Study with Regards to the Legal Requirements for a Health Grid in the United States

Bardiya Shadmehr

University of Texas at Dallas
800 West Campbell Road, Richardson, TX 75080-3021

Abstract: This paper examines the legal and political prerequisites for making health grids a reality in the United States with emphasis on safeguarding patient privacy and defining liability issues for those who are connected to the health grid. Privacy will be handled by encrypting data during transmission and limiting access to data upon arrival. Liability issues are ultimately in the hands of policy makers, but the author recommends limiting liability to encourage participation.

1 Introduction

Since the idea of health grids is relatively new, an explanation is warranted. The basic idea of any grid is to pool resources. For instance, distributed computing projects have been doing this for quite some time (SETI@home\(^1\) and Folding@home\(^2\) are two famous examples). The idea of a health grid\(^3\) is similar, with the only difference being the health-oriented context – instead of computers working together, doctors, nurses, technicians, and other healthcare providers pool their resources to help promote patient welfare. As an example, suppose a hospital has an MRI scanner and a technician to operate the scanner, but no doctor to interpret the results. With a health grid, the technician could send the results of the scan to a doctor in another hospital who would interpret them, and the doctor would then send his findings back to the technician. In the Akogrimo project, a health grid is geared towards mobility. The grid would function by consistently monitoring a patient’s health by examining the readings from devices that are bound to the patient – for instance, it would monitor the heart and when the readings on these devices deviate too much from the norm, then an emergency operator is automatically notified, who then dispatches an ambulance and

\(^1\) http://setiathome.ssl.berkeley.edu/
\(^2\) http://folding.stanford.edu/
\(^3\) Loos, C. E-Health with Mobile Grids: The Akogrimo Heart Monitoring and Emergency Scenario.
instructs the patient what to do. The beauty of a system like this is that the readings can be sent through the patient’s cell phone, so the area where a patient can benefit from being monitored is quite vast. The grid becomes very helpful because as the patient is transferred into the ambulance and then to the hospital, at each point the people giving the patient medical treatment would have access to his or her medical records.  

In recent years, technological advancements have been made such that health grids are now technically feasible. While many European countries have taken this in stride and are working to make health grids a reality (Akogrimo is a European project), healthcare providers in the United States do not seem as committed toward such a goal. For instance, a government-sponsored survey revealed that less over eighty percent of doctors lack electronic health records, particularly in smaller practices. Only 4% had a “fully functional” system in place (defined as allowing the doctor to view laboratory data, order prescriptions, and assist in clinical decision making). However, an overwhelming majority (over 80%) of the doctors that have digitized their records said that electronic health records improved the quality of the care that they delivered. Some of the reasons cited by doctors for the reluctance to adopt such systems include the potential for huge privacy breaches and the large capital investment, whose burden must be assumed by the doctor.  

Clearly, there are hurdles to be overcome in the United States in implementing a health grid system, for if most doctors aren’t willing to keep data electronically within their own practices, it is unreasonable to assume that they would be amenable to a system that would share confidential information with people that they’ve never met. The same holds true for patients. For doctors, the sharing of information creates potential liability issues, while for patients significant privacy issues arise.

2 Healthcare Provider Concerns

For healthcare providers, one of the major liabilities they face is medical malpractice. Not only is it very costly, but it can also be very damaging to one’s reputation. A study from the Government Accountability Office found that paying awards in medical malpractice lawsuits were the greatest contributing factor to long-term rate

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increases for insurers. As part of a health grid, a healthcare provider’s actions are 
under the scrutiny of more doctors, which will likely result in more malpractice 
lawsuits, in turn leading to increased costs for the healthcare provider. With this in 
mind, there is relatively little incentive for a healthcare provider to voluntarily join a 
grid, despite the fact that the quality of the care provided would undoubtedly be 
Improved. The reason that providers are in no rush to improve is because providers 
(especially large hospitals) already have plenty of patients – oftentimes, more patients 
than they can handle. In essence, this is a sellers’ market. Because of this, 
competition is significantly reduced. Besides, in many cases patients do not spend the 
time to “shop around” for hospitals – when someone has been in a car accident, the 
victim does not ask the ambulance driver, “excuse me, would you mind waiting until I 
search the Internet to find the hospital with the best reviews?”

However, it is important to note that just because competition is significantly 
reduced, it does not mean that a hospital can completely disregard its quality of 
service. If a hospital’s record is abysmal, then it is likely that the dispatcher would 
direct the ambulance to a different hospital, and that the government would investigate 
the poorly performing hospital, perhaps shutting it down. In addition, with regards to 
elective procedures (such as cosmetic surgery) a hospital’s standing becomes very 
important, as the patients have time to shop around. However, in those situations the 
health grid isn’t as helpful since the patient would have time to provide everyone with 
the necessary records. The grid’s biggest impact would be seen with non-elective 
situations (for instance, a car accident) where the patient’s records need to be shared 
quickly in order to provide the most benefit to the patient.

