

Značaj ortopedske hirurgije

- juče, danas, sutra -

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ORTOPEDIJA

***Medicinska specijalnost koja se bavi
proučavanjem, sprečavanjem i lečenjem
bolesti i povreda organa za kretanje.***

Preklapanje sa drugim specijalnostima

plastična hirurgija

neurohirurgija

dečja hirurgija

neurologija

reumatologija ..

Francuska i
nemačka škola



Istorija ortopedije

Od početka ljudske istorije



- Student je jednom pitao antropologa Margaret Mid, „**Koji je najraniji znak civilizacije?** “
Student je očekivao da će njen odgovor biti glinena posuda, kamen za mlevenje ili možda oružje.
- Margaret Mid je na trenutak razmislila, a zatim rekla: „**Zarasla butna kost.**“

Femur je najduža kost u telu, povezuje kuk sa kolenom. U društvima bez blagodati moderne medicine potrebno je oko šest nedelja mirovanja da bi prelomljena bedrena kost zarasla. To pokazuje da je neko brinuo za povređenu osobu, obavljao lov i sakupljanje, ostao s njima i pružao fizičku zaštitu i ljudsko druženje dok se povreda ne oporavi.

Mid je objasnila da tamo gde vlada zakon džungle - opstanak najспособnijih - nema zalečenih butnih kostiju.
- **“Prvi znak civilizacije je saosećanje viđeno u zalečenoj butnoj kosti”.**

Istorija ortopedije

- Verovatno *prvi opis* lečenja deformiteta kičmenog stuba je zabeležen u (Srimad Bhagavat Mahapuranam), drevnom indijskom epu (između 3500 i 1800 p.n.e.)
 - Krišna leči od grbe jednu od svojih žena koja se zove Kubja primenom aksijalne vuče
- papirus Edvina Smita (iz 16. veka p.n.e)

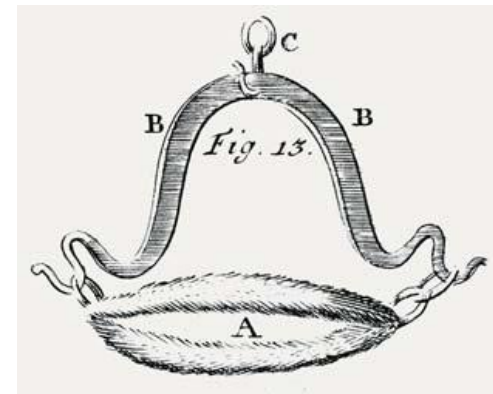
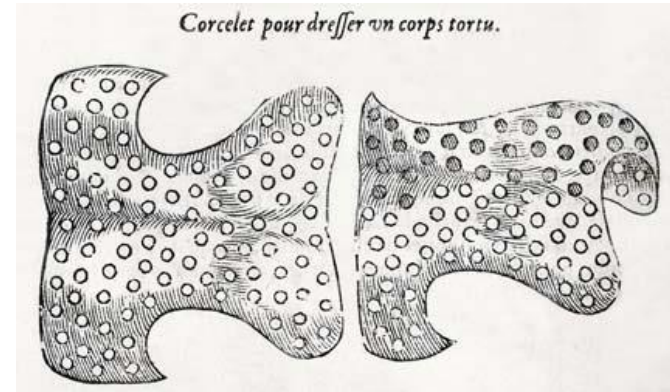
Istorija

- Hipokrat (460-370 pne) i njegovi učenici (odvojio medicinu od magije i kulta i uveo empirijsku praksu)
- Prvi medicinski pristup bolestima i deformitetima skeleta.
- Galen iz Pergamona (130-200 ne) je prvi uveo pojmove skolioza, kifoza i lordoza u medicinsku terminologiju



Istorija

- Ambroise Par'e (1510-1590)
 - lečenje skolioza ortozom
 - ligatura krvnog suda
- Glisson Frensis (1616-1691)
 - (rahitis) 1660



