Words to the World

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The California Blood Bank Society supported Fukushima Medical University by posting official announcements, photographs, and narratives on the website of *CBBS Today – Journal of the California Blood Bank Society*. CBBS Today editor Ms. Eileen Selogie opened the project with these words:

"In the wake of Japan's unprecedented earthquake, tsunami, and nuclear crisis, governments around the world urged their citizens to leave. Kenneth Nollet, a transfusion medicine specialist at Fukushima Medical University, decided to stay. Just 57 kilometers from a crippled nuclear power plant, and adjacent to the tsunami disaster area, Dr. Nollet is sharing news, photographs, and personal observations through the *CBBS Today* website."

The web pages devoted to Japan became the most visited of any managed by CBBS. The original content has now been incorporated into formal journal articles that combine historical authenticity with new information and analysis. Here, we have reproduced an abbreviated selection of the original material. All the articles, photographs, and official announcements from FMU are available at www.cbbstoday.org/specialeditions through the continued courtesy of CBBS, the CBBS board, and Ms. Eileen Selogie.

March 13, 2011

Our hospital is receiving patients from outside the prefecture, for which reason one helipad isn't enough, and the students' soccer field is now a base for four more "Doctor Heli" air ambulance teams, and Self-Defense Force helicopters.


Fukushima City is not close to the eponymous nuclear power plant, and we are inland from Sendai. No tsunami here, but no running water, either. Electricity OK and I could queue to fill some jugs from a water truck that came to the neighborhood. That took more than an hour, but this is Japan, and people passed the time in friendly, quiet conversation. The medical center itself normally uses around 150 tons of water per day. Reserves fell below 500 tons over the weekend. A water rationing protocol started; laboratory procedures are being modified as much as possible, and employees have been asked to use chemical toilets in the parking lot instead of our usual indoor plumbing.

Experience here in Fukushima and reports from Amateur Radio operators around Japan confirm that cell phone voice and messaging services are unreliable or completely inoperable during a disaster – even in a country that is accustomed to earthquakes and has world-class voice and data service.

On a bright note, people continue to exercise the

good manners and cooperation that make living and working here worthwhile.

March 14, 2011.

Being a specialist with an interest in disaster response is not quite the same as being a disaster specialist. Maybe my biggest contribution to the effort on Sunday was tracking down some bakery rolls, and then catching up with a surgeon who had been on overnight duty and still hadn't eaten by mid-afternoon.

Being human, he promptly inhaled two rolls. Being a surgeon, he washed them down with some strong coffee. Being Japanese, he put the rest away, for others, and went back to work.

March 15, 2011.

Yesterday afternoon, I was among those in the lab from whom Dr. Takahiro Kanno got consent and drew screening samples, in case we have to donate blood, especially platelets, in the hospital. The Japanese Red Cross and its donors are able and willing, but contingency planning is essential when transportation infrastructure and access to petrol is compromised.

Fukushima Medical University is still outside the radiation evacuation area, but some incoming patients are being wanded with a Geiger counter, in much the same way as some people are wanded with a magnetometer at airport security.

Dr. Ohto mentioned that kelp is a source of iodine, and I had some in my freezer from a summer trip to the now devastated coast. So today I took a lunch of kelp and brown rice to work, but proper iodine tablets are also available. Of course it is sad to think that the person who harvested my radiation antidote was probably among those taken suddenly from this world.

Patients are the priority of our hospital cooking staff, so the employee cafeteria is only preparing and serving rice balls.

March 16, 2011.

Yesterday I came to work with a headband headlight draped around my neck, to use as needed in dark hallways and staircases. We still have electricity, but are redoubling efforts to conserve. During the day, 9:00 am and 3:00 pm briefings were scheduled, for representatives of all departments. The afternoon briefing included a chart with background radiation measurements recorded on campus since 10:00 am March 13. There is a mild elevation compared with average natural background radiation, but accompanying examples show that a chest CT, and the barium Tilt-a-Whirl that I am offered every year for stomach cancer screening, each give more than a year's worth of natural radiation exposure in one test. Afternoon TV news showed other cities in the prefecture, like Koriyama, with higher levels than Fukushima City.

Shortly after 7 pm Tuesday, another briefing was announced for 8 pm, at which we had a radiation specialist brief us on age-based risks, countermeasures, and Fukushima's nuclear reactor situation. Concern is highest for infants and children. There is an age-based protocol for iodine prophylaxis.

This morning's conference announced a "code red" protocol in case a significant amount of airborne radiation comes our way.

Glad email is still intact. I found a note taped over the snail mail receptacle at our hospital's post office: closed, for want of gasoline. I think they are considering not only postal vehicles, but commuting employees. Our lab is operating on a skeleton crew, as employee gas tanks run low and public transportation is being cut back.

Making up for the hard realities of retail distribution, somehow rice balls are being made and delivered to hospital staff. These are better than what the name implies; they are generally decorated with one of the following: seaweed, thin strips of pickled vegetable, sesame seeds, or a salt-cured plum. At this morning's emergency preparedness conference, there was also some white bread for department reps to take back to their staffs. Typical for Japan, each "loaf" of white bread was 5 slices in a plastic wrapper. Lots of things here get wrapped in plastic, but households and communities are diligent about recycling. This and other good behaviors are holding up during the crisis.

March 17, 2011.

This morning's news, and an email from the US Embassy, recommended, "as a precaution, that American citizens who live within 50 miles (80 kilometers) of the Fukushima Nuclear Power Plant evacuate the area or to take shelter indoors if safe evacuation is not practical." Yesterday, a telephone call from the embassy in Tokyo was less urgent. The embassy representative asked about my situation, whether I had been in touch with stateside family and friends, and if I needed any assistance.

The US Embassy says that its recommendation to evacuate or take shelter is consistent with Nuclear Regulatory Commission (NRC) guidelines that would apply to a similar situation in America. I accept this as prudent risk avoidance, and under slightly different circumstances would comply. In my particular case, I am at a medical university with round-the-clock radiation level measurements and a "code red" protocol in place.

March 18, 2011

Many thanks to the California Blood Bank Society for posting these narratives. I do not have Facebook, LinkedIn, or Twitter accounts. My social networking site is a little place to eat halfway between work (at FMU) and home (in Hourai). Harunoya ("The Spring Room") does most of its business delivering hot meals to the university, but also has a small dining counter. Of course, Harunoya cannot operate without running water and a steady supply of groceries; otherwise, they would be even more popular, and more in demand, in the present crisis.

Personal relationships seem to be the foundation of Japanese society, and I enjoy the friendship and support of many people at the university and in my neighborhood. The Harunoya family is part of this network. "Harunoya family" might literally mean three generations living under the roof of this home enterprise; figuratively, this expression also refers to a regular cohort of neighbors, university faculty, and medical students who come for meals. We are welcome at Harunoya, even when the doors are officially closed.

Lack of running water, shortages of heating oil, and gasoline rationing probably contributed to the decision to close schools this week. In response, FMU nurses organized a free day care center for children of employees. I asked if my "nieces" (generation #3 in the Harunoya family) might participate. "Yes." They are now playing with new friends in a classroom down the hall from my office.

When I introduced my honorary nieces to the day care volunteers, it was necessary for them to say that, in case of a code red radiation emergency, protocols include giving the children in their care an appropriate dose of potassium iodine, and would I approve? "Yes."

Background radiation in Fukushima City, while above average, is far below a code red level. Measurements at the medical center, somewhat removed from city center, are even lower. On the other hand, courageous workers dealing with the nuclear power plant, and others near it who cannot evacuate, deserve our thoughts and prayers.

March 19, 2011

A popular weather topic in February pertained to how much pollen would be in the air this spring. Pollen counts have been superseded by radiation counts. News reports indicate that residents as far away as the American West Coast are concerned about airborne radiation from the crippled nuclear reactors in Fukushima. FMU continues to monitor background radiation and screen incoming patients. Nothing so far has motivated me to leave Fukushima, but a gratifying side effect of the news is the number of offers of shelter I have received from other parts of Japan and around the world.