So what can be done to encourage healthcare providers to become part of a 
health grid? The answer would seem to lie in legislation, since the free market in this 
case provides no encouragement to join a grid. However, the healthcare industry is 
large and powerful, and any legislation that would weaken them would be sure to face 
stiff opposition and heavy lobbying. One instance where the healthcare industry 
flexed its muscle was in the early 1990s when Hillary Clinton proposed her healthcare 
reform. Her proposal was soundly defeated, thanks in no small part to the healthcare 
industry. Therefore, it is clear that whatever legislation is proposed to encourage or 
compel the healthcare industry to pool its data in a grid system should be amenable to 
the industry in order to ensure the passage of the proposed legislation. Therefore, it 
ought to include some provisions that would reduce the liability that healthcare 
providers are exposed to. With regards to medical malpractice, a possibility includes

10 http://www.hospitalovercrowding.com/
adding provisions to legislation that would cap awards to victims of malpractice, particularly “pain and suffering” awards. Also, legislation should include a provision that would not hold the healthcare provider that submitted patient information liable if that information’s security was compromised, provided of course that no one affiliated with that particular provider was involved with the compromising. In other words, if unauthorized personnel view private data, then those personnel ought to be the ones held accountable, as opposed the healthcare provider that provided the information to the grid in the first place. Finally, any legislation proposed ought not to force healthcare providers onto a grid – rather, it should offer many benefits and incentives for participating in the grid.

Also, it is important to note that there is significant opportunity for healthcare providers when a healthcare grid is formed. If there is a significant emphasis on mobility (as in the Akogrimo project) then healthcare providers have a chance to vastly expand their businesses. For instance, cell phone service providers could partner with healthcare providers to offer 24-hour health monitoring, with the patient simply needing to wear some unobtrusive monitoring devices which would transmit data via the patient’s cell phone and contact the local 911 service if there was too much of a deviation. The patient could then be billed a certain amount of money each month on his cell phone bill. With the growing focus on the health industry, a 24-hour health monitoring system would be sure to appeal with many consumers, and has the potential to be a great addition to the healthcare industry.

**Healthcare Insurer Concerns** These closely parallel the concerns of healthcare providers – a grid can bring vastly increased medical malpractice costs and other hassles that could cause costs to skyrocket. Nevertheless, the healthcare insurance industry must not fail to recognize the huge potential for profit in this situation. The patient could choose to add 24-hour health monitoring to his health insurance plan, and be billed a flat fee each month – and if the patient is taken to the hospital because of the monitoring devices, then the health insurance provider and the patient would each cover a portion of the cost, presumably with the patient paying a percentage of the cost or making a copayment, depending on the nature of the plan and the nature of the services rendered to the patient (i.e. a false alarm versus an extended hospitalization).

**3 Patient Concerns**

Patients also face a variety of issues that need to be addressed before a health grid is feasible in the United States. Like the concerns of healthcare providers, the concerns patients are probably best dealt with via legislation.
One of the main concerns that patients would face in a health grid is the privacy of their information. This issue can be split into two components – privacy during transmission of the data, and privacy upon arrival of the data.

With regards to privacy during transmission, the primary concern would be to make sure that the data gets from the patient’s primary healthcare provider (or whatever piece of hardware on the grid that’s storing the information – which could be a device on the patient herself) to the intended target, presumably the healthcare provider that’s immediately treating the patient. In this case, security procedures that are already in place for other private data (such as financial data) can easily be extended to transmission of patient data.

However, a more difficult situation arises once the patient’s data has arrived. Who should have access to what levels of information? How does the patient even give approval to the healthcare providers to access her data? Furthermore, how does one ensure that healthcare providers are accessing data in relation to legitimate work concerns, and not in pursuit of satisfying personal curiosity? First of all, it would be impossible in many cases to immediately get the patient’s approval to retrieve her data (since the patient is unconscious or is otherwise unable to give consent). In these cases, the patient should be informed once she regains the capacity to give consent that her information was accessed and was used to provide medical care, and the patient would sign some document to that effect. If the patient refused to sign the document acknowledging that her information was accessed, then a recording could take place to indicate that the patient was aware that a healthcare provider informed her that her information was accessed. In this way, healthcare institutions would have a record of the patients whose information was accessed. Ideally, this record would also include which healthcare providers accessed which patient’s data. With such a system in place, the government could audit healthcare institutions to make sure that the access logs of each healthcare provider match up with the records the institution has (if there is a mismatch, it is obviously an indicator of potential foul play). Another possibility is that people who sign up for the grid would sign a waiver that would allow emergency services and hospital personnel to access the patient’s information as necessary, and later present the patient with a record of what information was accessed (i.e. complete health records, or only certain aspects of the patient’s health record). Again, this is to ensure that people whose role is peripheral to the patient’s care and only need limited information do not gain access to someone’s complete health record when it is not needed.

