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"The concept of AS: is it a renewing concept? Is it a renewing evolution?
The idea of performing surgery without overnight stay: is this a new evolution in surgery?
Ambulatory surgery means: performing surgery without overnight stay: -

- *that is what we all agree about,*
- *that is what we all support*
- *that is the idea, the concept, we are trying to get worldwide spread*

Where does this idea, or the expression, the notion, come from?
Certainly, this concept is not new …..

We all know, James Nicoll was the founding father of the Ambulatory Surgery concept….
But… what was there before Nicoll ……?..In Europe or elsewhere in the world and…. what about ancient times?

In Egypt: Imhotep was the first known physician, medical professor and a prodigious writer of medical books. As the first medical professor, Imhotep is believed to have been the author of the Edwin Smith Papyrus in which more than 90 anatomical terms and 48 injuries are described.

All of this occurred some 2,200 years before the Western Father of Medicine Hippocrates was born.

The ancient Egyptian doctors were good in the treatment of bone fractures: archeologic findings show us good healed fractures by putting splints and bandages. [1]

Surgery was a common practice among physicians as treatment for physical injuries. [2]

Prosthetics, such as artificial toes and eyeballs, were also used; typically, they served little more than decorative purposes. In preparation for burial, missing body parts would be replaced; however, these do not appear as if they would have been useful, or even attachable, before death.

It appears that the surgeon's function was to debride a wound, and the most logical instrument would have been a curved scalpel.

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[1] Het oude Egypte leverde de beste artsen -
kunst-en-cultuur.infonu.nl/.../102819-het-oude-egypte-leverde-de-beste-artsen.html

[2] **Ancient Egyptian medicine** From Wikipedia, the free encyclopedia

From Gardiner's 'List'1(3rd ed.), this word is close to the ancient Egyptian meaning 'sculptured relief', which may well indicate that this particular knife was used by a medical 'sculptor', this means, a surgeon, and was therefore a scalpel.[3]

Egyptians had some knowledge of human anatomy. For example, in the classic mummification process, mummifiers knew how to insert a long hooked implement through a nostril, breaking the thin bone of the brain case and remove the brain. Does that mean "NOTES" "avant la lettre"?[4]

All this surgery must have been "AMBULATORY ".

Then the Greeks and Romans came with the oldest medical school in Greece, Cnidus in 700 BC. Aesclepius, was the God of the medicine and in Epidaurus, where he was born, we could find the first hospitals.
The Romans were using pincets and scalpels and already knew about suturing wounds. [5]
All this surgery must have been "AMBULATORY ".

WHAT IN OTHER CULTURES?

ASIA

China: Although surgery was an accepted and quite proficient craft very early in Chinese history, it has deteriorated through the ages. Chinese surgery is conspicuous by its stagnation.

Reverence for the dead, filial piety, abhorrence of shedding blood and other conservative attitudes make it impossible for any accurate knowledge of the human anatomy and physiology, without which surgery cannot progress. [6]

However, around the beginning of the 3rd century a surgeon named Hua Tuo began to change Chinese surgery. As a young surgeon Hua Tuo believed in simplicity. Using a preparation of hemp and wine, he was able to make his patients insensitive to pain. [7]

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[3] The identity and work of the ancient Egyptian surgeon Richard Sullivan BSc MBBS
J R Soc Med 1996;89:467-473

[4] **Prioreschi, Plinio** (1996). History of Medicine Volume 1: Primitive and Ancient Medicine. Edwin Mellen Press. p. 257f. ISBN 978-0-77349661-3.

[5] Wikipedia: ↑ The Romans carried out cataract ops, BBC

[6] Surgical history of ancient China: part 1. **Fu L**[1]**.** ANZ J Surg. 2009 Dec;79(12):879-85. doi10.1111/j.1445-2197.2009.05138.x. Surgical ...

