

## The development of intensive care medicine in Israel from its creation until today

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### Abstract

**Simon Bursztein was the founder of intensive care medicine in Israel. After the 6-day War, intensive care stations were created at the Rambam Medical Center in Haifa and the practice of general intensive care was developed. Pr Bursztein with his colleague from Hadassah Medical Center in Jerusalem, Pr Shamai Kotev, created a specialty which still exists today. The history of the specialty in Israel and worldwide is detailed in this article.**

**Keywords:** intensive care medicine – history

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### Introduction

The intensive care specialty is a recent concept all over the world and has been developed by pioneers during periods of crisis. This is obviously also true in Israel where the recent creation of the state was associated with the creation of this new specialty. Interestingly, this association has been a facilitator for the progression of intensive care in Israel. In this case personalities have been making history.

### The roots

In 1952 an epidemic of poliomyelitis endangered the life of many patients all over the world. Left without a solution for respiratory failure, this condition stimulated the imagination of many physicians and mechanical ventilation using negative pressure was developed. An Israeli physician originally from Bulgaria (Dr Benishti) decided to improve his knowledge in this field and tried to start a program of mechanical ventilation in the young country which declared its independence in 1948. Two Jewish physicians – Max Harry Weill in Los Angeles and Peter Safar in Pittsburgh – developed artificial ventilation and described the first external cardiac massage in the late 1950s. The first intensive care unit was created by Peter Safar in Pittsburgh and its first residency programme commenced in 1962. These two physicians were of great help and inspiration in for the Israeli physicians who later specialized in intensive care medicine. Cardiovascular and brain resuscitation were the main topics developed by these two mentors.

### Simon Bursztein (1934–1995): The founder

A young Jewish physician who was born in Belgium and graduated from the University Libre of Brussels (with *grande distinction*) in 1960 became a surgeon in 1966 but rapidly decided to dedicate his life to two passions: Israel and intensive care medicine. The specialty was starting to be more and more recognized in Europe and he was one of its prominent figures in the world. In 1967 as the Six Day War started in the Middle East, he volunteered to help the Israeli hospitals and created the first stage for an intensive care unit. He brought with him respirators and blood gas analyzers that did not exist in Israel and so saved lives. He left the country at the end of the war but came back in 1969 and created the first intensive care unit in Israel at the Rambam Medical Center in Haifa, at first next to the operating theatre and then on the balcony of an internal medicine department in a building constructed by the British mandate with a view of the Mediterranean Sea. The first physicians who joined him were gynaecologists and cardiac surgeons. The respirators used were the PR2 Benett, the Engstrom machine, and later the MA1 Puritan Benett and the Bird. Nasotracheal intubation was changed to tracheostomy very early on the third day. The ICU in Rambam was called Reanimation after the French name. Prof Shamai Kotev, a close friend of Simon Bursztein and an anaesthesiologist, founded a respiratory intensive care unit at Haddassa Ein Kerem in Jerusalem (Fig. 1). Progressively more and more hospitals like Beilinson or the Meir Hospital were equipped with intensive care units. Some of the units

had to close since the medical staff were not sufficiently trained. Simon Bursztein became the first secretary of the Israel Society of Critical Care Medicine in 1974 and was its president from 1981 to 1986. Prof Bursztein was a member of the steering committee preparing the foundations of the World Federation of the Societies of Intensive Care Medicine (WFSICCM) and became its secretary from 1985 to 1989 (Fig. 2). He was the editor in chief of its Digest Journal and succeeded in bringing the 4<sup>th</sup> World Congress of Intensive Care to Jerusalem in 1985. He worked towards the goal of the specialty being independent of any other specialty, and an independent board of critical care was created in 1993. He had particular relationships with various personalities from extremely different parts of the world like General Lahad from the South Lebanon Army, the Hassidic Rabbi of Gur or the Irish researcher David Elwyn with whom he wrote a book on energy expenditure. Together with Prof Opfenstad, Dr Dahan from Paris and myself he developed cooperation with Palestinian physicians in order to improve knowledge and cooperation. Unfortunately he died too young from pancreatic cancer in 1995. His widow Sylvianne Bursztein de Myttenaere is director of the intensive care unit at the Carmel Hospital in Haifa. Many of his students became directors of intensive care units such as Uri Teitelman, Moshe Adler, Fabio Zwibel, Gad BarJoseph, Moshe Michaelson, Pinhas Halpern, Zohar Bshouty, Patrick Sorkine and myself (Fig. 3).



**Fig. 1.** Prof Simon Bursztein (left) with Prof Shamaï Kotev, the founders of the Israel Society of Critical Care Medicine in the late 70'.