Communication is on my mind today. For all that has gone wrong here, I'm glad that email and Internet services are intact at FMU. Telephone service seems back to normal. Of course these observations do not apply to our devastated coastal areas. Being far from fluent in Japanese, details come slowly, but I am impressed by efforts made by broadcasters to reach a broader audience than those who speak the national language. Walking home last Saturday (March 12) with the last 18 liters of heating oil sold by my neighborhood hardware store, I listened on a pocket radio to hazard warnings repeated in Japanese, Korean, English, Chinese, and Portuguese. I'm fussy about radios. My pocket radio covers AM, FM, shortwave, and aviation frequencies (including Doctor Heli on 131.30 MHz and Self-Defense Force communications on 123.45 MHz). I haven't had time to listen, but Amateur Radio colleagues have dedicated 3.525, 7.030, 7.043, and 7.075 MHz to disaster-related communications.

In normal times, Japanese TV news is often spoken and captioned in Japanese, a seemingly superfluous gesture until one considers those who are hearing impaired. This also helps language learners like me. News in sign language is also part of NHK's regular daily schedule, and various press conferences and briefings since the earthquake have included live sign

language interpreters.

Mass media has also become a personal medium in this crisis, with considerable airtime devoted to individual health and welfare inquiries. A few touching reunions have been broadcast, but the hard reality is that many "I'm fine, where are you?" messages will go unanswered.

March 20, 2011

Research by George Bonanno and others confirms that grief-stricken individuals experience not only sadness and anger, but also moments of happiness and mirth. This fits an unwritten protocol for funerals in my clan: Let them cry. Make them laugh. Serve a good lunch. The cry-laugh-eat formula also works at blood donor recognition events.

What about Japan, especially now? The resilience of Japanese people in adverse circumstances earns attention and praise around the world. Believe it. But is laughter a coping strategy here? Sometimes it means embarrassment. Before my first professional trip to Japan, in 2004, Dr. Paul Holland told me not to expect laughter from Western jokes inserted into a medical lecture. He was right. Some Westerners mistakenly conclude that Japanese have no sense of humor. Don't believe it. Our crisis conferences began on a somber note, and we continue to deal with heavy matters every day. But my colleagues find humor in the mild inconveniences endured here as we address the devastating losses endured by our neighbors. Humor is not caloric energy, but it somehow compensates for a shortage of calories.

Early on, I questioned my decision to become a prefectural employee. Reassurance came from an unexpected source: Mr. Ohashi, our hospital's sushi chef. Yes, in good times, the hospital serves sushi. Great sushi. Mr. Ohashi could be a wealthy restaurant owner, but he confided that a prefectural salary was enough if his sushi brought cheer to even a few staff, patients, and family members.

Some of today's laughter came when Q&A about the restoration of essential services provoked a question about when we might expect Mr. Ohashi's sushi. He, those who fish, and everyone in between work harder for my occasional indulgence than I ever have. Missing meals is nothing compared to losing life or livelihood. We continue at FMU, so that others can begin again.

March 21, 2011

Today is a Japanese national holiday, prosaically translated as Vernal Equinox Day. I will honor it with brevity, a quality of good writing that my sister Judy practices. Here is her haiku:

A small bloom of hope

Emerges from the rubble

Reaching for the sun

March 23, 2011

Authorities warn that aftershocks may continue for weeks or months, as the tectonic plates and surrounding earth seek a new equilibrium. To us living on the surface, last evening's and this morning's prolonged aftershocks were unsettling, but we, too, are seeking equilibrium. Directives from yesterday afternoon's crisis conference included going home after a day's work, spending time with family, and (with newfound appreciation for municipal water) having a hot bath. The hospital barbershop is open again; it felt good to stop in, exchange health and welfare reports, and get a haircut. A few students were kicking a ball around on the soccer field, but there are still drums of fuel on the periphery of the field for helicopters.

Hospitals are foreign and perhaps foreboding places for new patients. That's why workers were officially reminded to be attentive to their own states of mind. If patients aren't sure what to feel, they will likely follow our lead. Of course, states of mind should not be states of denial. Interested readers may continue with the following email, sent last night to an American newspaper's senior correspondent. People in the news business are also subject to stress and sleep deprivation, and the person to whom I wrote had mistakenly thought that one of our surgeons might be available for an interview in Yamagata, an adjacent prefecture. The email sounds a bit urgent toward the end, but after a rice ball, I was feeling better.

Sent: Tuesday, March 22, 2011 6:22 PM
Dear Mr. H******,

Thank you for your concern about our situation in the Tohoku region of Japan. Out of respect for your time, I am writing directly to you instead of advising Dr. Sakuma how to respond. As you can imagine, my colleague and his wife, also a doctor, are pulled in many directions at once these days.

I am Kenneth Nollet, an American in the Department of Blood Transfusion and Transplantation Immunology at Fukushima Medical University. In normal times, Fukushima City and Yamagata City are connected by bullet train, and the eponymous prefectures adjoin each other.

These, of course, are not normal times. I apologize for any misunderstanding that may have led you to believe that Dr. Sakuma was based in Yamagata. Even if you could find your way to Fukushima City from Yamagata, it is against the wishes of the United States Government for Americans to be within 80 km of the crippled Fukushima nuclear power plant. You should respect this advice as a loyal citizen with an important role to play in the relationship between the United States and Japan.

My situation is different, because I am a medical doctor at a medical university with specific protocols for dealing with radiation events. However, I respect the fact that good journalists want to do their jobs well. So, even though we at Fukushima Medical University cannot receive visitors apart from certain patients and family members, and time does not lend itself to interviews, I have secured the cooperation of a professional society in California to make up-to-date information available about the state of things here.

Please feel free to visit the home page of the California Blood Bank Society, www.cbbsweb.org, where you can click on General Items under Fast-Breaking News, in a column just right of center. Alternatively, a direct link to "An American Doctor in Fukushima" can be tried as follows: http://cbbstoday.org/nollet_fukushima.php I should mention the possibility of this direct link changing, as the volume of data increases. The webmasters in California generally work when we in Japan are supposed to be sleeping.

Thank you again for your concern, and please be mindful of your health and well-being. It would be politically awkward for the governments involved to deal with an American journalist who got stranded, injured, etc. Aside from the nuclear issue, just now we are in the midst of a substantial aftershock, one of the worst and most continuous since March 11. I have to go now.

With kind regards,
Kenneth E. Nollet, MD, PhD

March 24, 2011

Yesterday morning's first email got me thinking about tribes. A pathologist I had never met took note of my FMU affiliation, appended to a trivial bit of writing in the Archives of Pathology and Laboratory Medicine. He emailed: "Is there anything we in the US can do for you or for Fukushima Medical University? Please let me know, I'll be praying for you specifically." This member of the Pathology Tribe practices in a health care system founded by Franciscans, and, through another religious denomination, he participates in the rebuilding of Biloxi, Mississippi, which is still recovering from Hurricane Katrina. Tribal affiliations needn't be exclusive.

An electronic dictionary sold in Japan warns that "tribe" in modern English may have offensive or disapproving overtones. I hope that no one is offended by my use of the word, or by my tribal instincts (toward blood relatives, blood bankers, pathologists, Amateur Radio operators, Fukushima…).

Japanese concepts of "soto" (outside) and "uchi" (inside) are worth mentioning. These are easy to talk about, but not so easy for those of us born outside the culture to fully understand. Within a university, "soto" might refer to other departments, and "uchi" to one's own. In the context of many universities, "uchi" might expand to include all the departments in one's own institution. "Soto" should not be equated with enemy or antagonist; in fact, being "soto" often entitles one to special courtesies. "Uchi" expands or contracts depending on the circumstance. Maybe "uchi" is another word for tribe.

How do we foreigners fit in? Or out? Yesterday's news showed one group of immigrants taking this matter into their own hands. Their home country is plagued by tribal conflicts, or so we've been told. I imagine they knew something about hunger, and saw it again in the faces of so many displaced Japanese. They organized a feeding station and stocked its kitchen with the meats, vegetables, and spices of their national comfort food. I can't imagine how that happened, but it did. They cooked, and served, and cooked, and served…

Does the sense of tribe expand, or contract, in the face of tribulation? The answer might tell us how things will turn out.