[7] **History of surgery** From Wikipedia, the free encyclopedia

India: Sus Hruta, famed surgeon of Ancient Aryan India, wrote that surgery was the first and highest division of healing, unsullied in itself, perpetual in its application, a worthy gift of heaven and a source of fame on earth. [8]

ALL this surgery must have been “AMBULATORY”.

AFRICA: Current medical practices by the living African societies and traditions still show similarities to Pharaonic medicine.
Since the knowledge of Egyptian medical science was from inner Africa, more precisely central and western Africa, the world owes this continent and its children a belated tribute, a sound recognition for having bequeathed the science of healing and hygiene to later cultures and civilizations who still owe the unrequited debt of appreciation for Africa’s beneficence. [9]

ALL this surgery must have been “AMBULATORY”.

During the medieval period , the evolution of medical practice was very low, because of the fact that maladies and diseases were seen as a punishment from God ; and in the medieval monasteries huge rooms were foreseen for treatment (or observation) of sick people.
And so developed the idea of caring, without working actively to help sick people.
The interest in anatomy and surgery which was not done by doctors, but by barbers or so-called surgeons (?), only came later in the 19th century.

There was less surgery and surgery must have been “AMBULATORY”.

This is the period that James Nicoll enters into our story.
He believed that children, where possible and after careful selection, were best nursed at home by their own mothers.
Prolonged post-operative bedrest was not only not feasible with children but also harmful.

By removing cases from the inpatient wards to the outpatient Dispensary, treatment would not only be of higher quality but also more cost effective.
Equally the reduction of pressure on inpatient beds would reduce waiting lists for admission.

He believed that the nurses undertaking outpatient treatment should be separate from those dealing with inpatients and that there was benefit in outreach nurses visiting certain children post-operatively in their homes.

He believed that the outpatient surgery unit was a valuable teaching resource.
He developed teaching facilities in the Dispensary both for medical students and nurses.
His house providing accommodation for mothers and children is surely the forerunner of modern hospital hotels.

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[8] **Australian Surgeons and Society,** Rowan Nicks , Sydney Aust. N.Z. J. Surg. Vol._50 , No 6, December , 1980.
[9] africaResource Ancient African Medicine, Egypt **(Khemit)** and the World
Details Africa Created: 19 April 2008

It is also the concept of the free-standing Dispensary, being a 'feeder' for the inpatient hospital and this concept is the one that nowadays is being replicated around the world.[10]

The domiciliary nursing service that had been started in 1888 was supported very vigorously by Nicoll.
He organised a body of outdoor visiting nurses, who were devotedly attached to this work. [11]

RECENT PROGRESS

EUROPE and UK

In 1909 James Nicoll (1864 – 1921) reported, in the British Medical Journal, the overall success of day surgery treatment in 8,988 paediatric cases.
Following this, little or no immediate progress was made in day surgery in the UK due to the attitude of the medical establishment. This was reflected in an editorial in the British Medical Journal in 1948 which stated that 'any surgeon who allows a patient to leave hospital within 14 days of an abdominal operation (this would include hernia repair) would be in a difficult position should complications occur'.
Progress was made in 1955 when Farquharson, working in Edinburgh, promoted early ambulation and reported the results of adult day case hernia repair in the Lancet.

NORTH AMERICA and USA
Nicoll's concept of a purpose designed day unit was not taken up until 1962 with the development of a hospital based ambulatory surgery unit at the University of California at Los Angeles, USA.
Other units in the USA were opened in 1966 at George Washington University and in 1968 in Providence, Rhode Island.
The freestanding nature of Nicoll's unit was not replicated until Reed and Ford opened their Surgicenter™ in Phoenix, Arizona in 1969.
A gradually increasing number of day units were opened in the 1970s and 1980s.