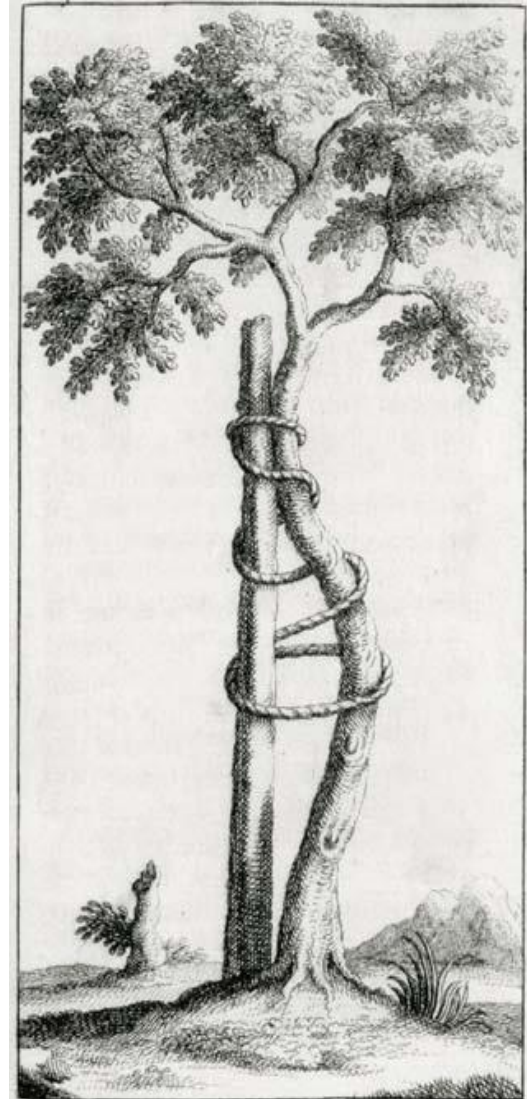
ORTOPEDIJA

L'orthopedie

**(orthos-ravan, uspravan i
paidon-dete)**

L'Orthop'edie (1742) autora
Nicholas Andry

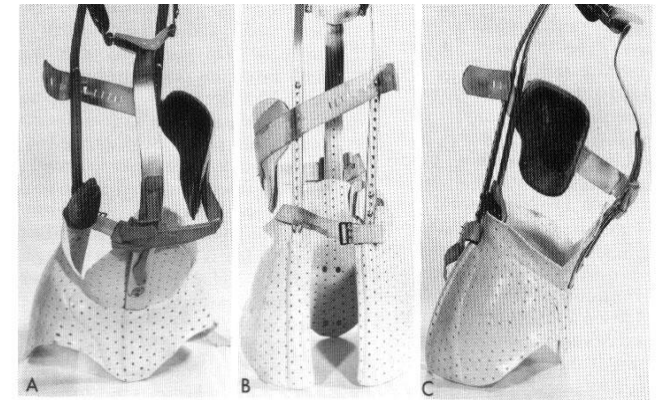
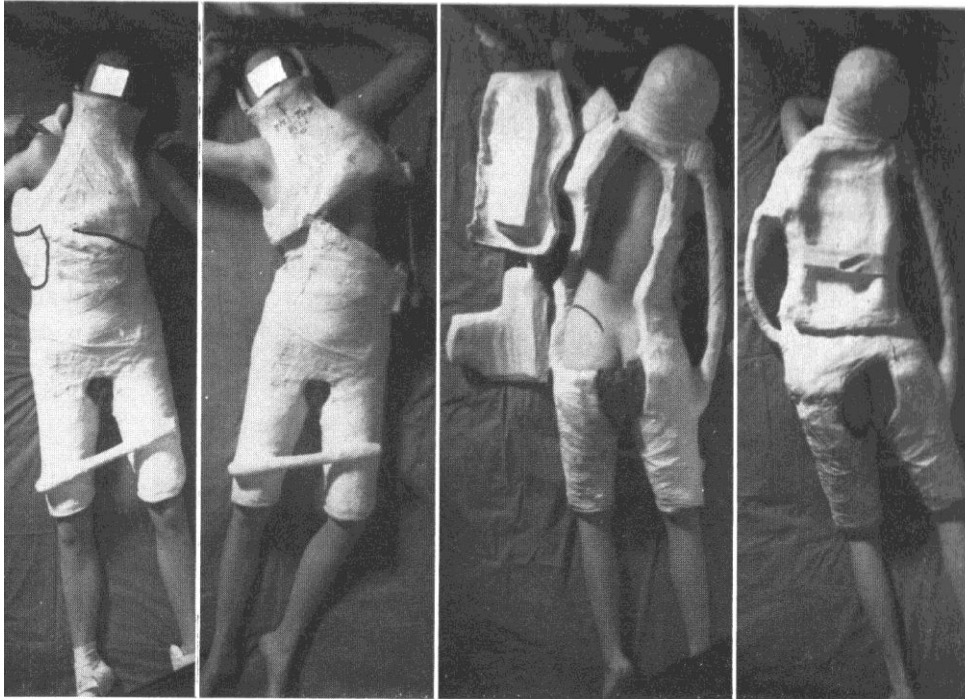
Ortopedija, ili umeće
sprečavanja i ispravljanja
deformacija tela u dece



Razvoj konzervativne ortopedije →

gipsani zavoj

Antonius Mathysen (Holandija) 1852.



Hirurška ortopedija

Delpech (neuspeh)

Georg Friedrich Stromeyer

Little

John Barton 1826.

