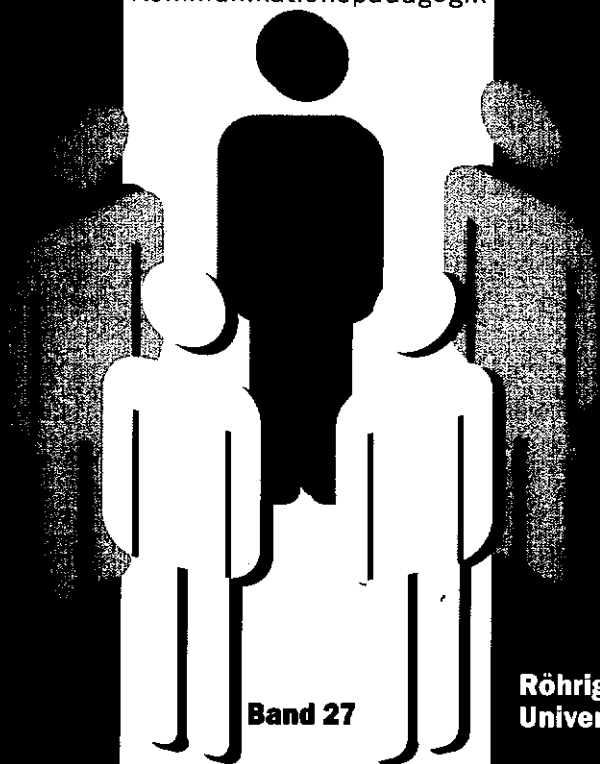


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Providing Medical and Healthcare Information to Disfranchised Populations: An NGO's Efforts to Unite Medical Providers

Background

Persistent diplomatic pressures failed to stop Serbia's aggression against the people of Kosovo. With few options remaining in the face of the continuing genocide, on March 24, 1999, NATO launched a strategic bombing campaign from Belgrade to Pristina to punish the Serbian government and to weaken the Serbian army. After four months and 23,000 bombs, Serbia agreed to halt its offenses, and NATO took control of Kosovo's streets.⁹ Then the rebuilding of Kosovo began.

With financial assistance from the U.S. Department of State and logistical support from the International Organization for Migration, a small American non-profit organization, called WiRED, helped set up eight Internet centers at key locations across Kosovo. These public access communication facilities helped people locate their families and friends who had scattered in the Diaspora.

Families were separated, loved ones were killed, scattered and lost. Many thousands of Kosovars escaped the bloodshed by fleeing to other parts of Europe and some as far as to the United States. Many who escaped were settled by international aid agencies in refugee camps and sanctuaries in nearby countries. Others who ran away left no trail, and these were the toughest to find. Quite often, people didn't know who had died, who had gone into hiding, and who had gotten out.

1. Much has been written about this bombing campaign. This reference offers a chronology of events: <http://sfgate.com/cgi-bin/article.cgi?f=/gallery/photoessays/kosovo/gallery2.DTL>

Lines formed each morning in front of the Internet Centers, where people used search engines, bulletin boards and NGO Websites to seek out their loved ones. Among the most avid users were physicians, and while some of them were searching for family members, most were reconnecting with colleagues in other countries. Serbia had restricted outside contact for Kosovo's physicians and medical students, creating an isolation that came at considerable professional and personal costs. The new Internet Centers opened a door for Kosovo's medical community that, for too long, had been closed.

Technology was the key to unlocking that door. Computers, connected through satcom links, provided access to electronic libraries and research databases. Through email, doctors communicated directly with doctors outside, and for the young doctors, this was a first. People in the West take international communication for granted, but such access in Kosovo, in 1999, was entirely new, and it was a bonanza to the doctors in this break-away province.¹⁰