March 25, 2011

Prior to yesterday's ad-hoc graduation ceremony, I thought the quietest place on campus was a recording booth adjacent to our language laboratory. See the official press release, "FMU graduates face a new world." In the immediate aftermath of the earthquake and tsunami,

activities normally associated with graduation were cancelled. But later, a scaled-back stand-up event was organized in the Alumni Association Building. After a call to order, a minute of silence was observed for disaster victims and their families. Remarkably, there were no helicopter arrivals or departures to disturb the silence.

Inspiring words from Professor Masafumi Abe, FMU Vice President, appear on page two of the press release. His words might make the graduation day pictures easier to appreciate, with no further captions.

March 26–27, 2011

This weekend, Professor Yasuhiro Hashimoto is on the roster to measure radiation levels at the hospital. Let's join him for one round.

We meet for lunch at Harunoya, open again for walk-in customers and, gasoline permitting, deliveries to the university.

Radiation, in carefully controlled circumstances, is both a therapeutic and diagnostic tool. Whole-body irradiation is a conditioning step prior to bone marrow transplant. Radioactive iodine is used to deliberately ablate thyroid function in certain endocrine diseases. Today, we are visiting the Department of Radiology, where members must pay special attention to radiation exposure incidental to patient care. They have surveillance equipment, including a portable gamma-ray detector that Professor Hashimoto will take to specific locations in the hospital.

Our rounds with the gamma detector include patient rooms in various departments, and other designated locations, for example, in post-operative intensive care.

Perhaps the most important place to measure radiation is the Neonatal Intensive Care Unit. Shown here, a check of the air supply to a premature neonate. Radiation levels recorded by Professor Hashimoto and others would be used for immediate action, if needed. Otherwise, the numbers are uploaded to a database for ongoing assessment.

At a Japanese medical university, there is generally one full professor in each department, who serves as its chair, often until retirement. The system has been likened to a pyramid, but what is it like to be at the top?

Professor Hashimoto directs leading-edge glycomics research, aimed at diagnosing serious neurological disorders, including Alzheimer dementia. A weekend at the university would normally be for academic activities, but this Saturday and Sunday, he is also a radiation technologist.

Scholars around the world know Professor Hitoshi Ohto for research in transfusion-associated graft-versus host disease (TA-GVHD) and other topics. (TA-GVHD, by the way, is prevented in susceptible patients by irradiating blood prior to transfusion.) Some of his titles are: Chair, Department of Blood Transfusion and Transplantation Immunology; Dean, School of Medicine; and President, Japan Society of Transfusion Medicine and Cell Therapy. To patients in Fukushima, however, he is a kindly physician who attends to therapeutic apheresis and personally draws blood from autologous donors. Power and service seem to be related here.

March 29, 2011

Radioactive material escaping from a nuclear power plant is a serious matter. Those who produce electricity, and those who consume it, will be answering some hard questions from now on. Our gadgets run on electricity. Our bodies run on food, and in Fukushima, some of our food has been tainted with radioactive iodine (I-131), at or above levels deemed appropriate for consumption. Long-term health consequences must be considered, especially for young people. There are also immediate economic consequences. Labor-intensive farming in Japan produces some of the best food I have ever tasted, and much of that food has now been condemned out of fear and ignorance. Various countries have imposed blanket bans on all agricultural imports from Fukushima and surrounding prefectures. Domestic sales have also been affected, as retailers anticipate what is, and is not, likely to sell.

A favorite walking path between home and hospital goes past many rice fields. It keeps me in touch with the seasonal nature of farming, and the hard work that goes into the brown rice and natto soybeans that comprise my usual breakfast. Those who are condemning this delicious Fukushima rice don't seem to know that the harvest was last fall, months before our earthquake, tsunami, and nuclear reactor troubles. Let's not condemn ignorance, but let's deal with it.

People along the coast have lost their homes and livelihoods. People near the crippled nuclear reactors have been evacuated, and various crops, nurtured at great expense and care, will not find their way to market or to palate. A kilometer from my home, and many kilometers away from any tainted produce, a farmers' market convenes on Saturday mornings, spring through fall, around one tiny building in a lush setting of rice and vegetable fields. This year's start date for Nakazawa Chokubai was meant to be Saturday, March 19, but, as posted, activities will be suspended until matters relating to the nuclear accident and radioactivity are resolved.

April 2, 2011

International media attention and domestic anxiety seem to focus on nuclear power plant issues, and possible long-term effects of stray radioactivity. Caregivers have to consider an even bigger picture. Our hospital is once again receiving non-urgent patients, but FMU teams continue to travel around the prefecture, attending to refugees.

One team specializes in psychological issues related to loss of loved ones, loss of livelihood, loss of home, and all the uncertainties related to radiation exposure. That team leader will one day have a good narrative for the rest of us, but in the meantime, regrets that demands on his time have stood in the way of reporting to the international community.

Another team's focus surprised me, although I should have known. "Economy class syndrome" is a popular name for deep venous thrombosis (DVT), owing to its occurrence in airplane passengers who are immobilized for long periods, and often dehydrated. DVT is prevalent among our disaster refugees. Consider the situation: lack of potable water in the early stages of evacuation, and self-imposed fluid restriction when water becomes available but toilet facilities are inadequate. Emergency accommodations on gymnasium floors and the like are orderly in Japan, but crowded in a way that may inhibit movement. Lack of food translates to lack of energy, and even after caloric needs have been addressed, some shelters stand in the midst of rubble. Where refugees can step outside, anxiety about airborne or rain-borne radioactivity may discourage excursions.

Economy class syndrome is serious; it can be deadly when a deep vein thrombus dislodges and becomes an embolus. Economy class flying attracts grumbles, but even across oceans it is measured in hours, not weeks, and – with rare exceptions – passengers know where they are going.

April 6, 2011

This week, a surprising offer of aid from Nebraska brought to mind a natural hazard common in the American Midwest: tornadoes. This is the start of Nebraska's tornado season, but our friends and colleagues said nothing of this; they were preoccupied with post-earthquake conditions in Japan, and eager to help.

South of Nebraska is Kansas, where, famously, a tornado brought Dorothy to the Land of Oz. The principal casualties were two malevolent sisters. After an adventure with new friends, Dorothy found her way back to Kansas, where relieved family members heard her say, "There's no place like home." Tornadoes, like earthquakes and tsunamis, take innocent lives, and deprive survivors of places called home.

Professional meteorologists, and amateur storm spotters, are indebted to Kyushu-born Professor Tetsuya Fujita (1920-1998) for, among other things, developing the F-scale to correlate a tornado's intensity with its impact on structures and vegetation. An F0 tornado is the mildest; an F5 is the worst.

An F5 tornado that devastated Rochester, Minnesota in 1883 inspired Franciscan nuns to support the medical relief work of two benevolent brothers, and ultimately, build a hospital. Countless patients, and more than 20,000 trainees, are among the beneficiaries of that humble beginning.

Tornadoes, floods, and other disasters continue to influence medical education at the Mayo Clinic. At the

start of Mayo's 1997-1998 academic year, Minnesota endured 18 tornadoes in a single day (National Weather Service data for July 1, 1997). Friends and colleagues in Japan - accustomed to earthquakes but not so familiar with tornadoes - were rather worried. On March 29, 1998, another wave of tornadoes - 16 in all - swept across Minnesota and Wisconsin.

A new academic year for Fukushima Medical University's residency training program started this week. Our medical school year will begin next month. The delayed start is explained in a March 21 press release, "FMU School of Medicine will reopen in May."

Educating the next generation of caregivers in the midst of a crisis requires more than just *rearranging* an academic calendar. It may be time to *rethink* the academic calendar, and *redefine* the scope of our campus. Maybe caregivers in Japan don't need Tetsuya Fujita's knowledge of North American weather, but the people who respond to tornadoes might have something to teach us, and vice versa.

April 8, 2011

Four weeks have passed since the magnitude 9.0 earthquake of March 11. In retrospect, a magnitude 7.2 tremor on Wednesday, March 9 was a foreshock. Last night's 7.1 tremor was declared an aftershock.

