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Putting you **in control**

REDUCING THE BURDEN OF HEALTHCARE ASSOCIATED INFECTIONS (HAIs)

FOR CAREGIVERS AND PATIENTS

HOW A GLOBAL VIEW OF DATA AND BETTER COMMUNICATIONS CAN STEM THE TIDE OF INFECTIONS

According to studies published[1,2] each year, hundreds of millions of people around the world will be afflicted by a healthcare-associated infection (HAI) and millions die as a result. Although surveillance software to detect infection exists in developed countries, the global burden remains unknown due to the difficulty in gathering reliable data in developing countries. From some nations, there are no data at all. Despite these limitations, many studies report higher rates of HAIs in the developing world.

Healthcare associated infections are and should be preventable, however, in practice, this is unfortunately not always the case. Preventable vs unpreventable HAIs can be related to risk factors which are associated with obtaining an HAI that are present regardless of resources available. These include:

1. Prolonged and inappropriate use of invasive devices and antibiotics
2. High-risk and sophisticated procedures
3. Immuno-suppression and other severe underlying patient conditions
4. Insufficient application of standard isolation precautions
5. Human nature – failure to adhere to Infection Control standards

For infection preventionists worldwide, the day-to-day understanding of all elements contributing to, and management of HAIs are as important as their efforts to reduce the infection burden within their facility. These practitioners must examine everything from risk factors relating to a susceptible host to the agents of infection; reservoirs that might be carrying organisms; how organisms emerge into the environment; and how they are able to be transmitted to patients. Often, each of these steps involves interacting with disparate systems and personnel, using differing nomenclature and data points that aren't connected.

> From a corporate responsibility perspective, ICNet has assisted Mediclinic in positioning the group as a pioneer in active infection prevention and control surveillance.

THE MEDICLINIC STORY

MEDICLINIC SOUTHERN AFRICA IS A PRIVATE HOSPITAL GROUP FOCUSED ON MANAGING AND REDUCING ITS BURDEN OF HAIS. IT CONDUCTED A RIGOROUS REVIEW OF AVAILABLE SOFTWARE APPLICATIONS, IN LINE WITH ITS CLINICAL GOVERNANCE PROTOCOLS. THE STUDY COMPRISED ALL 52 OF ITS HOSPITALS AND A SYSTEM ADMINISTRATOR FOR A SINGLE INSTALLATION COVERING 150 USERS OVER THE GEOGRAPHICAL AREA OF SOUTH AFRICA AND NAMIBIA.

INFECTION PREVENTION AND CONTROL SURVEILLANCE SOFTWARE SYSTEM – **A FIRST IN AFRICA**

BRIËTTE DU TOIT, INFECTION PREVENTION AND CONTROL SPECIALIST: MEDICLINIC
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Implementing the system was not without its challenges. The software was originally developed to report on healthcare-associated infections in one hospital, with one administrator, an infection control team and one laboratory. Mediclinic required an application that could be utilised in all 52 hospitals using one administrator. Furthermore, Mediclinic utilises the services of multiple pathology groups, with some hospitals using up to three different laboratories.

ICNet adapted the application for the South African market, which linked all 52 hospitals into the network. One central administrator monitors the system and collates and interprets the data for the group with the assistance of a statistical analyst. Each hospital is responsible for managing its own application and interpreting the data.

All the participating pathology groups were committed to the project and assisted Mediclinic in standardising reporting. The number of pathology groups that needs to feed into the system made it difficult to map organism codes, doctor codes and nursing units. In addition different pathology groups use different interfaces, which further complicated implementation. Once the pathology groups were on board, additional adaptations were made to incorporate the various disease profiles from the rest of the world; therefore virology results were included in the software, as well as clinical tests such as the PCR (polymerase chain reaction). This allows Mediclinic to report on the full extent of communicable diseases, such as measles and influenza, and on notifiable conditions such as malaria.

Standardisation creates consistent, uniform reporting, which has made a meaningful contribution to time management and ensuring that reports are readily available. In addition, specific periods can be selected according to the user's requirements and reports generated accordingly. Line listing reports have proven invaluable during outbreaks of communicable diseases, as a report can be instantly created and used to notify the Department of Health.

Another important feature is the preset Alert notification. Certain high-risk organisms, as identified by the individual facility, can be preselected. Whenever one of these organisms is cultured, a warning is triggered. This enables the infection prevention and control practitioner to identify the patient immediately and ensure that the appropriate isolation measures are instituted. Another feature is the organism and resistance profiles that are available by nursing unit and by hospital. This allows the nursing units to determine their most prevalent organisms.

In addition, a susceptibility report permits the infection prevention and control practitioners to utilise the information when implementing antibiotic stewardship programmes.

According to literature, there is usually an increase in the healthcare-associated infection rates when introducing an electronic monitoring system. This was Mediclinic's experience as the rollout progressed. The increase is attributable to the improved surveillance and notification of infections; however it must be noted that the competence of the user also plays a role and computer literacy needs to be taken into account.

Therefore training users is a critical element in the process, and it was clear that one training session was not sufficient. The initial training session was followed up with two additional sessions.

Since the inception of ICNet, Mediclinic has also committed to the Best Care... Always! initiative which has further positively impacted on the outcome of healthcare-associated infections. Specifically those related to VAP (ventilator-associated pneumonia), SSI (surgical site infections), CAUTI (catheter-associated urinary tract infections) and CLABSI (central line-associated bloodstream infections).