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2. A study conducted in 2000 confirmed the frenzied business and telecommunication environment in Kosovo. In summary, it reported: "Telecommunication and postal sector in very poor shape, due to recent war and lack of maintenance. . . . Temporary (UNMIK) solution for telecommunication and postal services, future yet unclear. Business environment can be characterised as the Wild West. Awareness of internet mainly due to international organisations and NGO's. Due to current development level and priorities, internet seems a bridge t(o)o far at this moment." "A study for International Finance Corporation (IFC)," Larive International or Study Internet and eCommerce, Balkan Region." 21 November, 2000.
 3. *The Washington Post* reports that, by Spring 2007, approximately one-third of all registered physicians in Iraq had left the country. Karin Brulliard, "Iraq Re-imposes Freeze on Medical Diplomas In Bid to Keep Doctors From Fleeing Abroad," *Washington Post* (5 May, 2007), A1.
 4. Portions of this story were drawn from Gary Selnow, "Paradox Amid the Rubble," *The Chronicle of Higher Education*, 8 August, 2003.
 5. Contributions to global medicine have always been a driving concern of Iraqi physicians. The fact they have been sidelined for so many years had become a frustration and, to some, an embarrassment. After many conversations with senior physicians in Baghdad, I included reference to this matter in the dedication speech of the first Medical Information Center at Baghdad's Medical City Center: "Very soon, with the re-introduction of the Internet to Iraq, doctors in this teaching hospital, too, -- no doubt through these very machines -- will again share their knowledge and research

Isolation is a Global Problem

The plight of the doctors in Kosovo brought to light a sad truth that many medical communities around the world are effectively isolated and deprived of information that yields the benefits of medical research, experience, and collaboration. War and a dictator isolated Kosovo; forces less physically threatening but no less effective isolate other regions.

Doctors in poor and troubled regions often study medicine with out-of-date textbooks, have little access to current journals, don't participate in international conferences, and enjoy few visits from outside medical professionals. Where the Internet does exist in these places, it suffers from tattered infrastructures and high costs. Telephones are expensive and are not often used for overseas communication. Backwater regions do not benefit from information riches, so their people remain out of sight, out of mind, and mostly out of touch.

This paper describes how information technology can help unite forgotten doctors and nurses with their colleagues in the global medical community. It illustrates this concept by way of WiRED's work in 11 countries. We have always known that supplying adequate information favorably impacts the delivery of healthcare services -- communication, therefore, benefits the *practice* of medicine. Our interest here is how communication benefits the *practitioners* of medicine.

The program

WiRED, a volunteer-driven NGO, provides information and educational resources. It uses information technology (IT) to deliver electronic medical libraries, provide access to Internet-based information and databases, and create channels for direct communication among medical professionals throughout the world. WiRED also offers pro-

and experience with doctors around the world. These are tools for human contact and for human education."

6. D.K. Berlo, *The Process of Communication: An Introduction to Theory and Practice* (New York: Holt, Rinehart and Winston, 1960).

grams to help grassroots communities by enabling people without medical backgrounds to learn healthcare basics. This work generally focuses on HIV/AIDS prevention and takes place in Africa.

Most of the organization's work, though, is with practicing physicians, nurses and medical students, and this is the subject of this paper. The guiding view is that improved skills and knowledge of local physicians benefit entire populations, so relatively minor investments enjoy ripple effects throughout a region. WiRED provides three key communication services:

E-Libraries. The medical e-libraries offer journals, textbooks, and tutorials developed by medical universities, government research offices, and sub-specialty organizations. On-line sources today offer many thousands of biomedical journal titles, tens of thousands of textbooks, and untold numbers of tutorials, interactive programs, and databases. These collections are more current, more complete and more economical than libraries at most major medical schools. While access to new research benefits isolated medical professionals, the real prize is the personal interactions with colleagues in other countries through email and audiovisual communication, and digital video conferencing.

Email and Audiovisual Communication. Interactions begin with email exchanges in which doctors discuss patient treatment options and review medical advances. In some cases, the doctors progress from emails to "face-to-face" exchanges using Webcams that offer crude but generally adequate audiovisual exchanges. For isolated medical professionals, email and Webcam communications provide useful bridges to colleagues abroad.

Digital Video Conferencing (DVC) facilities ratchet up the quality and the usefulness of real-time, global communications. The near-television quality of DVC transmissions allows a remarkable level of interaction. While email and Webcams are fine for two or three participants, DVCs open the communication to hundreds of participants. They also allow a level of interaction and visual detail for patient examination and even surgery. The DVC program has become so important in connecting these isolated medical communities that it merits more description here.