People continue to send emails of concern, often expressing a heart-felt desire to do or send something. A care package from Wakayama Prefecture delighted our lab staff, and, as usual, they are savoring it with slow deliberation.

April 11, 2011

Today marks one month since an earthquake changed everything. Or did it?

Hourai East Primary School, a block from where I live, resumed classes today. Last night, there were students in the gymnasium, rather than refugees. Tens of thousands are still displaced, and will be for some time. While new accommodations are being built, young doctors unaccustomed to making house calls are calling on the homeless. Earthquakes and tsunamis put every structure to the test, but social order has not collapsed.

At 2:46 pm today, FMU observed a minute of silence for those removed from their homes, especially those removed from this world. I chose to observe this silence from the vantage point of a hallway window overlooking our courtyard. Why? First, a small plaque in the courtyard commemorates the life, and the oath, of Hippocrates. Second, it is a dull, overcast day, and the courtyard trees are still bare. But this will change in the next week. Nature has the power to destroy; human artifice adds insult to injury, but nature also manifests creation, and, re-creation.

April 13, 2011

Our department's newly minted PhD missed the ad-hoc graduation ceremony held on March 24. Dr. Alain Ngoma and his family were advised by his government to seek refuge away from tsunami disaster and radiation risk areas. Most foreign embassies in Tokyo have been handing out the same advice, and providing assistance to the displaced. The Ngoma family's pathway to a safe haven engaged the hospitality of Japanese, Congolese, and other nationals. "Alain-Sensei" returned alone to Fukushima on March 30, while his wife and children remain with friends elsewhere in Japan.

Dr. Ngoma's promotion from graduate student to junior faculty did not change his university affiliation. He moved down the hall to the Department of Public Health, where one of his first extra assignments was to translate selected disaster response announcements into French.

Another milestone that, thankfully, did not take a valuable employee from FMU was the advanced credentialing of our department's nurse. Ms. Miyoko Goto is now recognized by JSTMCT (and five other professional societies) as a specialist in both transfusion and apheresis nursing. The accreditation system is new; I think Ms. Goto was actually one of the models on which knowledge and performance criteria were based for formal credentialing. We collect autologous blood and perform apheresis in the same big room as our main laboratory; beyond academic credentials, Ms. Goto has a knack for making patients feel comfortable and relaxed in what might otherwise be an unusual and distressing environment.

We haven't had much to celebrate lately, or for that matter, much to celebrate with. But as community businesses pick themselves up and dust themselves off, Prof. Ohto has decided that we should venture off campus Thursday night to toast the achievements of Ms. Goto and Dr. Ngoma. They are among the Japanese and other nationals who have guided my transition to life and work in Fukushima, so I salute them here as well.

April 15, 2011

After shopping last weekend, I met one of the Gyouza Sisters on the bus. The Gyouza Sisters are not a religious order. Rather, this is a title I carry in my head for three sisters who were regular Sunday patrons of a venerable Fukushima institution: Gyouza Kaikan. Behind the counter, a long-married couple makes every dumpling by hand, in plain sight. They also serve ramen noodles and small side dishes.

Gyouza Kaikan operates from 5 pm to 11 pm. The Gyouza Sisters and I favor the early hours. It's a mixed crowd and, shoulder-to-shoulder, there is plenty of opportunity to mix. One may also choose to eat in solitude, but the Gyouza Sisters were glad in 2008 to welcome a "young" foreigner into their conversation. I am young for having been born after World War II. The Gyouza Sisters have seen a lot.

It used to be that two of the three sisters would ride the same bus back to Hourai after their Sunday dinner. Most other times, I would just see the one who was hard of hearing. That, and my relatively clumsy Japanese, never prevented us from making conversation on the bus. Last year, Hard-of-Hearing was commuting to a downtown hospital. Next encounter, I learned that one of her sisters had passed away. Answers to health and welfare inquiries might be metered according to the relationship between speaker and listener, but we had known each other for a while. Japanese conversations are also about balance. No matter the depth of one's own grief, the other person's situation is considered. Hard-of-Hearing, mourning her own sister, wanted to know how my siblings, and my mother, were doing. It brought a genuine smile to her face to learn they were doing well, thank you.

Last weekend's conversation was naturally about the earthquake and everything since. My Gyouza Sister had been displaced from her home for about 10 days, and readily taken in by relatives while repairs were made. "But people on the coast, still in shelters, that's a real problem."

How long we live, and even where we live, are matters of uncertainly. What remains is how we live. In Japan, I am learning this by example.

April 18, 2011

Hana-mi-yama, literally, flower-viewing-mountain,

is a popular tourist destination in Fukushima City. Every spring, I have grown accustomed to seeing tour buses pour in with camera-toting visitors from around Japan, Korea, and even China. An *oyaji gyagu* (geezer gag) could be made by changing the kanji ideograph from hana=flower to hana=nose. On a busy day, hana-mi-yama might seem like nose-viewing-mountain. Crowded or not, good behavior prevails. Strangers readily exchange cameras so everyone in a group can be in the picture, and people do their best not to walk in front of a photograph in the making.

Sunday morning found me at FMU, where my phone rang around 11. Nine-almost-Ten was calling, on behalf of her seven-year-old sister, wondering if work might finish up anytime soon. They wanted to visit Hanamiyama. These kids are remarkably patient language teachers. *Quid pro quo*. The bicycle was rolling from FMU at 11:25. *Quod erat demonstrandum*.

First, we went to Takayama Soba to fortify ourselves with noodles and tempura. Next, to a Hashi Drug store for small bottles of tea and juice. I still marvel that places like Hashi Drug can have easy-to-carry items on display outside the store, and they don't get ripped off. Managers will confide that some in-store goods with resale value are targeted from time to time, but it is not the norm. Hashi Drug was about 30 minutes' walk from Hanamiyama, so we asked permission to stay parked, and enjoyed a nice hike.

Was I worried about radiation? Yes, the ultraviolet

kind. It was a sunny day, I'm white, and hadn't thought of using sunscreen. As for ionizing radiation, the "hottest" spot outside a 20 km radius of the crippled nuclear power plant lies between the plant and Fukushima City, but Fukushima City continues to have slightly elevated levels, worthy of surveillance, but not worth worrying about. People exposed only to mass media might feel differently, and I hope to address this in a subsequent essay.

There seemed to be fewer tour buses compared with previous years. Maybe travel plans were modified after the earthquake, and various foreign governments are discouraging their citizens from visiting Fukushima. So we who live here had Hanamiyama more to ourselves this weekend. That could change by next weekend, and will surely change by next year. Nature beckons, and so do we.

April 21, 2011

Last week, Yasuhiro Hashimoto and I were having a late dinner at Harunoya, where two journalists found us. One was based in Tokyo; the other had just arrived in Japan. Both represented a French-language European publication. They were traveling around Fukushima, in search of stories. Let's call them Mich and Kris.

Kris, perhaps jet-lagged, was glad to drink beer. Mich was driving, so he had tea. They took notes as we talked. Native French speakers might be annoyed that English is today's *lingua franca*, even in Asia, but it didn't show. They seemed glad that Professor Hashimoto – a biochemist – was fluent in English. As for Mich and Kris, their Japanese included *arigatou* (thank you), *oishii* (tasty), and *keitai* (cell phone).

It certainly felt more like a conversation than a press conference. Kris talked about being in New Orleans after Hurricane Katrina, and made some comparisons quite complimentary to Japan. Mich sketched out a tall, V-shaped sea wall, which, had it been erected in front of Fukushima Daiichi, may have averted our nuclear power plant crisis.

Next day, some Internet searching convinced me that Mich was a prolific writer. Or, as the joke goes about the works of Homer, if he wasn't the author, it was someone of exactly the same name. What I could not find was any pre-earthquake article advocating a sea wall in front of a nuclear power plant. In conversation, Mich said it would surely be expensive to build, but cheaper than worst-case disaster mitigation, and in any case, Tokyo Electric Power Company (TEPCO) made ####### in profits last year. Sorry, I don't remember the number he gave.

