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Abstracts of Papers

CAN WE ADD VALUE TO THE FULL BLOOD COUNT REPORT?

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Full Blood count (FBC) or Complete Blood Count (CBC) is the commonest and perhaps the most important test done in any haematology laboratory in an acute care hospital. The current sophisticated automated haematology analyzers can provide a lot of information including haemogram, histograms and Scattergrams and each laboratory has its decision rule to review and report the peripheral blood films (PBF). Even though all the above information are available to the laboratory staff, the laboratory will provide the clinicians mainly the haemogram results along with any comments based on the findings in the PBF. Most of the time this information is adequate for the clinicians for the optimal care of the patients and the laboratory scientists need not waste his or her valuable time in giving any additional information which may not add value to the report. However, there is a definite place for the laboratory scientists to make use of their critical time to integrate the findings from the histogram, scattergram and the PBF to give meaningful interpretation to the clinician and this information can help to direct the clinician to appropriate further investigations and at the same time minimize unnecessary investigations. Sometimes the additional information provided may also help in the immediate management of the patients. This way the laboratory scientists can add value to the FBC report and more importantly can feel proud that they are playing an important role in the optimal care of the patient, since the ultimate objective of all the hospital staff is the quality patient care and improving the patient safety. When a haemogram report gives a high white cell count, the clinician is interested in knowing whether it is a reactive picture or is it due to a malignant process and if it is a malignant process, what type of malignant process is the most likely one. A trained laboratory scientist could use all the information available with him and be able to help the clinician. When increased blast count is reported, the clinician is anxious to know whether it an acute leukaemia and if so, whether the laboratory could tell him, on the nature of the blasts as to whether they are lymphoblasts or myeloblasts or promyelocytes. There are many other examples, where the laboratory scientist could add value to the FBC report and thus gain the confidence and respect of his clinical colleagues and also can feel proud about his contributions towards quality patient care.

MOLECULAR GENETIC SCREENING - NEW INSIGHT OF MEDICAL LABORATORIES IN HONG KONG

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Nowadays, the molecular pathological screening of human diseases has brought the raising importance in addition to conventional clinical diagnosis, which provides a more accurate detection and therapeutic strategy to the affected patients. Examples of the well-known applications are the identification of the gene responsible for cystic fibrosis in western population and the screening of the causative genes for thalassemia in local population. The advanced knowledge successfully improves the prevention of the disease by accurately predicting the high risk individuals from the normal, which can no doubt significantly enhance the strategies in various human diseases screening. Such diagnostic techniques have been widely adopted in the area of cancer screening programs, in which colorectal cancer is the most representative model. The incidence of colorectal cancer is always ranked as one of the three most frequently occurred cancers in Hong Kong. However, treatment could be very diverse due to the heterogeneous origin. Molecular characterization can therefore serve as the most supreme and effective way to sub-classify them into different groups according to different culprit genes, which helps identifying more specific therapy for different patients. Similarly, such molecular diagnostic techniques can also be applied in the other cancers as in breast cancer, or other areas like HLA typing for transplantation. In short, the introduction of molecular technology approach to the conventional medical laboratories will definitely improve the quality and efficacy of clinical diagnosis and therapy.

MANAGING INFORMATION IN TODAY'S LABORATORIES

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Information management is the collection of information from one or more sources, the management and dissemination of this information that evolves into a collective information solution that is worth more than the sum of all its parts.

Information management for laboratories is targeted to improve the laboratory's performance, results consistency and accuracy, governance, management and support process. Depending on location around the globe, laboratories are facing different pressures in different markets. Laboratories in the US are facing increased labor shortage and rising labor costs. Laboratories in Asia are being squeezed to provide better services, standardization through accreditations, reduced budgets and in some parts of Asia, reduced laboratory floor space. In order to bring these costs down and efficiencies up, laboratories have four options to help streamline and automate their laboratories. Apply LEAN and Six Sigma principles to streamline laboratory workflow, introduce informatics automation, consolidate and integrate their instruments, and/or purchase automated track systems. Laboratories have to be able to balance the benefits and costs of these options in order to be competitive and keep up with today's soaring demands.

In today's slick world of information technology (IT), Hospital Information Systems (HIS) and Laboratory Information Systems (LIS) have served as the backbone to large hospital networks enabling them to manage the large quantities of information and perform routine billing and reporting functionalities. While these systems help hospitals with both management of hospital and laboratory information as well as the logistics and support aspect, there are also other options that can help laboratories become even more effective and efficient in their processes. In order to enable laboratory processes become more effective and efficient, one has to be able to reduce laborious and unnecessary tasks and streamline processes to consistently produce accurate results in a shorter amount of time. Such tasks are best achieved through the use of computers and information technology where it's sheer processing powers can process large quantities of data at breakneck speeds. Middleware has been used collaboratively and successfully with HISs and LISs around the world to automate mundane tasks such as verification, re-runs, reflexes etc. that today's laboratory operators face.

How can IT automate these tasks? Middleware should consist of 4 main components that ensure a laboratory can be effectively automated. They are: providing multiple connectivity options, expert software with decision support capabilities, data management features and access and reliability options. With the growing array of patient information and diagnostic results along with the sea of biomedical literature published annually, health professionals must combine their factual, conceptual and procedural knowledge in order to accurately diagnose and treat patients. Expert software with decision support capabilities is one way that laboratories can cope with the large expanse of information. Expert software with rule-based auto-verifications will help laboratories cut down on time spent reviewing results and spending more of their time on critical results that are out of range. Such possibilities are unbounded and the ability to effectively use IT in laboratories today will help differentiate the next generation of laboratory leaders.

ROLE OF CLINICAL MICROBIOLOGY LABORATORY IN HOSPITAL INFECTION CONTROL

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Clinical microbiology laboratories are usually located in hospitals, public or private. Ideally, these should be staffed by clinical microbiologists who are clinically trained medical doctors. While infection control should be maintained as an integrated part of clinical microbiology, the responsibilities of clinical microbiology unit cover many different critical aspects of hospital infection control. These usually include detection of outbreaks of hospital- acquired infections, screening for multi-resistant organisms, advice to clinicians about disinfection, sterilization and isolation procedures, and the rational use of antibiotics. Clinical microbiologists work closely with infection control nurses whom together form the infection control team, which is the executive arm of the local/ hospital infection control committee. The infection control team is also the main body responsible for the development of guidelines, which are approved by infection control committee. The local microbiology laboratories work closely with Department of Health and other reference laboratories. Many present infection control structures and practices were established more than 20 years ago, and helped to solve most basic problems related to infection control, and compliance by clinicians has been fairly good. However, the present organization will not meet future requirements for standardization and documentation of quality. There is an urgent need of standard for infection control that defines requirements for the management system as well as for specific areas of infection control. With rising expectations of patients, this adoption of standards will undoubtedly require additional resources for infection control at a local level, and some organizational changes may also be needed.