A DVC studio includes two basic elements 1) cameras and monitors and 2) connectivity. A DVC camera is to a Webcam what a Mercedes is to a Yugo. These remote-controlled cameras have remarkable clarity and flexibility. They can capture a room full of people in a single frame or focus on the face of a watch. The cameras can display the image of a speaker while simultaneously showing a PowerPoint presentation. They can scan an audience and zoom in on a patient who can be examined from doctors ten thousand miles away. Taken into the operating theater, the cameras allow coaching from distant surgical teams. Images resulting from these transmissions can be as small as a television set or as large as a billboard.

The second element of a DVC facility is connectivity, or the “electronic pipe” through which the signal is transmitted. The pipe can be a hardwired cable or a satellite signal. In either case, the larger the pipe--the greater the bandwidth--the better the transmission. When the bandwidth is sufficient, images are clear, fluid, and in sync with the sound. When the bandwidth is limited, one or all of these qualities can erode.

The marvel of DVC transmissions is that they allow doctors in developing countries and doctors outside to be “in the room together.” When conditions make it difficult for medical educators and consultants to travel physically to distant places, DVC facilities make possible their electronic presence in a lecture hall or operating room. Distances then shrink from miles to meters and the times from days to seconds. These facilities provide electronic portals through which doctors in developing countries and doctors outside can meet together.

Because video conferences reduce obstacles--the inconveniences, costs and time demands, and sometimes the dangers of international travel--they greatly expand the opportunities for continuing dialogue. Consider that visiting American doctors incur travel costs, time away from patients and family, and lost days in transit. For their trouble, the amount of information they can deliver in a single visit is limited by their time in-country. With video conferences, before breakfast any morning, doctors 10,000 miles away can deliver lectures, coach physicians, and hold patient conferences. They can repeat video

communications for months on end without disrupting their schedules at home or incurring the high costs of travel.

In taboo locations, such as Iraq, local doctors can access experts only by way of electronic lectures and consultancies. WiRED operates four DVC facilities (Telemedicine Centers), located in key medical schools in Baghdad, Basrah, Erbil, and Mosul. Through satellite communications, the organization has connected American and Iraqi physicians under arguably the most difficult conditions in the world.

Is participation adequate? Because electronic communications decrease the time and financial costs of medical exchanges, they allow more sessions and expand the number of participants able to contribute lectures and serve as patient consultants. This increases the flow of scientific information and expands the opportunity for a greater number of medical professionals to meet “face-to-face.” Lower thresholds of involvement invite greater participation that enriches these exchange programs.

Before moving more directly to the broader discussion, we should emphasize that all communications available to developing regions, not just the sophisticated video exchanges, contribute to the sense of connection for isolated medical communities. Access to current journals and textbooks, and exchanges of emails and Webcam discussions allow far-off doctors and nurses to build relationships with their professional colleagues elsewhere. We stress the DVC programs here because they come closest to replicating face-to-face exchanges and provide the richest forums for real-time interaction.

Beyond the science, how do these programs help isolated doctors? This discussion has to begin with a sense of what it means to be isolated. For medical professionals, isolation is a professional and a personal assault. Medical practice, by its nature, is an integrative activity, involving networks of professionals whose research and experiences collectively form the body of knowledge about healing. Collaboration is valuable in all professions, but in medicine it is especially so. New diagnostics, revised treatments and techniques, warnings of epidemics on the way, and reports of new-found drugs form a

corpus of information that enables physicians to see the full picture and offer their patients the best possible care. Isolating doctors, or entire medical communities, hobbles their capacities as healers.

The personal effects of isolation are no less severe. Medical schools stress the personal nature of medical practice. The literature, lectures, and residence training stress teamwork, mutual support and the collegial nature of the profession. Medicine is about people. A thousand professions permit seclusion, but doctoring is not one of them. Doctors isolated by geography, economics, or politics develop a sense of irrelevance and anomie. They see the world “out there” passing them by, taking no notice of them as colleagues and friends. The damage of isolation goes well beyond professional proficiency; it assaults these doctors on a personal level.