With regards to what sort of access to patient information different healthcare providers should have, the answer is not as simple as one might hope. The human body is very interconnected despite the fact that we like to stratify it into different organ systems. Any drugs, any treatments used have repercussions throughout the entire body, which makes it difficult to classify particular aspects of a patient’s health
record as being limited to a certain area or system of a patient’s body. For instance, aspirin is used as a pain killer – however, it also helps prevent heart attacks.\(^{12}\) Perhaps decisions like these are best left to the head of a healthcare institute (who would be given full access to the patient’s records) who can decide who needs to know what pieces of information and would keep a record of who has access to what information. In the event of malpractice, medical experts can look at the level of information that the provider was given, and then decide whether the provider had enough information to make an informed decision, but was negligent (in which case the provider would be at fault) or if the provider was not provided with enough information (in which case the provider would be innocent, and the head of the institution would be at fault for not providing the appropriate information). In addition, patients should have the right to withhold certain aspects of their health record from being shared on the grid (or their entire health record if they so choose), unless withholding certain aspects would be detrimental to the public welfare – for instance, if the patient had a highly contagious disease. However, if the patient wishes to file a malpractice suit, he or she must make the previously withheld aspects of his or her record available so that it can be determined whether the malpractice was due to negligence or lack of information.

However, it is important for patients to keep in mind the potentially huge benefits of a health grid – it would allow anyone who treats the patient to have the full picture, instead of simply what the patient tells them – or if the patient is unconscious, what the emergency medical technicians observed from the patient’s original location to the hospital. The benefits that this hugely improved source of information provides ought to be obvious. If the Akogrimo project is followed, all a patient would need to do is simply press a button and a medical technician could tell the patient whether his chest pain is nothing to be worried about, or if it is actually a heart attack. If more complete monitoring is implemented, then the patient doesn’t even have to press a button. For instance, if a patient is somehow handicapped (either mentally or physically) and would not know to call 911 in an emergency, a health grid would provide a huge benefit for such a patient. Not only would emergency medical technicians know what problems the patient is currently experiencing, but they would be forewarned about the patient’s past medical record. If the Akogrimo project is followed, then the real-time medical data would be sent through the cell phone, and the call dispatcher could talk to the patient and give him instructions.\(^{13}\) With GPS technology, the dispatcher would not even have to ask the patient for his location, which would be extremely helpful for people who are afflicted with Alzheimer’s. Such a monitoring system could be extremely helpful to institutions that take care of patients who cannot take care of themselves. This system would allow medical personnel to quickly and easily see each patient’s medical data from wherever she is.

\(^{12}\) http://www.bmj.com/cgi/content/full/313/7070/1429

\(^{13}\) Loos, C. E-Health with Mobile Grids: The Akogrimo Heart Monitoring and Emergency Scenario.
which alleviates the need to walk to physically go from patient to patient, and the patient’s concerns are more quickly responded to. However, some small adjustments would be needed to adapt a health grid to such an institution. For instance, strong deviations from the norm may not require emergency medical services. Instead, a deviation would alert the medical personnel that the patient required immediate attention, and the issue may be something as relatively simple as the patient not having taken his medicine. However, this should be used for only certain deviations from the norm. For instance, if it is clear that the patient is having a heart attack, then emergency services almost certainly need to be called (unless the patient is already in a hospital – in which case the medical personnel would be notified, “patient Bob is having a heart attack”).

4 Conclusion

In conclusion, there are serious concerns that need to be dealt with before healthcare providers and patients embrace a health grid system. In particular, healthcare providers need more incentive to adopt a health grid system, because the current system in place gives them no incentive to do so. In addition, they need protection from liabilities that can be introduced by the health grid, particularly increased malpractice lawsuit costs. Also, healthcare providers need to implement a record system to ensure that no unauthorized access to patient data is taking place, and that all patient data being accessed is for strictly medical purposes only. Patients need their data to be secure on the grid – both doing transmission and on arrival, and the freedom to choose what data goes on the grid, and what doesn’t. In addition, both groups need to have the choice to be completely off the grid if they so choose. However, both groups must also recognize the huge benefits offered by a health grid.

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