

# Exsys Case Study

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## High Mountain Syndrome Diagnostics

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With unique geographic features, mountain climbing is a popular outdoor activity in Taiwan. Travellers visiting mountainous areas are susceptible to medical problems attributed to high altitude. Many cases of High Mountain Syndrome occur, with several fatalities every year. The human body can adjust to changes in altitude (known as acclimatization) with time, but requirements are different for each individual and trip. If the ascent is too rapid and your body cannot adjust adequately, high altitude syndrome will occur. The syndrome can present a broad spectrum of symptoms, ranging from mild headache to Acute Mountain Sickness (AMS), to the more severe High Altitude Cerebral Oedema (HACE) and High Altitude Pulmonary Oedema (HAPE). If the treatment is not received promptly when symptoms appear, death can result.



Studies of the problem determined that receiving timely diagnosis and management was critical to effectively treating High Mountain Syndrome. Generally however, it is not easy for mountain climbers to manage this condition without an expert on site. In 2005, wireless Internet service was provided in Yushan National Park (YSNP), the highest national park in Northeast Asia. A project was initiated to build an emergent HMS consulting system based on wireless service access.

Exsys Corvid's<sup>®</sup> Knowledge Automation software with its Inference Engine provided analysis and the web-enabled interface, which was implemented on a web server and could then be retrieved via YSNP's wireless service using portable devices. Expert field knowledge on HMS was obtained and converted into the decision-support logic of Corvid's "If-Then" rules to build the knowledge base. Other diagnostic knowledge from the New England Journal of Medicine (NEJM) was also incorporated into the system.

It asks the situation-specific questions and then provides treatment and reference suggestions. Alpine club members also validated the system for accuracy. Now, when there is a suspicion that HMS has occurred, climbers can access the system for help anytime via YSNP's wireless service - saving time and lives.