ASIA and CHINA

It was reported that Prof. Jin-Zhe Zhang (°1920) , one of the founders of paediatric surgery in China advocated AS in 1960 because of the lack of surgical beds in Beijing Children's Hospital, Capital Medical University. At that time however, AS failed to develop as planned at regional and hospital level.[12] [13]
In the 1980s, a few hospitals implementing AS were reported in China and by the end of 2014, 105 medical establishments in 18 provinces and municipalities, directly under the Central Government had adopted AS.

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[10] James H. Nicoll , **P.E.M. Jarrett** AS **7**, (1999), 63-64
[11] James H. Nicoll, Legion of Honour France, Father of Day Surgery, **DG Young, R Carachi** , SMJ, **50**, 1 (March 2006)
[12] Personal notice from Prof. **Lihua YU**, Vice President and Secretary General of CASA, 24.02.2017.
[13] **Long Li** and **Jin-Zhe Zhang** in A history of Surgical Paediatrics, Rob Carachi, p 89 - 100

By the end of 2016 of, more than 2.000 medical establish-ments carried out AS, of which 396 had built ambulatory surgery centers (20 institutions had built freestanding centers). [14]

LATIN AMERICA

Dr. Alejandro RECART, Chile tells us: Latin America is a huge continent……Despite its large size and being a very diverse region, Latin-Americans have many things in common, like their history, ancestors, their religion and language… Not much information is available for Latin American countries, but probably AS does not exceed 20%.
Not many scientific societies are specifically devoted to this subject. CLASA, the Latin American Association of Societies of Anesthesiologists has a dedicated chapter on AS, trying to promote safety, quality and standardize terminology. [15]

AUSTRALIA:

The initiative of the medical profession to formalise the establishment and development of high quality day surgery facilities was expressed in a paper entitled "*Introduction and Establishment of Day Only Facilities and Services*", and adopted at a meeting of the New South Wales Committee of the Australian Association of Surgeons on 16 June 1980. [16]

Day Surgery in Australia continues to expand: 1989 – 90: 27.1 % to 1992 – 93: 35.5 %....Wherever possible DSU's should be developed as dedicated sections of the hospital..[17]

And Wendy ADAMS says in 2006: "….What is happening in Australia: 55.3 % same day….(Australian Hospital Statistics)…." [18]

Day surgery growth
An indicator of day surgery growth is to look at the increase in the number of day units. Freestanding ambulatory surgery centres have increased in the USA from 67 in 1976 to over 4,000 in 2004 and in Australia from 83 in 1993 to 234 in 2002.[19]
And in China, by the end of 2016, more than 2.000 medical establishments carried out AS, of which 396 had built ambulatory surgery centers.

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[14] Personal notice from Prof. **Lihua YU**, Vice President and Secretary General of CASA, 24.02.2017.
[15] Ambulatory surgery in Latin America : Challenges and opportunities **A. Recart**, Clinica Alemana Universidad del Desarrollo, Santiago de Chile, Chile, 2015

[16] **Day Surgery - The Past** Lindsay Roberts, FRCS FRACS Chairman, Australian Day Surgery Council, 1990 – 2000 President Elect, International Association For Ambulatory Surgery 1999

[17] Recent Progress of Day Surgery in Australia, Lindsay ROBERTS, Nat. Day Surgery Committee, 1993.
[18] The Australian Scope of Day Surgery , Wendy ADAMS, 2006.
[19] **Paul E M Jarrett**, MA, FRCS, Past President of the International Association for Ambulatory Surgery (IAAS), Professor of Day Surgery, Kingston University, Consultant Surgeon, The New Victoria Hospital, Kingston-Upon-Thames, Surrey, United Kingdom
Andrzej Staniszewski, MD, PhD, Lecturer, Consultant Surgeon, Department of Family Medicine, Wroclaw Medical University, Wroclaw, Poland
In DAY SURGERY / Development and Practice April 2006 By IAAS

LAST TIME EVOLUTIONS AND CHALLENGES

The "Day Surgery" concept starts when the patient has his first contact with his GP, when we have a diagnosis and when we start organising the operation: at that moment the concept of ambulatory surgery starts and this project only finishes when patient is back to work and his problem solved.