Would a sea wall have been the right choice? Earthquake and tsunami evidence from the first millennium – well before modern seismology – is earning fresh scrutiny. In the modern era, however, an earthquake- and tsunami-proof facility might still be crippled by a rogue missile or air strike. One thing is certain. Journalists will report after the fact what should have been done.

The person who guided Kris and Mich to Harunoya was mentioned in their article. She was described as a petite, female pharmacist, 39 years old. Readers might find this engaging, or even endearing. Attention to detail is implied, but they got the age wrong, on the high side, *without ever asking her*.

Months before the earthquake, an American friend at another university commented on the enthusiasm with which our Japanese colleagues quantify things. This can frustrate citizens in two ways. First, vast quantities of radiation-related data are available online and in print, but meaningful interpretation of the data doesn't always earn journalistic attention. Second, people may hesitate to release data in some circumstances. Are they hiding something? A reporter has to ask. But the other reality is that people want to release accurate data, and accuracy takes time. Maybe Mich and Kris can invent numbers and disregard the feelings of a helpful young pharmacist, but in proper Japanese circles, this is scientifically and socially unsound.

April 23, 2011

For all the fuss about radiation, we are vulnerable to mundane risks. Sadly, at the stage of our disaster recovery when gasoline became available in limited quantities, one person in a long queue tried to keep warm in his car with a portable heater. He succumbed to carbon monoxide. This happens to naïve campers in the US all too often.

A properly adjusted kerosene heater actually burns quite cleanly, but whether the combustion product is carbon monoxide or carbon dioxide, either way, generating heat consumes oxygen. Accidents are tragic, but personally, I think an element of fairness exists when I am the first person to breath the exhaust from the machine that keeps me warm.

April 25, 2011

A message to the California Blood Bank Society (CBBS) and the South Central Association of Blood Banks (SCABB) appears under Official Announcements, from FMU President Shin-ichi Kikuchi and FMU School of Medicine Dean Hitoshi Ohto. Let me add my voice to theirs in wishing CBBS and SCABB members a successful joint meeting, April 26-28.

As Professor Ohto is also President of the Japan Society of Transfusion Medicine and Cell Therapy (JSTMCT), this might be a good time to share his answers to some of the questions that have come from friends and colleagues around the world.

Question: What did the March 11 earthquake feel like? What happened afterwards?

Ohto: The earthquake struck while I was in Kagoshima, on the island of Kyushu, at a meeting of the Japanese Society of Autologous Blood Transfusion (JSAT). We did not feel the earthquake in Kagoshima, but Japanese media participate in an alert system for imminent or actual disasters. I knew that FMU staff would be among the first responders. Healthcare professionals in the affected area attended to the immediate safety of patients in their care. Institutions made damage assessments, and communicated their operational status through various channels. Transfers were arranged as needed, for example, so patients on ventilator support could be assured of uninterrupted care. Japan has an extensive network of "Doctor Heli" air ambulances. One such helicopter is based at Fukushima Medical University, but in the days after the earthquake, we turned a soccer field into a helipad to accommodate four more Doctor Heli teams and larger helicopters from the Japanese Self-Defense Forces and Coast Guard.

Question: Patients from Fukushima and other affected prefectures came to FMU for treatment. How did your facility handle the influx?

Ohto: Fukushima Medical University is a tertiary referral facility for Fukushima Prefecture. Even so, we normally accept any kind of patient, in accordance with Japanese traditions of universal access to health care. To provide disaster-related services, we took the unusual step of redirecting all non-urgent outpatient appointments to other facilities. Especially for outpatients requiring ongoing care, such as those on dialysis, we sought operational facilities as close to patients' homes as practical, but in some instances non-critical patients were transferred to Tokyo and beyond. The influx of critical patients was manageable. Sadly, one reason for this was that so many people were swept away to their death in the tsunami. Survivors came to our hospital not only by air and ground ambulance, but also *en masse* by specially commissioned buses.

Question: How did FMU cope with the disruption of services and supplies?

Ohto: We use about 150 tons of water on a normal day, and had a three-day reserve when the earthquake interrupted the municipal water supply. Conservation protocols were instituted immediately, not only for water, but also for heat and electricity. Hospital-based laboratory procedures were modified, where possible. Basic research came to a halt. Water was spared for patient-related food preparation. Conversely, employee cafeteria services were all but eliminated, and employees were instructed not to use tap water for their meals. Limited supplies of bottled beverages were available, and those who had queued for potable water in their neighborhoods were encouraged to bring some of it to the hospital. Caregivers were asked to use chemical toilets set up just outside of the hospital, so water for flushing – indoors – would be available for the elderly and infirm. Self-Defense Force teams delivered about 100 tons of water by tanker while municipal lines were being repaired. Running water was restored just over a week after the earthquake, but we are continuing to practice various conservation measures. As summer approaches, all major electricity users, including FMU, have been asked to reduce electrical consumption by 25%.

Question: Is FMU still providing care to people from other prefectures?

Ohto: Even in normal times, Fukushima Medical University attracts patients from around Japan. Airborne and ground-based ambulance retrieval from other prefectures has subsided, but people displaced from their homes outside Fukushima have been welcomed to refugee centers in our prefecture. Medical teams from FMU and other healthcare facilities circulate among refugee centers in Fukushima, Miyagi, and Iwate prefectures, providing immediate care and arranging hospital admission as necessary. Prefectural or national

origin is simply not an issue in Japanese health care. In free societies, including post-war Japan, all kinds of subjects are open to political debate, including entitlements. So be it. But people attracted to the caring professions in Japan consider it a privilege to serve others. I believe this is true around the world.

Question: How was triage implemented at FMU?

Ohto: A general screening process was introduced to ensure optimal care with limited resources. Greeters welcomed every visitor to our hospital. Those whose only concern was radiation exposure were directed to the Fukushima Gender Equality Center in nearby Nihonmatsu, where a dedicated radiation screening team was assembled. Patients with specific urgent care needs, who incidentally may have been exposed to radiation, were screened immediately at FMU with a hand-held Geiger counter, in much the same manner as passengers are wanded with a metal detector at airport security checkpoints. A whole body radiation counter, installed in a motor coach, was also deployed outside our hospital. We discontinued special screening procedures after one week, by which time it was clear that people were not being exposed to significant amounts of radiation. Let me stress here that I am referring to the general population. The courageous workers within the perimeter of our crippled nuclear power plant are indeed exposed to radiation beyond any acceptable standard. They are heroes in harm's way, who deserve our thoughts and prayers now, and our grateful remembrance in perpetuity.

Question: What are your concerns moving forward? How do you think the Japanese people can recover from this tragedy?

Ohto: Much is made of "the Japanese spirit" in modern essays. I think we do have a sense of unity and kinship that helps us see each other through hard times. Something special about the present situation is the scope of it all. We are responding to a national disaster with international implications. Even before the full scope of our nuclear reactor crisis was appreciated, the international community was rallying support for Japan. I have been deeply moved by words of encouragement, and promises of support, from transfusion and cell therapy professionals around the world. Colleagues in other specialties report the same thing. Japanese history includes periods of isolationism, and periods of aggression. I dare to imagine that 21st century Japan, humbled and tempered by recent events, will expand the sense of unity and kinship to fully embrace the wider world, which has so generously embraced us.

April 27, 2011

Modern healthcare tends to err on the side of caution. Efforts to prevent transfusion-transmitted infections tend to cost more per life saved, or per infection avoided, than safety interventions in other areas of medicine. Not only science, but also, human feelings about blood transfusion guide our thinking.

Human feelings about radiation also guide policy and behavior. We don't want *any* radiation to leak out of a nuclear power plant. So, *by design*, a normally operating nuclear power plant releases less radioactivity than a coal-fired plant generating the same amount of electricity. Of course we now know that Fukushima Daiichi was not designed to withstand the earthquake and tsunami of March 11.

Free speech and a free press allow open debate about what might have been done differently before and after the earthquake. This, on the whole, is constructive, although misrepresentations are disappointing and potentially damaging. The journalists mentioned in my April 21 narrative wrote an opinion piece implying that the Prefecture of Fukushima was in a State of Denial. I disagree. We understand the seriousness of our crisis. I don't read French particularly well, but they mentioned the precautionary principle. Broadly speaking, when in doubt, play it safe. I agree.