As a case in point, when WiRED’s telemedicine program in Iraq was temporarily suspended for lack of funds, Iraqi doctors wrote emails pleading for a resumption so they could “talk with our colleagues again.” The Iraqis were stung when the regular video meetings with American physicians were abruptly halted and their personal contacts had ended.

Anecdotal evidence of the importance of uniting medical providers

The most telling stories of the success of the IT-based, medical education programs come from Iraq, which has experienced a particularly cruel and effective isolation. In the mid 1980s, for reasons known only to himself, Saddam Hussein had shut off Iraq’s physicians and medical students from the outside world. He embargoed travel for Iraqi doctors and blocked visits from outsiders. He banned medical journals and textbooks and halted installation of the budding Internet, all of which had the insidious effect of completely walling off the Iraqi medical community.

The war, which toppled Saddam, could have opened opportunities for a flood of scientific information, but sadly, with the violence and worsening security, the lingering war only perpetuated the blockade. Regular delivery of current medical journals, like regular delivery of

current anything in Iraq, is disrupted by the ever-present violence. Violence suppressed Internet development, forcing most people interested in overseas communication into a handful of cybercafés, which are plagued by signal disruptions and painfully slow speeds. Outside medical professors could not get in; Iraqi doctors who got out, stayed out.³ So the Iraqi medical community did not enjoy the flood of information it needed and wanted, even after Saddam had left the scene.

Although several NGOs initially attempted to address the medical education shortfall, most had packed up because of the growing dangers. WiRED remained as the only source of information, largely because it employed information delivery systems that did not require the physical presence of medical professionals. Using Information Technology, WiRED's small staff imported into Iraq a wealth of educational and research tools. They provided electronically what no one could deliver physically.

These brief stories address how the Iraqi doctors and medical students view this electronic approach to medical education, information and the vital links to medical colleagues.

Setting up an early Medical Information Center⁴

The room at the Al Kadhymia Teaching Hospital on the outskirts of Baghdad was filthy and cluttered with broken desks, shattered glass, damaged hospital equipment, and lots of trash. Looters had left their marks. WiRED, which had hoped to install a Medical Information Center here in June 2003 could not even begin the process.

WiRED's staff asked the doctors, teachers at the university, if they could arrange for custodians to clean the room -- although "excavate" was more like it. They agreed, and when the technicians returned several days later with the computers, the room was spotless. WiRED learned that the doctors themselves and their students had spent hours late at night after their surgeries and rounds, washing the floors, tossing the trash, and preparing the space.

Why, WiRED's staff asked, did they do this? Because, they said, they desperately wanted the medical e-library WiRED was bringing them, and they didn't want to lose the chance to get it. They were will-

ing to do whatever it took to obtain the resources they needed to advance medical education and to contact the outside, even if it meant working late nights at hard labor.

Especially the young doctors said they saw this as a chance they had been dreaming about since entering the profession. Here was an opportunity to get access to the same information available to physicians elsewhere in the world. WiRED's hard-drive database contained the latest journals and medical texts and would provide these young physicians with their first installment of current scientific information. Moreover, it would allow them access to the same texts, the same research, the same information as doctors outside, so when they met face-to-face, they could be on an equal footing. They also saw that as soon as an Internet connection became available, they would, at long last, have that Holy Grail--a direct link to colleagues in distant places.

The physicians at Al Kadhymia Hospital were particularly eager for an Internet connection. This would bring them the world beyond Iraq, just as the Internet brought the world to doctors in Kosovo in 1999 and doctors in Bosnia, Serbia, Kenya, Nicaragua and other places where WiRED had set up Medical Information Centers.

A No Holes Barred Round Table

At another teaching hospital outside Baghdad, in Spring 2003, a group of young doctors and medical professors asked me to spare a little time for sweet tea and candid talk. It took a half-hour to drill down to their concerns, but these young professionals were worried about their long-standing irrelevance to the outside medical community. As I noted earlier, no one could get in or out of the country and the flow of scientific information was reduced to a trickle. These doctors, with their professional lives ahead of them, wanted to be seen as contributing members of the medical community, not just in Iraq but abroad as well.⁵ The region's contribution to medicine, after all, goes back thousands of years.