## The development of intensive care in Israel

The Rambam and Hadassa Medical Centers were the leading centers and received the visits of many internationally recognized visiting professors like Max Harry Weill, Peter Safar, Christopher Bryan Brown, Bryan Kirk etc. Some of the young doctors were sent to the US or Europe to gain expertise and they im-



**Fig. 2.** Prof Simon Bursztein (extreme left) with the other members of the World federation of intensive care medicine

proved general competence when they came back. ECG monitoring was performed with needles in the subcutaneous tissues and connected to the monitor. In 1981 the Service de Reanimation was increased to 8 beds and the balcony was closed. In the 1980s intensivists who immigrated to Israel from the US and Europe joined the team already working there. Some of them like Prof Charles Sprung were well known worldwide. The Israel Medical Association became interested in the specialty and ICUs were created in all the hospitals of the country from Tiberias to Beer Sheva and even Elat.

Nowadays the intensive care departments in Israel



**Fig. 3.** Prof Simon Bursztein with Prof Pierre Singer (on the right) in the late 80'

are as developed as in the rest of the world with all the technology and knowledge required to treat the most complicated cases. Every year more than 10 new physicians are board certified. Many Israeli intensive care physicians are known all over the world and new technologies available include the bio-artificial liver, the artificial lung, continuous renal replacement therapy, high frequency ventilation, CO<sub>2</sub> removal, hyperbaric chambers etc.

Publications by Israeli teams include work on

ethics, monitoring, metabolism, new respiratory technologies and glucose control. Advanced technologies are also a point of interest in the ICU with the most sophisticated systems of computers at the bed side, non-invasive monitoring of blood glucose, haemoglobin and oxygen saturation, continuous calculation of the cardiac output, translation of lung vibrations obtained from auscultation to images for monitoring to name a few. The new departments are built in accordance with the most advanced standards. The field of intensive care medicine in Israel has become the window of excellence of the country and when required, like in the recent military events, the teams show all the expertise required to treat the soldiers and the victims.

From its creation to nowadays it has been a long journey and I have been lucky enough and very proud to take an active part in this task.

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## Primář MUDr. Jiří Dostál

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### Souhrn

Autoři popisují profesionální dráhu primáře MUDr. Jiřího Dostála a jeho podíl na rozvoji oboru anesteziologie, intenzivní péče a urgentní medicíny. Jeho jméno nese i každoročně pořádaná konference urgentní medicíny v Hradci nad Moravicí.

**Klíčová slova:** historie anesteziologie, intenzivní péče a urgentní medicíny

### Abstract

**Prim. MUDr. Jiří Dostál**

The authors describe Dr. Jiri Dostal's professional career and his relentless contribution to progress in anaesthesiology, intensive care and emergency medicine. An annual emergency medicine conference carrying his name takes place in Hradec nad Moravicí.

**Keyword:** history of anaesthesiology, intensive care and emergency medicine

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## Prim. MUDr. Jiří Dostál

(1931–1993)

Slovanské gymnázium v Olomouci – maturita 1950.

Lékařská fakulta UP Olomouc – všeobecné lékařství – promoce 1956.

Od roku 1952 – pracoval jako volontér a později jako demonstrátor a pomocná vědecká síla na chirurgické klinice v Olomouci u prof. Rapanta. Po celou dobu studia na lékařské fakultě byl členem reprezentačního družstva univerzity v košíkové.

Po promoci v roce 1956 nastoupil na chirurgické oddělení FNŠP v Ostravě-Zábřehu. I. atestací z chirurgie složil v roce 1959. Od té doby se intenzivně věnoval problematice anesteziologie a působil jako samostatně pracující anesteziolog v téže nemoc-

nici. V roce 1963 úspěšně absolvoval v té době nástavbovou atestaci z oboru anesteziologie a resuscitace.

Na základě konkurzního řízení nastoupil v roce 1965 jako vedoucí lékař anesteziologicko-resuscitačního oddělení v MěNsP Ostrava-Fifejdy a jako primář ARO zde pracoval až do konce svého života. Velmi rychle po svém nástupu vytvořil technické i personální podmínky pro to, aby v roce 1968 mohla být otevřena lůžková část oddělení, jehož součástí se v roce 1976 stalo i pracoviště hyperbarické medicíny [1]. V roce 1975 byla pod ARO přičleněna rychlá záchranná pomoc a od té doby zajišťovali po lékařské stránce její provoz erudovaní anesteziologové a sestry-specialistky [2]. Postupně byla v Severomoravském kraji vytvořena síť 19 výjezdových stanic RZP a zřízena i stanice Letecké záchranné služby. Toto uspořádání bylo funkč-