That's what we are doing now, especially for children. Radiation monitoring is in place at schools and parks throughout Fukushima. Above an outdoor threshold that might, over a year, expose a child to 20 millisieverts of radiation, time limits are posted for playground activities, and when children come indoors, they wash their hands and face, and they gargle. To put 20 millisieverts *per year* into perspective, this is close to the radiation dose I get in *one day* of health screening, when a gastrointestinal x-ray series ("The Barium Tilt-a-Whirl") is included. My pre-earthquake opinion was that Fukushima's many parks and playgrounds were underutilized. That opinion hasn't changed. A good holiday from work includes riding bicycle and playing outside with my favorite kids.

April 29, 2011

A magazine editor asked me to elaborate on a statement from April 6: "Educating the next generation of caregivers in the midst of a crisis requires more than just *rearranging* an academic calendar. It may be time to *rethink* the academic calendar, and *redefine* the scope of our campus." Whether or not my answer is published, I hope to post a link to the article, due this summer.

Some FMU students already look beyond our campus for opportunities to learn and to serve. One was doing clinical work overseas when our crisis began: "I tried to work harder, telling myself that I could and had to do my best as a representative of Japanese medical students and Fukushima Medical University."

Here is my email reply to the medical student, edited for generality.

Dear *****,

Thank you for writing. Yes, things have changed since the earthquake. I hope all in your family are safe and well.

Some students have returned ahead of term. The student cafeteria will reopen May 2, and the hospital cafeteria is back to a full menu. Lately, though, I've been making my own lunches. People are anxious about radioactive iodine and cesium in their food, but I have to worry about salt.

You know a lot about culture shock, and its challenging cousin, reverse culture shock. These are neither good nor bad, except for what you make of them. Reverse culture shock might be particularly interesting for you this time around. You learned a lot, and surely changed, in your month away. Meanwhile, your classmates and your university have also changed.

Of 110 students invited to our first year class, 11 will not be coming. Among this year's graduates, at least one who planned to stay for residency withdrew. These are personal decisions worthy of respect.

Courageous people can almost always re-invent themselves, even in old age, but thoughts, decisions, and actions in one's prime are rather important. I predict that this year will be one of the defining phases of your life.

Welcome back to a different place.

Kind regards,
Kenneth E. Nollet

May 8, 2011

The entrance ceremony for new students was held Friday morning, May 6. Like other recent events, this one began with a minute of silence. Perhaps for anyone entering a care-giving profession, this ritual should be the norm rather than the exception. Near or far, there will always be people in need.

Another exceptional event for new students was Friday afternoon's lecture and discussion about radiation. Professor Shun-ichi Yamashita of Nagasaki University and the Atom Bomb Disease Institute was our keynote speaker. His extensive research of the Chernobyl nuclear accident is sobering, but for our situation, reassuring. Following Professor Yamashita, FMU Professor Tatsuo Suzutani talked students through handouts about current radiation levels around campus. He encouraged everyone to follow the data online and, according to interest, do spreadsheets to calculate personal exposure according to time spent in various locations inside and out. To put our situation in perspective, I will quote Professor Ohto's recent email to a concerned transfusion specialist in the American Midwest: "The radiation level in Fukushima City is now much less than that of Eastern European countries, but almost the same as Denmark."

In between the morning entrance ceremony and the afternoon session on radiation, new students faced the time-honored ritual of club recruitment. Clubs are an important part of Japanese university life, contributing to physical fitness, mental agility, and the ability to work as part of a team. Count me among the teaching staff who sometimes lament that students spend too much time with clubs, but then, we also think that students spend

too much time on academic subjects other than the one(s) we happen to be teaching.

Today's photo gallery starts with current students introducing new students to the FMU song, representatives of the new nursing and medical school classes presenting their official statements to FMU President Shin-ichi Kikuchi, and an address by Fukushima Governor Yuhei Sato. Then comes a selection of shots from outside the auditorium, where student club members queued to form a boisterous receiving line for new students.

May 12, 2011

For nearly two months after the big earthquake, our campus was unusually calm. Please do not misunderstand. Disaster response and patient care are serious undertakings. But, life consisted of adults doing adult work. Include in that statement the handful of students who stayed around as disaster response volunteers. The rest of them we shooed away.

Well, they're back. Later this month, Year 5 and Year 6 students, in their white coats, will start rotating through the Department of Blood Transfusion and Transplantation Immunology. I'll be doing a lot more with them now that Dr. Kanno is providing medical direction at the Fukushima Red Cross Blood Center.

I also teach one section of English presentation skills to Year 3 students. Today was the first day. They are free to migrate between sections the first few weeks to decide which one they want to be in for the rest of the term. Nominally, they are choosing one of four teachers, each with a unique style and syllabus. I suspect the students are choosing each other as well. Learning seems to be more of a group activity here.

This morning in my section, about 30 students filled a room better suited for about 20. I'm counting on some attrition, but four who stayed after class to ask questions opined that a good group of 30 would be OK. Today's crowd was pretty good. They did most of the talking. I got the ball rolling with a one-minute talk on a subject they selected. Then I took one question. After I answered, the questioner became the next speaker, I became the timekeeper, and from then on everyone rotated though questioner, speaker, and timekeeper/chair roles. The goal of this course is not only to teach presentation skills, but also other things needed to participate in, and to organize, a professional conference.

May 18, 2011

At dinner last month, a neighbor said that he missed the days when students were eager to march in demonstrations. Coming from a man in his 60s who never had the luxury of a university education, this surprised me.

It also surprised me to learn about *Kidoutai* – Japan's riot police. A drive to Tobu World Square during Golden Week gave me a chance to see *Kidoutai* buses heading in the opposite direction. Were there riots to quell? No. They were bound for the coast to help sift through rubble. Special attention is paid for artifacts of memorial value, such as photo albums, and physical evidence of lives lost.

Mayo Clinic colleague Pat Cahill has emailed a few times to say that he recommends this narrative to people taken in by histrionic reporting about Japan. Yes, our situation is serious. In a different social context, humanity's potential for violence could eclipse nature's. But riot police are not bashing heads. Their current priority is giving voice to those who have been silenced.

As for the living, maybe last month's dinner companion had a point. A society that cherishes free speech might build a better future if enough thoughtful people speak up.

May 22, 2011

Front-page news on a Fukushima City flyer included pictures of Their Majesties the Emperor and Empress visiting disaster refugees at a city gymnasium-turned-shelter. Another mailbox item was from an apartment resident serving as our housing association chair. It included a message that Fukushima City's spring cleanup day has been postponed due to ongoing concerns about outdoor radioactivity. People still show initiative as a matter of civic pride. While reading this message, I could look out the window and see homeowners cleaning out a rain gutter between our street and their property line.

Sunday's Mainichi Shimbun, a national newspaper, showed current and contingent evacuation areas around the crippled Fukushima Daiichi nuclear power plant. Also on the front page was a picture of Fukushima Governor Yuhei Sato, Japanese Prime Minister Naoto Kan, South Korean President Lee Myung-bak, and Chinese Premier Wen Jiabao sampling produce grown in Fukushima. In conjunction with a trilateral summit in Tokyo, the three heads of state visited Fukushima on Saturday. On a trip to the city center, I certainly saw more police and security officers out, but they engendered a feeling of comfortable security rather than intimidation or confrontation.

May 29, 2011

The Saturday morning farmers market a kilometer from home reopened yesterday. *Nakazawa Chokubai* was meant to start mid-March, but uncertainties about radioactivity in the soil resulted in a cautious delay. In fact, topsoil is being skimmed off and buried at kindergarten through high school campuses here in Fukushima City. But farming is underway. I bought onions, asparagus, green beans and potatoes Saturday morning. Before continuing on to FMU, I stayed for some coffee and conversation.

One does not buy coffee at *Nakazawa Chokubai*. Coffee is offered and served as a matter of courtesy. *Nakazawa Chokubai*, like *Harunoya*, is a social networking sight not based on the Internet. I like it that way. Over coffee, you might guess that conversation would dwell on radiation, aftershocks, and all the economic fallout of recent events in Fukushima. I certainly tried to convey my sympathy. These farmers work harder for my meals than I do. But they wondered if I had repatriated after the nuclear accident, as recommended by so many foreign governments. *And they wanted to know about the tornados ripping through America's heartland.* "Such a terrible kind of storm. How tragic for your people."

