## Importance of Redundancy and Disaster Recovery in Radiology

A trip of mine to Paris two years ago was bizarrely disrupted by the river Seine flooding its banks. This week once again the Seine is threatening to flood and the mayor of Paris is quoted as saying that this is "clearly a question of the town adapting to climate change".

Along with other recent events, including hurricanes Harvey and Irma wreaking havoc on the US coastlines of Texas and Florida respectively, it seems as though we are, tragically, well into the climate change era wherein after a point we can only strap ourselves into our shelters and helplessly ride out the storm, or evacuate. Or else we can attempt to tackle the problem head on.

From a healthcare IT perspective, some practical soul-searching becomes necessary to prevent largescale disruption of critical healthcare services. Essentially, the importance of redundancy and disaster recovery takes on huge significance at times such as these.

For one, having workforce redundancies such as in a global teleradiology practice is of significant value in such scenarios. For example, one of our radiologists based in the region was understandably unable to cover his scheduled working hours during the peak of the hurricane (fortunately he was safe). However, we were able to harness as backup our radiologists based in other parts of the world such as Israel, India and the midwestern United States. Our client hospitals did not therefore experience any significant impact in terms of timeliness of interpretation. Offsite diagnostic/teleradiologic support is of particular value in such conditions where onsite staff may have trouble physically reaching their workplace. Conflict situations represent another such example.

Some years ago, when there was armed conflict in Georgia (part of the former Soviet Union), we were contacted by the head of an imaging center with a request to report his scans as his radiologist was no longer available to report them. In this regard, the greater the distance between the site of origin of the images and the reporting site, the greater value is provided.

A second implication is that of maintaining redundancy in terms of data archival, to ensure that in case of damage to infrastructure, critical patient data is not corrupted or lost altogether. Today, cloud-based archives ensure that the outage of a single location is compensated for by colocation of data across a network of datacenters that together constitute the internet cloud.

Finally, the significance of teleradiologic support at the time of such natural calamities lies in its ability to provide reporting in ultra-low turnaround times, which is likely to be of even greater need at a time when casualties such as trauma typically increase in volume, given the prevailing critical condition/situation. Both critical care and emergency services are typically overutilised in crisis situations and the need for medical imaging proportionately rises at such times. Having the teleradiologist available to report these cases in real time can provide a security blanket and a much-needed support.

It is critical for us today to individually introspect and take whatever personal measures we can to halt climate change, be it shunning the use of plastic bags, driving an electric car, or rain water harvesting and using solar energy in our homes. However, at an organisational level, it also behooves us to re-examine our IT infrastructure and ensure that we have the redundancies in terms of workflow systems and offsite manpower resources in place to deal with such situations as they arise.

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OPINION