



Lessons in communication

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Listen to your patient, he is telling you the diagnosis.

– Sir William Osler¹

He speaks with animation and earnestness. He wants to answer the questions and get all of the details right because he understands the importance of clearly and completely communicating his story, knowing his correct diagnosis hangs in the balance. He locks eyes with me, then the medical resident, searching for confirmation that we understand. We smile at him, nodding, our body language reassuring. We want to provide him a sense of comfort, to tell him that we understand, but in reality, we don't. He speaks Mandarin and we speak English.

Here we are, my patient and me. We both have tongues and teeth and vocal cords with which to produce sounds, and brains with which to hear and understand those sounds. Our genes encode the same proteins. We are of the same species, have the same biology, and yet we face enormous barriers in communication because we don't speak the same language.

Even if we did speak the same language, it is still often

a flawed system filled with the propensity for misunderstanding and misinterpretation. And still, humans consider language to be one of the distinct abilities that elevates them above the rest of the living world. Indeed, it is part of the hubris of humanity to believe that we are more advanced than other organisms with whom we share the Earth. Perhaps this is an erroneous approach, an outlook that fails to acknowledge or give credit to the many other systems of communication observed in the natural world from which we can learn.

I imagine myself to be a single cell of *Pseudomonas aeruginosa*. My language is acylated homoserine lactones. I have two dialects: LasI and RhII. Speaking them, I create N-3-oxo-dodecanoyl-homoserine lactone and N-butanoyl-homoserine lactone and release them to be taken up by surface receptors on the bacteria around me. With two molecules, I can regulate the transcription of hundreds of genes. It's a simple, elegant system. Are we at quorum? Together we can build biofilms, or evade immune systems, or even share genetic material. Our chemical communication is not vulnerable to failure from misaligned written or verbal cues. We are multitudes yet we are one, connected to each another by our mutual understanding of various signaling molecules.²

I imagine myself to be a Douglas fir. Unlike the bacteria, I don't need close contact for successful socialization. I am firmly rooted in place, and yet I can still communicate with hundreds of other trees—even ones of other species—using vast networks of underground mycorrhizae.

Once thought to be solitary organisms, it is now known that trees are part of a forest ecology that is not only the sum of its parts, but a web of symbiosis that allows each individual tree to thrive because the whole system exchanges information and resources. Mycorrhizae may have been the original interpreters, relaying messages from one to another across distance and difference. As a member of this ecosystem, I can tap into this fungal matrix and send signals to trees on the other side of the forest. I can form strong relationships because I have dependable partners to facilitate information exchange.³

I imagine myself to be a dolphin. I create clicks, squeaks, and trills in my nasal passage that my forehead focuses and broadcasts into my watery world. These signals then encounter objects of differing densities, bouncing back a reflection of sound waves that I can sense and use to build an acoustic picture of my surroundings. I use the same acoustic signaling system to communicate with other dolphins and see the world around me. I can locate my family in murky waters and coordinate choreographically elaborate hunting attacks with my pod.⁴

I imagine myself a medical student without acylated homoserine lactones, mycorrhizae, or echolocation. However, I can use these lessons in communication to overcome the language barriers between my patient and me. Like *Pseudomonas*, I can measure the level of certain cells and chemical compounds in the blood to gain more information about my patient's microenvironment, and then respond accordingly. Like the Douglas fir, I am part of an interconnected network that works together toward a common goal. The phone interpreter is my mycorrhizae

with the ability to communicate with my patient and then exchange that information with me. Like the dolphin, I can harness the power of sound waves to see places that my eyes cannot, using ultrasound technology to obtain information about my patient's internal organs.

My patient and I do not speak the same language, but that is not the only way that we are able to communicate. He speaks Mandarin and I speak English, but I also speak laboratory tests, interpretation services, and acoustic imaging. By applying the communication strategies of the natural world, I am able to free myself of the confines of human language and listen to my patient in myriad ways so that he can tell me the diagnosis.

As a burgeoning physician, I've learned that there will always be ways to understand and connect with my patients, as long as I expand my outlook on what it means to listen.

References

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3. Jabr F. The social life of forests. December 3, 2020. <https://www.nytimes.com/interactive/2020/12/02/magazine/tree-communication-mycorrhiza.html>.
4. Tejaratchi I. Dolphins and Sounds. October 22, 2014. <https://www.pbs.org/wnet/nature/the-dolphin-defender-dolphins-and-sounds/807/>.

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Corrections

In the Winter 2022 issue of *The Pharos*, Minnie Jocelyn Elders (AQA, University of Arkansas, 1973, Faculty) was inadvertently missed on the list of AQA Surgeons General. Thank you to Dr. James Graham, Vice Dean for Academic Affairs, University of Arkansas, for pointing this out to us. We apologize for this oversight.

In the same issue, some confusion regarding institutional names was brought to AQA's attention. For many

reasons, the name of a medical school may change over the years. It would be difficult for AQA to keep track of all names and the members inducted under each name. Therefore, it is AQA's policy to always list the current name of any institution.

The title of this list should read, "Current AQA Chapters by Year." We regret any confusion this may have caused.