From *Nakazawa Chokubai*, I pedaled on to FMU, where an email from cousin Michael, forwarded by brother Don, was waiting. Michael is a nuclear engineer whose previous correspondence helped me sort through the facts around Fukushima Daiichi. Semi-retired, he drives semis, and was passing through Joplin, Missouri while an F5 tornado was doing the same. Michael is not given to drama or overstatement, but from his report it is clear that he was just meters and minutes, if not seconds, from being a casualty.

Life, or not, involves chance. To be among *The Living* bestows choice.

June 8

Members of the Fukushima City Orchestra came to FMU on Saturday morning, June 4. Performing in our hospital's main lobby, they were a welcome contrast to the days after March 11, when the lobby was filled with mobile hospital beds set up for mass casualty. The smiling faces of patients enjoying live music – and friendly musicians – would have made the best pictures. Family and friends were certainly busy with their cameras. But as a member of the hospital, I was bound by privacy policies to avoid pictures that might directly identify patients. Nevertheless, I hope today's photo gallery offers some flavor of a Saturday morning in Fukushima.

June 17

A classroom between the bicycle parking lot and my office has been co-opted for a Fukushima Prefecture citizen's health survey project. Fukushima Prefecture has just over 2 million citizens. If the excess radiation to which we are exposed is of any consequence, a carefully controlled long-term survey covering a large number of people will be invaluable. Statistically, two million is a good number if sufficient participation, free of selection bias, can be secured. In fact, the intention is to seek the cooperation of everyone living in Fukushima.

Researchers around the world are certainly interested in studying the health of our citizens. Without any oversight, a research free-for-all would surely create duplication of effort, and likely annoy study subjects. Beyond mere annoyance, there is the need to protect privacy. It is one thing to be stripped of financial privacy, as with the recent breach of Citigroup's credit card database (including my records). As bad as the Citi hack is, a violation of one's health information is a more serious matter. So privacy protection is paramount.

My personal hope for the long-term survey of health in post-nuclear Fukushima is that skeptics and enthusiasts alike be inspired by words that predate the nuclear age, but still ring true:

"The best interest of the patient is the only interest to be considered."

William James Mayo, MD (1861-1939)
addressing medical school graduates in 1910

Nollet Q&A with Mayo and ABC

Kenneth E. Nollet
Department of Blood Transfusion and Transplantation Immunology, Fukushima Medical University, Fukushima, Japan

Dr. Kenneth Nollet's narratives on www.cbbstoday.org were widely read around the world. Among the readers was Ms. Melissa Abrams, managing editor of Mayo Alumni magazine. She interviewed Dr. Nollet in April 2011, for an article that was published in Fall 2011 edition of Mayo Alumni. Here we reprint the interview. The entire Fall 2011 issue can be downloaded at http://www.mayo.edu/mayo-clinic-alumni-association/news-and-events/mayo-alumni-magazine/archives.

MA: A moment of silence was held at FMU exactly one month after the earthquake. You observed this moment near a plaque commemorating the life and oath of Hippocrates. Why?

KN: In the course of teaching medical English presentation skills, I convene students around this plaque. They compare and contrast the classic oath and modern variations. In common, every respectable oath is a promise of service to others. This comes naturally in times of disaster, but I also wanted to reflect on Hippocrates' injunction to guide the next generation. We invited 110 medical students to matriculate in April. Circumstances forced FMU to postpone the new academic year by one month, and for various reasons 11 students withdrew. Those who joined us made an extraordinary commitment. Those of us privileged to teach the art should do the same.

MA: Fukushima Medical University's model of care is "to show compassion, possess knowledge, apply skill, foster harmony, and build community." How does this compare to the Mayo Model of Care?

KN: FMU's model of patient care and education resembles what is practiced at Mayo. I've never forgotten that farmers from southeastern Minnesota were as welcome at Mayo as royalty from around the world. As in southeastern Minnesota, much of Fukushima's economy is agricultural, but not as mechanized. Farmers here work much harder for my meals than I do. Many of them come into old age and into hospital bent over from years of diligent crop tending. They deserve our best efforts.

MA: To what degree is daily life at FMU back to normal?

KN: FMU has resumed routine patient care. Radiation surveillance is a normal activity at any medical university but was scaled up when problems began at the nuclear power plant. I walk past one radiation checkpoint every day, where log sheets are kept in plain view next to a Geiger counter. Between official measurements, I am at liberty to check myself, or anything I might be wearing or carrying, for radioactivity. My day-to-day life was never really disrupted. A doctor always has something to do. People in the community who wanted me to focus on my job made sure that other things were taken care of.

MA: What would you like Mayo Clinic alumni to know about disaster relief, and your life in Fukushima?

KN: Mayo alumni know firsthand what charitable giving can accomplish. Just as we are taught to practice evidence-based medicine, it behooves us to practice evidence-based benevolence. Helen Keller said, "Character cannot be developed in ease and quiet. Only through experience of trial and suffering can the soul be strengthened, ambition inspired and success achieved." We in Fukushima are stronger as a result of this trial, but not as individuals. Strength in Japan is a collective attribute. The gossamer threads of interpersonal relationships, woven at FMU and in the community, held fast. Threads tested become threads trusted.

In December 2011, Ms. Betty Klink, Publications Editor for America's Blood Centers (ABC) interviewed Dr. Nollet for the January 13, 2012 edition of ABC Newsletter. ABC is an association of independent blood centers in North America, so the interview focuses on what blood centers in particular, and health care facilities in general, can do to prepare for and respond to disasters.

BK: It seemed that FMU was well prepared to handle a disaster situation. How much of FMU's response was part of disaster planning and how much was developed after 3.11?

KN: Medical universities follow Japan's Basic Act for Emergency Preparedness, in place since 1961. Provisions of the Basic Act have been invoked more often for natural disasters such as earthquakes, tsunamis, and typhoons, but nuclear accidents have always been ranked as equally important in terms of preparedness. Specific new provisions were drafted in 1999, after a uranium processing plant had a nuclear criticality event in which two workers died of radiation poisoning. Since then, medical universities have been equipped with radiation decontamination facilities. Decontamination uses a lot of water, so we had an especially compelling reason to conserve when our municipal water supply was interrupted.

BK: ABC's Director of Regulatory Services, Ruth Sylvester, often reminds members to have disaster response plans in place, but more importantly, to practice such plans before disaster strikes. What recommendations do you have for health facilities when responding to a disaster for which it is not prepared? For example, an earthquake in an area that doesn't usually experience earthquakes?

KN: Ms. Sylvester is right, and I sincerely hope that ABC continues to exhort members about the importance of planning and practice. As a network of community blood centers, ABC can also encourage educational exchange between, for example, members in Tornado Alley and members near seismic fault lines. Perhaps your blood center has never experienced a tornado, earthquake, or flood, but that's no guarantee for the future. "Desk" or "tabletop" exercises are better than no exercises at all, but thinking through a disaster scenario falls way short of actually simulating one. Recent investigations of Japan's nuclear power industry have revealed that their emergency simulations have generally started – and finished – during regularly scheduled daytime hours. Now we know that's not good enough. The aviation industry is often held up as an example for healthcare to emulate. I used to fly single-engine Cessnas. My instructors and examiners could, at any time, cover up part of the instrument panel or trip a circuit breaker to simulate equipment failure. The ultimate simulation, of course, was to pull back the throttle and say, "You have lost power. Please commence emergency landing procedures." A good pilot does not wait for an engine failure to think about where to make an emergency landing. It is part of one's minute-by-minute situational awareness.

BK: What can US blood centers take away from the use of Tokyo as a hub for red blood cells and platelets for those areas most affected by the tsunami? What elements should blood centers consider when planning for disasters that would impede transportation?