American troops had entered Baghdad just a few weeks earlier, Saddam had been thrown out, and this was the time for hope in spite of the fact that the looters had ransacked the city and security re-

mained uncertain. The people were remarkably optimistic. With Saddam's oppressive thumb lifted, with the doors to the outside unlocking, with the promise of a normal life sinking in, optimism in Iraq was palpable and widespread.

These doctors saw WiRED's promise of the Internet as a critical link. Few could foresee the long and painful struggle that awaited; no matter, this was the time for hope and expectation. These young doctors were making plans and they wanted to hear an outsider say they weren't foolish.

After they described the oppressive old ways and stated their hopes for a free and open future, they asked how doctors elsewhere worked together, shared ideas, stayed in touch. This conversation and these questions, more than anything else I witnessed in Iraq, revealed the level of isolation that had existed. It also made very clear the value of the connections we were about to supply. In these early days, we believed that our Centers would provide first contact, and as more conventional communications and travel options opened up, the Iraqi medical community would no longer need them.

That has not happened, of course. Now, entering the fifth year since the United States invaded Iraq, our Centers remain the only bridges, and we are struggling to maintain them. We have added four high-end telemedicine centers, which go beyond the tools available in the Medical Information Centers, but they exist in only four locations, and they are feeble stand-ins for the medical exchanges the Iraqis really need. We tout the virtues of information technology for medical communities, and they really are remarkable resources for isolated places. But they buy time; they don't replace the free and open communications we expect among professionals. They offer a little oxygen in suffocating environments; they do not substitute for physical exchanges, study, research, and unfettered conversations.

I have lost touch with those young doctors. At the time I am writing this, fully one-third of Iraq's physicians are reported to have been killed or have left the country. I do not know if these fellows made it. My own travel in Iraq now is greatly restricted, and I cannot go back to the hospital where we sipped sweet tea and held our foolishly optimistic conversation. That talk sticks in my memory because it was

filled with hope and promise, but like everything encouraging in Iraq in those early days, it was sadly mistaken.

Final thoughts for participants of the International Colloquium on Communication

The successful development of any profession requires good communications, allowing shared knowledge to grow incrementally with contributions from scholars and practitioners. This is certainly true of medicine. With years of accumulated experience and study, medicine today is better than medicine practiced 50 years ago. Further, medicine is better today because medicine practiced in one place benefits from medical developments in other places. These collaborations across time and distance, leading to an increased body of knowledge, depend heavily on successful communication.

WiRED has provided communication tools that enable medical communities in remote places to share in the benefits of increased knowledge. As this paper describes, these communications promote not only the practice of good medicine, they support the practitioners of good medicine as well. In terms of the old, stand-by Berlo model -- Source, Message, Channel, Receiver -- the communications deliver a message, but they also offer an important bridge that joins the Source and Receiver.⁶ The interpersonal spin-offs from these communications are important to individual practitioners of medicine, as we have seen with the young doctors in Iraq who were keen to join a larger group of colleagues outside.

That's no surprise. For the same reasons, communication scholars join the International Communication Association, the National Communication Association, and, well, the International Colloquium on Communication. We enjoy the intellectual stimulation, the sharing of ideas and the interactions, which help us, recognize new perspectives, focus our thinking and stimulate our research.

But, we also join these groups for reasons that go well beyond Berlo's "Message" -- the content of our discussions and readings. We join because of the interpersonal satisfactions that arise from the pleasure of being with people we like and with whom we share com-

mon bonds. These bonds are based, in part, on our mutual, scholarly interests in communication, yes, but they also are based on our interests in each other. Our bonds are personal, built around a sincere pleasure of sharing time in discussion and in the enjoyable pursuit of friendship.

Doctors in distant outposts have no less an interest in joining with doctors outside than those of us in this colloquium have in joining with each other. We meet every two years, but most of those doctors have neither the means nor the opportunity for such a thing. WiRED's electronic forums cannot, of course, match the rich communication environment we enjoy in these Colloquia. But, for isolated medical communities, the sessions provide an opportunity to meet "face-to-face" with people half a world away, who like them, have dedicated their lives to the healing arts. Their communications may be simple and sparse (email) or, with adequate resources, they can become more sophisticated (DVC). Either way, they are links, and that can be enough to improve the science and to ease the isolation.