Raising Radiation Safety Awareness in Kunshan Public Hospitals

During our six-week Leadership in Action project in Kunshan, China, we set out to improve patient safety and public understanding of radiation used in medical diagnosis and treatment. Working with Duke Kunshan University and Kunshan First People's Hospital, we initially expected to focus on radiation-protection practice within the hospital. Instead, the project became a lesson in listening, adaptability, cultural humility, and what it means to lead responsibly in an unfamiliar community.

Our original proposal was based on a clear hypothesis. We expected that radiation-safety management and staff awareness might not have developed at the same pace as the increasingly advanced medical imaging equipment available in local healthcare settings. We therefore planned to examine practice against Chinese national standards, identify behavioural or procedural gaps, and develop a low-cost intervention for staff.

Fieldwork and Challenging Our Assumptions

Our first major step was a visit to Kunshan First People's Hospital, where we observed and spoke with staff across radiology, radiotherapy and nuclear medicine. We wanted to understand not only the technical requirements of radiation protection, but how these were implemented in day-to-day clinical work.

The visit challenged the core assumption behind our proposal. The hospital already had established radiation-protection procedures, regular external auditing, experienced clinical staff and a strong awareness of safety requirements. The gap we had expected to find was much smaller than we had assumed. Continuing with the original staff-training plan would therefore have meant trying to solve a problem that local clinicians had not identified as a priority.

This was our first major turning point. We had already invested time in researching occupational radiation protection and designing the original intervention. It would have been easy to continue simply because the plan already existed. Instead, we began asking a more useful question: what problems do clinicians and patients actually experience?

Through conversations with staff, a different set of issues emerged. Clinicians described patients arriving with very different levels of understanding of medical radiation. Some were extremely anxious about medically necessary imaging because of information they had encountered on social media, while others treated repeated scans as essentially risk-free and did not understand why a doctor might advise against an unnecessary examination. These misunderstandings could create tension during consultations and use up clinical time that was already limited.

A second issue concerned patients' own imaging histories. When examinations take place across different hospitals, patients may not have an easy way to remember or present a clear record of previous scans. Clinicians told us that this could make discussions about previous imaging more difficult and contribute to uncertainty and anxiety.

Validating the Revised Problem

At this point, we did not want to replace one assumption with another. Lana led the design of a public questionnaire using Wenjuanxing, and we collected approximately 300 responses. The questionnaire explored respondents' understanding of radiation and medical imaging, attitudes towards examinations such as CT and PET, sources of health information, and whether a simple personal record of previous imaging would be useful.

The responses broadly supported the concerns raised by clinicians. Many respondents struggled to distinguish between ionising and non-ionising imaging methods, relied heavily on informal online sources, or expressed interest in clearer explanations and a way to record their imaging history. The survey did not prove that we had found a complete solution, but it gave us stronger justification for changing direction.

This became the basis of our pivot from staff-focused radiation-safety auditing to patient-facing education and communication. More importantly, it changed how we approached the project. We were no longer asking how to make our original proposal work; we were trying to build around a problem identified through local clinical experience and community responses.

Designing the Revised Intervention

Our revised project developed along two connected strands: public education and personal imaging-history management.

The first output was a set of patient-facing educational brochures explaining basic radiation concepts in accessible language. We focused on questions patients might realistically ask, rather than reproducing a textbook explanation of radiation physics. These included why CT and X-ray involve ionising radiation while MRI and ultrasound do not, whether radiation remains in the body after a standard X-ray or CT examination, and why a medically justified scan can still be appropriate despite involving radiation.

We also adapted the presentation to different audiences. For older readers, this meant clearer layouts, larger text and simpler explanations. For younger or more general readers, the material could use a more detailed FAQ-style format. The aim was not to

tell patients whether they should accept or refuse an examination, but to help them have a more informed conversation with their doctor.

The second output was a prototype digital tool designed to help patients record their imaging history and access simple explanations about medical radiation. Una focused particularly on the development of this part of the project, alongside her project-management and stakeholder-communication responsibilities.

Developing the tool raised a problem that was less obvious at the beginning: presenting more information is not automatically beneficial. A numerical score or warning can easily appear more authoritative than it really is, particularly when users are already anxious about radiation. A tool intended to reduce uncertainty could therefore create a different kind of uncertainty if its information were oversimplified or interpreted as individual medical advice.

We consequently treated the prototype as a record-keeping and communication aid rather than a substitute for clinical judgement. Its purpose was to help users organise previous imaging information, access plain-language explanations, and raise better-informed questions with healthcare professionals. This distinction became important to our understanding of responsible science communication.

Implementation and Institutional Constraints

The biggest practical challenge came when we moved from designing an intervention to trying to implement one. Although our brochures were prepared and the prototype was progressing, public distribution could not simply begin because our six-week timetable required it. Health-related outreach in a public healthcare setting involves institutional and regulatory approval, and as visiting undergraduate students we did not have the authority to bypass those processes.

At first, this felt like a barrier to completing the project. Over time, however, we realised that the approval process was itself part of the context we needed to understand. When material concerns health risks and medical decisions, professional review and institutional safeguards are not simply administrative obstacles. They are part of what makes an intervention responsible.