KN: In Japan, it's easy for consumers to take transportation for granted, but blood centers cannot quit just because essential infrastructure has been taken away. The convenience store inside our hospital maintains a nice selection of carryout food and beverages. For lack of re-supply, those shelves were empty in a matter of days. The convenience store chain worked hard to restore their supply lines, but blood centers have to work harder. Our empty shelves are of greater consequence. We should always be asking, "What's another way to do something if we have to do without _____?"

BK: What other experiences have you had related to planning for transportation outages?

KN: When I was working for the Australian Red Cross, there was a traumatic bleeder in a small coastal town a few hundred kilometers from Brisbane. Replacement blood missed the first of only two commercial flights. Technologists organized an ad-hoc transportation network among the laboratories in town that had blood. Red Cross could collect blood locally but processing and testing were centralized. Ultimately, we agreed to collect and transfuse the trauma patient with fresh, warm whole blood from four locals who had donated and been tested within the previous 90 days. That fresh, warm whole blood stabilized the patient well enough for air evacuation to Brisbane. After Hurricane Katrina flooded New Orleans, I recall reading that laboratory staffers considered transporting blood by canoe. I've also met

technologists willing to transport emergency stocks by motorcycle. That's the spirit! But how many of us have dropped a transport container from a motorcycle or canoe to test its durability and flotation? Ed Martinson (1912-2006) was an active amateur radio operator (call sign W0GYH) who helped with emergency communications in the days of blood and plasma in glass bottles. He told me about an airdrop exercise in which the "lifesaving plasma for a burn victim" was actually six bottles of beer for the local mayor. It landed safely, and the mayor was certainly pleased, but in modern times we would follow up that proof-of-concept with the real thing, and have electronic environmental monitoring of the payload.

BK: How did Fukushima Medical University manage its blood supply while transportation was still limited? What kinds of communications should blood centers have with hospitals in setting emergency plans for disasters?

KN: We stock red blood cells and fresh frozen plasma in-hospital, but the community as a whole is better served by keeping platelets at the blood center. Fortunately, we are staffed and equipped to collect platelets for research and whole blood for autologous patients. Employees, including me, were able and willing to serve as emergency blood donors. Among Japanese, however, the odds of a one-way HLA match are higher than most other populations, so irradiation of allogeneic cellular blood products is the norm. FMU was first in the world to adopt universal irradiation, and we've kept a validated SOP [standard operating procedure] in place, even after the Japanese Red Cross adopted universal irradiation. Sadly, our emergency donors were not needed, because this was a mass casualty event, rather than a mass trauma event.

BK: What role did communication play within Fukushima Medical University, like the action meetings? Why were they so vital?

KN: Let's discuss communication in three categories.

1. Mass communication. I was lucky to receive media training at every blood center where I have worked: American Red Cross in St. Paul, BloodSource in Sacramento, and Australian Red Cross in Brisbane. Knowing how to formulate an accurate, easy-to-understand message is essential. Having and holding a clear message helps the media, but sometimes they get it wrong. Two French journalists misquoted me and invented facts to suit their agenda. I gently rebutted them in one of my blogs.

2. Collegial communication. This works well in Japan. Once again, prior experience prepared me. The Division of Transfusion Medicine at Mayo in Rochester meets twice a year with Red Cross in St. Paul, reviewing performance and discussing contingencies. The University of Minnesota hosts a weekly blood bank breakfast, with regular attendees from Hennepin County Medical Center, Minneapolis Veterans Affairs Medical Center, and two nominal competitors: Memorial Blood Centers and American Red Cross. In Australia, I spoke a few times at the Queensland Immunohaematology Discussion Group, a friendly cohort of transfusion laboratory professionals.

3. Emergency communication. Even in the Internet age, Amateur Radio operators play an important role when regular channels fail. Landline connections were destroyed by the tsunami. In Tokyo, landline and cellular channels were operational, but overloaded. I've earned an Amateur Radio license in every country I have ever worked. I don't have as much time for the recreational aspects of this avocation as I once did, and my role is quite different in an emergency, but it helps to speak the language of those who will be speaking our language when they are called upon to communicate on our behalf.

BK: How can blood centers prepare for emergencies in which water and electricity go out (or have to be conserved)? What lessons can they take from the way that Fukushima Medical Center dealt with such issues?

KN: It's important to know how much you use, where it comes from, where else it can come from, and what you can do to conserve. Government agencies and utilities maintain priority lists for restoration of services. Blood centers must take the initiative to be on those lists.

KN: I think that what CBBS did was great in allowing you to publish news and observations from Fukushima. How is open communication with the public important in such disasters?

KN: CBBS has Fukushima's everlasting gratitude. In some cases, communication portals outside a disaster area are essential. In this case, FMU's website remained operational, but our human resources had to be redirected. Moreover, CBBS is an internationally recognized brand that lent credibility and enhanced access to the story of life and work in Fukushima.

BK: What would you say is the big take-home message for health facilities and blood centers looking to learn something from your experience in Fukushima Medical University in the wake of the tsunami?

KN: Treasure the knowledge of long-term employees, and welcome the insights of newcomers and visitors from other institutions. It has been my privilege to work in three countries, and participate in academic discourse on five continents, but travel per se has not been the essential element of my experience. In fact, what I brought to Fukushima was not my experience at all; rather, it was the collective wisdom of others in our profession who had overcome seemingly unique problems. Their solutions can become our solutions, if we take the time to listen.

Overview of Post-quake Medical Examination System and Results

Hospital Administration Department

(1) Changes in medical examination system (shifted immediately following the earthquake to focus on outpatients with critical symptoms→gradually restored examination capacity later)

- Friday, March 11, 2011
  1st (Green): Orthopedic outpatient care
  2nd (Yellow): Internal medicine (new) outpatient care
  3rd (Red): Emergency medicine outpatient care
  (Broadcasted message via media body Telop, informing about "Shift to treating patients with critical symptoms and suspension of general outpatient services" on March 12)
  Green: 93 patients, Yellow: 44 patients, Red: 30 patients, Black: 1 patient; Total: 168 patients
- Monday, March 14, 2011
  1st–2nd: Surgical Division…Orthopedic outpatient care
  Internal Medicine Division…Internal medicine (new) outpatient care
  3rd: Emergency medicine outpatient care
  Special outpatient care: Otolaryngology Division, Ophthalmology Division, Pediatric Division, Psychosomatic Division, Dermatology Division, Endocrinology Division
  Total arrivals: 400 patients
- Thursday, March 17, 2011
  1st, 2nd (Surgical Division, Internal Medicine Division): Internal medicine (new) outpatient care
  3rd: Emergency medicine outpatient care
  Aggregate special care total (excluding Psychosomatic Division only): 364 patients
- Tuesday, March 22, 2011
  Reopening of Internal Medicine Divisions (reserved patients only): Circulatory Medicine Division, Hematology Division, Gastroenterology Division, Rheumatology and Collagen Disease Division, Kidney and Blood Pressure Medicine Division, Diabetes and Endocrinology Division, Neurology Division, Respiratory Medicine Division, Pediatric Division, Psychosomatic Division, Radiology Division, Obstetrics Division
  Surgical Division: Emergency patients handled by Orthopedic Surgery Division.
  Surgical Division restarted surgeries (three operation rooms and one room for emergency operations).
  Emergency outpatient care: Tertiary response
- Thursday, March 24, 2011
  Resumed accepting new patient arrivals to Surgical Division; restarted all patient examinations (reserved patients only)
  (Friday, March 25, 2011, 18:30: Completed survey and division of patients at hospital.)
- Monday, March 28, 2011
  Outpatient care returns to normal operation.
- Monday, April 4, 2011
  Operating rooms return to full operating capacity.

(2) Background surrounding restricted examination policies

- The Hospital was forced to implement a restricted examination policy. This was due to a severe decrease in examination capacity because of suspended water service, shortage of drugs and examination supplies, and the inability of personnel to commute to the hospital due to gasoline shortage.
  Performing dialysis, biochemical examinations, and sterilizations/disinfections were particularly difficult under the circumstances. Water service was restored on Friday, March 18, 2011, and the hospital was able to reopen its Internal Medicine Division for outpatient care on Tuesday, March 22, 2011, thanks to resources and support provided by MEXT and other entities.