History of Critical Care in the World

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Close observation of critically ill persons dates back to ancient time, but monitoring physiologic functions and instituting appropriate therapy based on physiologic derangement are recent phenomenons.

Roots of intensive care

- Owes its roots to the support of failing ventilation.
- Of great importance for the establishment of respiratory intensive care, was the development of positive pressure ventilation.
- In 1543 Vesalius published his classical work ‘‘De Humani Corporis Fabrica’’ and described an experiment in which an animal was kept alive by rhythmic insufflations of air into the trachea using bellows.
  - This is the first known application of intermittent positive pressure ventilation (**IPPV**) under controlled conditions

Roots of intensive care

- Matas (1902) was the first to describe an automatic respiratory apparatus.
- In the beginning he used a double pump giving intermittent positive-negative pressure ventilation (IPNPV), but later abandoned suction during expiration as unnecessary.

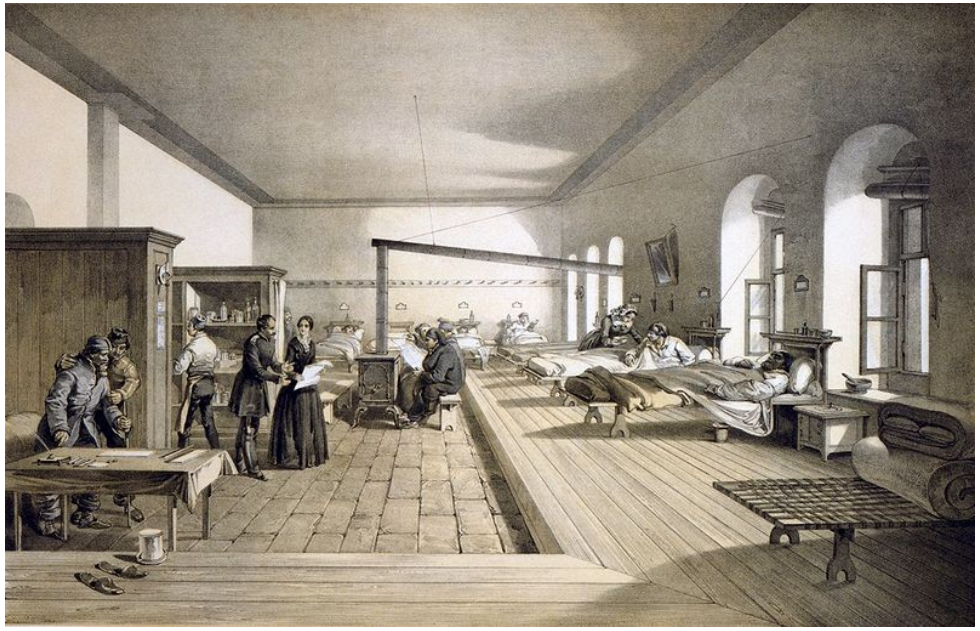
Intensive care as a unit

- Traditionally, British nurse Florence Nightingale is considered to be the first to have used an intensive care unit (ICU).

Intensive care as a unit

1854-1856: During the Crimean War Florence Nightingale pioneered a concept of separating injured soldiers depending on the severity of their illness

Intensive care as a unit

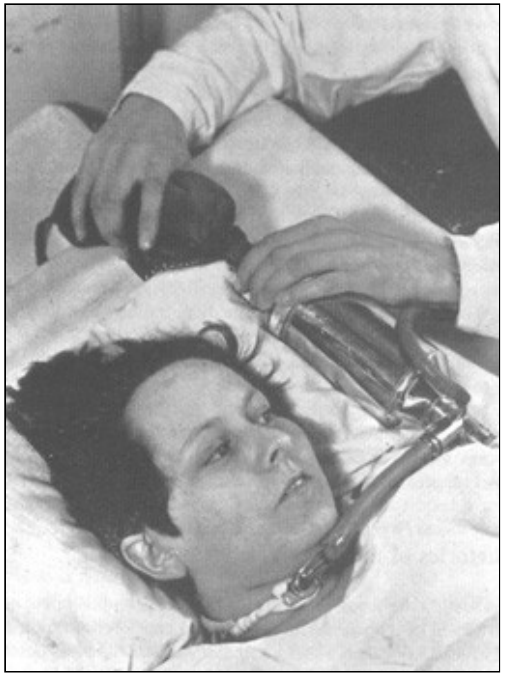


•1854 to 1856 she collected the sickest and worst injured soldiers in **an area close to her nursing station** where she could **maintain a constant eye on** their condition and **monitored more often** by more nursing to **provide quick help** when most needed.