From a corporate responsibility perspective, ICNet has assisted Mediclinic in positioning the group as a pioneer in active infection prevention and control surveillance through its ability to:

- Benchmark its facilities
- Monitor organism and resistance profiles in hospitals individually, regionally and on a national level
- Identify potential infection control threats to the wellbeing of patients and personnel through Alert notification
- Identify outbreaks early
- Monitor the effectiveness of infection prevention and control programmes
- Support the initiation of antibiotic stewardship programmes

"The **Best Care…Always!** (BCA) campaign is an initiative supporting South(ern) African healthcare organisations as they implement specific, internationally recognised, evidence-based interventions that enhance patient safety and constitute current best practice in hospital care."

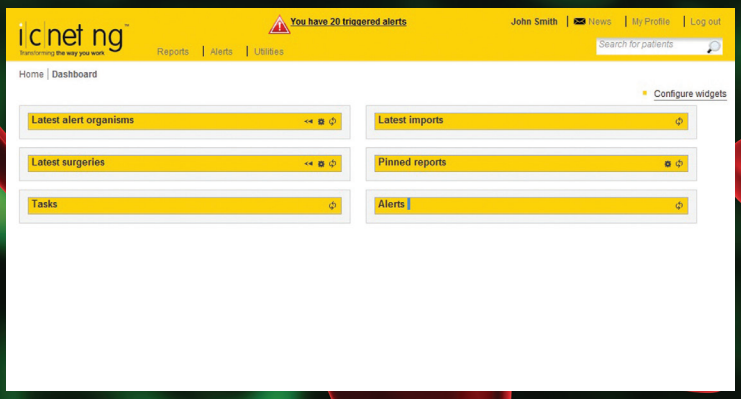
ICNET INFECTION CASE MANAGEMENT

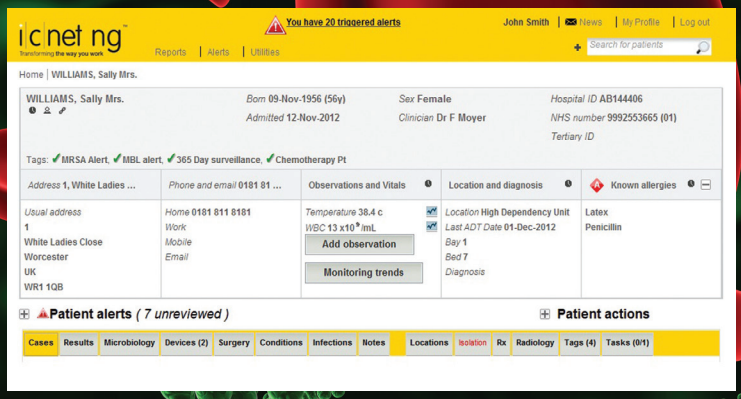
Infections related to medical care can be devastating and even deadly. The ability to prevent and manage HAIs is growing, but is counterbalanced by a growing tolerance to medications used to manage and treat these infections and rapid evolution of mutil-drug resistant organisms, particularly in the gram-negative class.

The ability to access the full picture of the infection during the period in which patients need to be monitored is important for both healthcare workers and patients alike. Through the inclusion of patient notes, radiology notes, specific nursing care actions and current medications, the ICNet™ Clinical Care Suite meets this challenge by providing a holistic patient view.

Some of the benefits of the software include:

- All information relating to an infected patient is **centralized**, thereby simplifying the process and saving the time of having to search on multiple systems
- The ability to uncover **multiple contributing factors** to an infection rather than isolating a simple organism
- Information such as notes and conditions can be **shared**
- Patients are **automatically tracked** as they journey through the institution
- The software can be completely **customized** to the facility and individual needs
- It **tags patients** (HIV, chemotherapy patient, surgery) to provide teams with focus
- The **unique record** can become a permanent document, replete with a unique identification number for a patient, enabling all relevant information to be kept together
- This record can show patient visits as **separate treatment periods**
- The system can be **fully configured** or adapted to suit a country's needs
- **Device-related infections** can be easily monitored, alerted to and reported on, including catheter-related urinary tract infections, central-line assisted bloodstream infections and ventilator-assisted pneumonia
- **Surgical site infections** can be monitored, trends reported on, and post discharge alerts are available
- **Vital signs** are captured, giving a full rounded view of an infection and the ability to capture early warning signs from the patient





How will this help the organization?

- Leaders can view how users are managing with their caseload per hospital, per unit
- The software helps with targeting limited resources to the most effective use by alerting to the highest risk issues and analyzing multiple data feeds
- Regardless of location, triggered alerts are delivered remotely
- Absence of staff does not stop the system from monitoring infections within the facility/system
- Disparate teams are unified
- Communication is improved
- Facilities enhance holistic patient care
- All positions within the healthcare organization, whether they are non-clinical or clinical, can use the software to their advantage
- More than 40% of time is saved through having access to all the information, thereby allowing infection preventionists the availability to carry out a variety of other duties[3]
- Healthcare workers are able to understand all elements of the patient's history surrounding the infection, the reasons for discharge and readmission, and why the patient was readmitted
- You have evidence showing whether the patient was part of an outbreak, or indeed, started the outbreak
- The system can be used as a training medium to teach new IPCs about infection prevention and control
- There is low maintenance and help desk use for the size of installation
- Policy decisions are supported by evidence provided
- For unskilled IT staff, the system is quick and easy to use.

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Putting you **in control**

1. WHO – Global Patient Safety Challenge
2. The Centres for Disease and Control
3. Data on file

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