"Nursing and home Care + GP": nursing function is specialised in the Day Surgery Unit at the day of surgery (Day 0), but home care and GP, visiting and following the patient during the preoperative period and the postoperative period, is necessary to achieve the ideal DSU in his total concept.

The function "Perioperative medicine" starts when the patient enters the center for the first time, for his preoperative assessment and ends when the patient, after leaving the facility, has come back for postoperative control or after postoperative telephone call control..

"New anaesthetical and loco regional techniques" : are most important on the day of surgery (Day 0), but any preparation to lower the anxiety before the operation and any treatment to lower postoperative pain and vomiting, is important in the total concept

"Minimal Invasive Techniques , Remote Access Techniques, Natural Orifice Transluminal Endoscopic Surgery (NOTES) ": are helping in bringing the surgery to be fast tracked and/or enhanced: so necessary on the day of surgery, but with a prepared/ informed patient.

"Fast track surgery"
Kehlet definition: *"Fast Track focuses on enhancing recovery and reducing morbidity by implementing evidence in the fields of anaesthesia, analgesia, reduction of surgical stress, fluid management, minimal invasive surgery, nutrition and ambulation".* [20]
So Fast Track focuses on what is going on, in and around the operating room, or by extension in the DS facility just before, during and immediately after the operation. The "Fast Track Surgery" process covers the period from the entrance of the patient on the day of surgery (Day 0) until he leaves the facility, but also the first postoperative days.
And again, preparation is needed, organisation is needed, your patient has to understand the pathway he will be following.

FAST TRACKING = the practice of speeding up the progress of a project or person.[21]
FAST TRACKING = to do more things in the same time in order to finish a job earlier than normal or planned …it is the process of reducing the number of sequential relationships and replacing them with parallel relationships. [22]

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[20] Evidence –Based Surgical Care and the Evolution of Fast Track Surgery, **H. Kehlet, D. Wilmore** (Ann Surg 2008; 248: 189 – 198).

[21] Collins English Dictionary. Copyright © HarperCollins Publishers
[22] www.businessdictionary.com

Fast track surgery is faster than what surgery uses to be:
The passing through the track is faster, is optimized: and this is due to better construction of the formula 1 car and of the more adapted race track, namely the better prepared patient and the better constructed and organised surgical and anaesthetic pathway.

"Enhanced recovery after surgery (ERAS)": a better understanding of the normal recovery processes allows us to intervene more efficiently, leading to quicker recovery. We can influence patient's recovery by optimising the process: it can be speeding up or slowing down.
Anyway, "*A quick recovery after narcosis starts before the operation*".[23]
So, the principle of ERAS covers the period in the Unit and in a certain way the recovery period postoperatively, even during the first following days.

"Focused factory and DSU Location" principle of specialising: the more you are performing a certain operation the more you become a specialist. And not only in a certain surgical procedure you can become a specialist, but also in the organisation of your operation you can become a specialist. And one of these organisational elements is the location of your DSU: the better your DSU is located and constructed, the better flow you can realise and the better results you will have...

CONCLUSION

The concept of Ambulatory Surgery is the shell where this new evolutions and future challenges can be put together: the concept of Ambulatory Surgery is an organisational concept.

The concept of ambulatory surgery is not new. The concept of performing an operation without overnight stay for the patient is not new.

Does the concept of Ambulatory Surgery bring us something new?

NO……fast track surgery, ERAS, focused factory….are new.

Is the concept of Ambulatory Surgery renewing?

YES….putting together this new evolutions and principles, organising them, is the renewing action or evolution of the Concept of Ambulatory **Surgery.**

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[23] Personal communication: Prof. Dr. **B. Philip,** Harvard Medical School, Brigham and Woman's Hospital, Boston, USA