Intensive care as a unit

- In 1952 Bjorn Ibsen, a Danish anaesthetist was involved in a Polio epidemic of 2722 cases in 6 months
- Supply of the traditional iron lung ventilators

Intensive care as a unit



- Ibsen used positive pressure ventilation after intubating patients and enlisting a rota of 200 medical students to **manually ventilate** them
- Mortality fell from 90% to 25%
- Patients were nursed in 3 specialist areas of 35 beds
- Ibsen is considered by many as **one of the founding fathers of Intensive Care**

From General ICUs to Speciality Critical Care medicine units

- Initially, although most general ICUs admitted medical and surgical patients of all kinds, they tended to favor certain types of patients based on the nature of the hospital patient mix and specialization of the ICU medical teams.

From General ICUs to Speciality Critical Care medicine units

- Notably absent from this initial progress was the presence of pediatric ICUs. Pediatric intensive care became relevant in pediatric departments and major hospitals for sick children; and then separately for neonatal support.

From General ICUs to Speciality Critical Care medicine units

- Initially, these units were frequently directed by anesthesiologists, but increasingly specialty surgeons and internists became involved in the management of these patients.
- The intensive care patient was one who needed **support for all the functions** a fit person takes for granted.

Critical care as a specialty

- The specialty of critical care was born in the polio epidemic of the 1950s.
- Simple ventilators or hand ventilation enabled the survival of some patients if respiratory function could be maintained.

Critical care as a specialty

The evolution of intensive care as a specialty brought its own problems.

- Medical specialties are traditionally divided by borders that may be based on:
  - age (pediatrics, geriatrics);
  - technique (anesthesiology, radiology);
  - organ system (cardiology, neurology);
  - disease (on-cology).

  Indeed, these specialties have become more and more finely focused with divisions into subgroups.

Critical care as a specialty

- Intensive care and emergency medicine took a different approach.
- Intensive care crossed the traditional specialty borders by basing patient selection on acutely challenging the traditional concept of responsibility for patients.

Critical care as a specialty

- Critical care is defined as the care of seriously ill patients **from point of** injury or illness until **discharge from** intensive care.

TRIAGE, RESCUE, AND TRANSPORT

"If only we had got him sooner."

Critical care as a specialty

- Joint protocols between the intensive care unit and the emergency department are necessary to maintain clinical protocols and techniques.
- Two recurrent problems are
  - late referral from the emergency department to the intensive care unit
  - lack of availability of beds in the ICU that leaves patients stranded in the emergency department.

In medicine, a specialty has the following characteristics.

It is a group of doctors with an interest in a particular patient group

- who regulate the intake into that group and provide education, training, and clinical standards
- Award certificates of qualification
- Are recognized by other specialties as having the major expertise in the area of which the specialty has ownership
- Have a share of the medical undergraduate curriculum
- Have their own journals
- Deal with governmental and professional bodies with respect to matters pertaining to the specialty

Critical care in Europe

The concept of the modern intensive care unit in Europe was born as long ago as 1854, when Florence Nightingale realized the importance of keeping those patients needing particular attention together in one place for special nursing.

Critical care in Europe

- in 1952, an unusually severe poliomyelitis epidemic struck Copenhagen, Denmark, involving hundreds of paralyzed patients with respiratory difficulties.
- A new therapeutic approach using early tracheostomy, manual ventilation

Critical care in Europe

- From this successful experience developments of great importance emerged: construction of mechanical ventilators, humidifiers, monitoring equipment, and equipment for blood gas measurement.
- The year 1952 can therefore be considered to be the birth date of intensive care medicine in Europe.

Critical care in JAPAN

- In the 1960s and 1970s, intensive care units (ICU) and emergency departments were established at various institutions in Japan, most of these being in university hospitals.
- The earliest included the general ICU in Tohoku University Hospital in 1966, postcardiac surgical ICU (1965)

Critical care in EAST ASIA

- Most countries in the region, including Indonesia (1979), Hong Kong (1983), Thailand (1985), Taiwan (1985), Philippines (1993), and Singapore (1995), have a separate multidisciplinary organization for intensive or critical care medicine.

Critical care in EAST ASIA

- The national organizations in the countries of East Asia are faced with the same challenges many Western countries have faced over the last 30 years with respect to the development of critical care.
- Developing a new specialty, which crosses the boundaries of pre-existing primary specialties, requires a special sort of determination and diplomatic skills.

Critical care in EAST ASIA

- Developing countries have even greater problems than developed countries in justifying the expenditure of large sums of money to save the life of one person.
- When those resources could possibly be used in other health sectors, such as basic immunization, primary health care, and preventive medicine programs.

Critical care in EAST ASIA

- In many developing countries where knowledge in resuscitation and emergency medicine, and facilities such as ambulances, communication, transportation, and triage systems are very poor, ICUs and intensive care medicine are **difficult to push to the top of the priority list**.

Critical care in EAST ASIA

Probably the scope of "*What is critical care*" and *its priority* for each country is *different* depending on its state of health and socioeconomic development, culture, population, and area.

