splashed against his face and eventually covered his head.

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When morning broke, Rick was still on the beach. The tide had receded so that Rick's body was visible once again. The waves had drawn Rick deeper into the sand, so that only his head, arms, and torso were exposed. Seaweed matted Rick's hair, and crabs scuttled about Rick's corpse, picking away at their newest bounty. Rick's lifeless face was placid. The skin on his forearm was suspended- as if pinched by invisible fingers.