The hospital environment also changed the way we communicated. Doctors and technicians had limited time, so lengthy interviews were often unrealistic. We had to ask shorter and more focused questions, use natural pauses in clinical work, and accept that clinical priorities would always come before our project. We also encountered differences in communication style and expectations when working with local stakeholders. At times, what we thought we were asking for and what others

understood us to need did not fully align. Progress therefore depended as much on patience, empathy and relationship-building as on the technical quality of the idea.

Although we were working in China, much of our academic experience had been shaped abroad. We could not assume that the communication habits and project-management expectations we were used to would translate directly into a different professional and administrative environment. Working responsibly sometimes meant accepting slower progress than we wanted and allowing local partners to determine what was feasible.

Impact, Limitations and Sustainability

By the end of the formal six-week period, the project had produced a clearer understanding of a locally identified communication problem, approximately 300 questionnaire responses, patient-facing educational materials, and a developing prototype for recording imaging history and supporting radiation communication.

We do not want to overstate this impact. The educational materials are not yet widely deployed, the digital tool remains a prototype, and we cannot claim that the project has changed clinical outcomes or patient behaviour. The administrative and institutional constraints that limited deployment during the placement remain relevant.

However, the project also showed us that completion within six weeks is not the only measure of value. Meaningful healthcare change may take much longer. The relationships established with Duke Kunshan University and local clinicians, the feedback gathered from the community, and the clearer understanding of what responsible implementation would require provide a basis for further development beyond the formal placement.

The project contributes most directly to SDG 3: Good Health and Well-being through its focus on patient safety and informed engagement with medical imaging, and to SDG 4: Quality Education through its focus on health literacy. More importantly, it changed our understanding of leadership. We entered Kunshan with a strong idea of what the problem would be. The project became more useful only when we were willing to accept that our assumptions were incomplete, listen to local professionals, gather further evidence and change direction.

We now see community-based leadership less as arriving with a solution and more as remaining responsive to the people and structures already present. Curiosity meant being willing to discover that our original idea was not needed. Adaptability meant changing the project rather than defending it because we had already invested time in it. Ethical leadership meant recognising the limits of our expertise and authority, seeking

professional input, and accepting that sustainable change may move more slowly than an academic timetable.

Una's Reflection

Before this project, I tended to think of leadership in a relatively linear way: identify a problem, organise the necessary people and resources, and then work towards a solution. Because I initiated the project and established our collaboration with Duke Kunshan University, I also took primary responsibility for much of the overall coordination and communication with academic stakeholders. I therefore entered the project expecting that, once the problem had been defined, the main challenge would be implementation.

The experience in Kunshan changed that assumption. Our original proposal had been built around improving occupational radiation-safety practice, but our hospital visit showed that the need we had anticipated was much less significant than expected. The direction that eventually emerged from clinicians' concerns about patients' understanding of medical radiation was not something I had originally identified myself. An important part of my role was therefore not to defend the project I had initiated, but to accept that its original framing no longer matched what we were learning and to help reorganise the project around a more relevant direction.

The most difficult part for me was discovering how much real-world healthcare work depends on factors outside the technical problem itself. Progress was limited by administrative procedures, institutional hierarchies, differences in communication style, and the simple fact that meaningful change could not necessarily be achieved within a six-week timetable. At times, even communicating what we needed from local stakeholders was difficult because expectations and working styles did not always align. I gradually learned that empathy and patience were not secondary "soft skills"; they were necessary for making any progress at all.

Developing the digital tool also gave me a more practical role in translating the revised project into something usable. This required me to think beyond radiation physics and consider how technical information could be structured for non-specialist users.

The biggest change in my thinking is therefore how I now understand problem-solving itself. In academic research, a problem is often already defined before the technical work begins. In a real healthcare setting, identifying the right problem, understanding institutional constraints, and working with people who have different priorities may be harder than building the solution. I now see leadership less as driving a predetermined plan and more as remaining useful when the plan itself has to change.

Lana's Reflection

I used to think the hardest part of leadership was completing a series of tasks to fulfil a certain goal. I considered the process simply as building, delivering, and moving on. This LiA project taught me that the harder part is knowing when the thing you built might do harm.

The turning point was not a single conversation but a realisation curve that unfolded while we were designing the radiation-tracking app. The logic seemed clean: patients wanted to know their cumulative exposure to ionising radiation, so we would build them a tool to track it. But the more we interviewed potential users, the more I realised the app might bring as much harm as benefit. If a person opens the app, sees a number, and does not know what to do with it, they might spiral into anxiety, or decline a scan that could save their life. The same tool could inform one patient and frighten another; or do both to the same person.

I had to make a real decision about what kind of warning we were willing to create. Instead of stark numbers, we framed every alert as a question to raise with a doctor. Instead of authority, we offered context. I insisted on vetting each clinical claim with medical physics professors and on refusing any language that positioned us as the ones who knew best. The app would sit alongside the patient-doctor relationship, not in front of it.

This reshaped my understanding of ethical leadership. It is not enough to mean well. You have to sit with the possibility that your solution could cause a different kind of harm than the one you set out to fix, and design against it as precaution. In a community that is not yours, that responsibility is even heavier, because you cannot rely on instinct to tell you what will land as help and what will land as fear. I left Kunshan believing that goodness is not a feeling you bring to a project. It is a constraint you build into it by listening to the local community and staying open to being wrong.