Critical care in AUSTRALIA and NEW ZEALAND

- The basic structure of Australian and New Zealand intensive care was established by the early 1960s
- The first proper units were probably established in Auckland, New Zealand (1958) and most patients admitted to theese units needed mechanical ventilation or support of their circulation.

Critical care in AUSTRALIA and NEW ZEALAND

- During April 1975, a steering committee of full-time intensivists from Australia and New Zealand met in Sydney and this led to the formation of the Australian and New Zealand Intensive Care Society (ANZICS).
- General recognition of intensive care as a medical specialty was established by the mid-1970s

Critical care in INDIA

- The critical care medicine in India started in the 1968 with the coronary care unit in Bombay and a few other large cities in India.
- Critical care units in the early 1970s, though centralized, were designed and equipped chiefly to offer intensive care to patients with acute myocardial infarction and other manifestations of ischemic heart disease.

Critical care in INDIA

- There was a poor concept of overall critical care or intensive respiratory care. Ventilator support was primitive and was generally offered as a terminal therapeutic approach.

Critical care in INDIA

- The real impetus to organized, centralized, overall critical care, however, arose in early 1970, when a woman 6 months pregnant was admitted to the ICU at the Breach Candy Hospital, Bombay, for acute breathlessness.
- In 1971, an all-purpose, two-bed, centrally organized, well-equipped, and well-staffed ICU was organized.

Critical care in INDIA

- In 1993, some of the younger physicians in Bombay engaged either in critical care medicine or acute medicine colloborated to form the Indian Society of Critical Care Medicine.

Critical care in CANADA

- The polio epidemic of the early 1950s was an important milestone in the birth of Canadian critical care and the first units in Canada were originated in Edmonton, 1952.
- Critical care medicine in Canada emerged as a major component of hospital services in the late 1960s.

Critical care in CANADA

- By the early 1980s, specialized educational programs were also required to support an expanding knowledge base required to provide care to critically ill patients.
- The term *critical care medicine in Canada was generally applied to the* educational objectives defining the training provided to physicians, nurses, and other allied health care workers in intensive and coronary care.

Critical care in THE UNITED STATES

- ICUs in the United States had their origin in the postoperative recovery room.
- The first ICU was developed in 1923 at The Johns Hopkins Hospital in Baltimore as a three-bed facility for postoperative neurosurgical patients.
- A small community hospital in New Jersey claimed in 1954 that it was the first hospital in the US to implement a modern Intensive Care Unit.

Critical care in THE UNITED STATES

- By the late 1950s and early 1960s the explosive growth of medical research and improving technology, coupled with the prior experience of organizing medical personnel in a designated space within a hospital for critically ill patients, led to the creation of the modern adult ICU in the United States.

Critical care in THE UNITED STATES

- The concept of the ICU begun to spread like wildfire across the country, with every hospital wanting and creating one.
- This was further fueled in 1965 to 1966, when the government began to pay for health services of the poor and elderly through Medicare and Medicaid.

Critical care in THE UNITED STATES

- In February 10, 1970, 28 physicians who were interested in critical care met and established the structure of the Society of Critical Care Medicine.
- The first issue of the journal *Critical Care Medicine* was published in 1973 under the editorship of Dr. Shoemaker.
- The first truly independent SCCM Educational and Scientific Symposium was held in 1977.

Critical care in SOUTH AMERICA

- The Federacion Panamericana y Iberica de Sociedades de Medicina Critica y Terapia Intensiva (FEPIMCTI) was established in Mexico City in 1979.

Critical care medicine today

It uses modern technology to monitor vital physiologic changes closely in acutely ill individuals for appropriate, timely, therapeutic, and life-saving interventions to occur.

Critical care medicine today

- The evolutions of Intensive Care as a locale or site, and Intensive Therapy as single-system support and especially ventilation.
- The techniques of Critical Care Medicine have been extended to include not only the conventional hospital units but also emergency departments and even out-of-hospital emergency medical providers in ambulances and aircraft in which critical care monitors, measurements, and life-support devices provide care before hospital admission.

Critical care medicine today

- Even though the three terms, Intensive Care, Intensive Therapy, and Critical Care, are still used interchangeably, in our view they trace the history of Critical Care Medicine.

Why Choose Critical Care Medicine?

- Relatively new, exciting and growing speciality
- Be part of a dedicated team of highly trained professionals, looking after the sickest patients in the hospital
- Look after a wealth of patients with a variety of pathologies – **be a true generalis**t!
- Acquire a wealth of specialist skills including airway management, bronchoscopy, echocardiography, ultrasound, communication and clinical leadership

Why Choose Critical Care Medicine?

"providing the most efficient primary care for the critically ill, bringing some aspects of all specialties to the bedside and allowing titration of resources in a patient-specific fashion; a primary generalist."

Pinsky MR. J Crit Care 10:151-153, 1995


I want to be a real doctor!