Langenbeck 1854.

Langenbeck 1858.

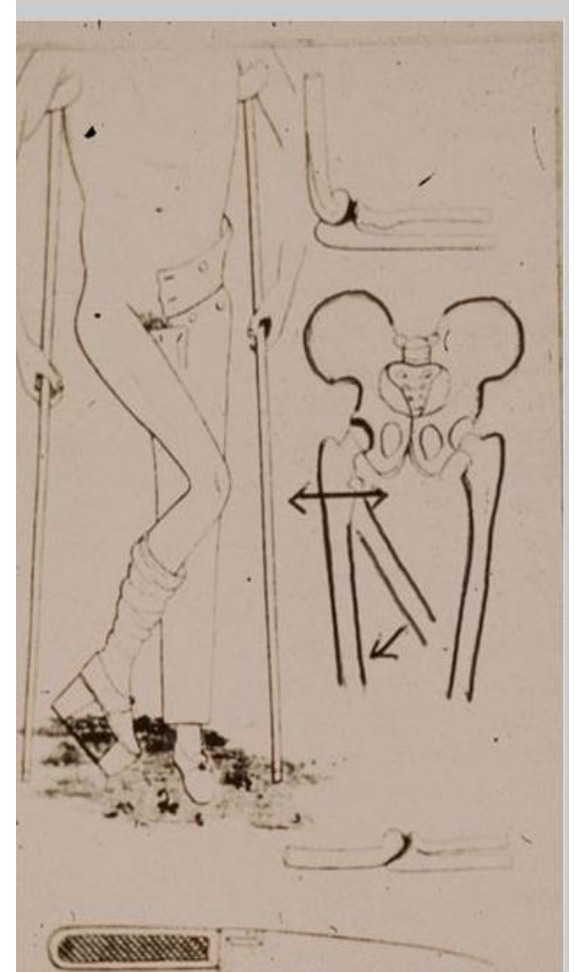
subkutana tenotomija 1831.

(cerebralna paraliza)

osteotomija;

zatvorena osteotomija

prva osteosinteza vrata femura





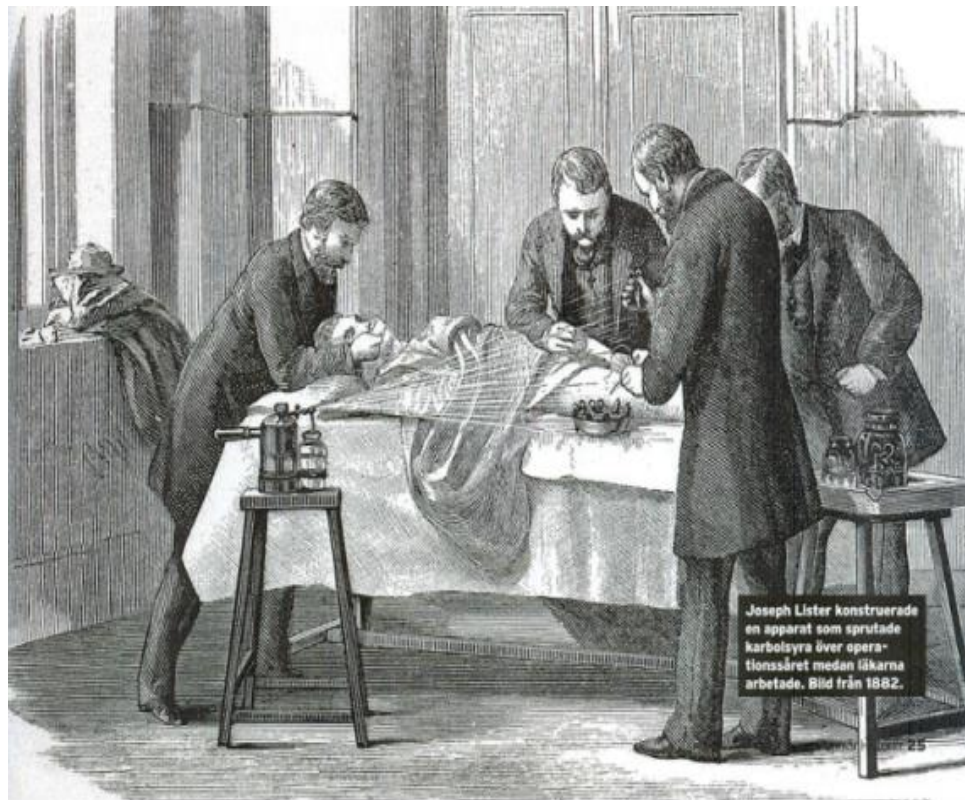
The Gross Clinic
(Thomas Eakins 1875)
4/14/2021

- Razvoj anestezije
V decenija
19.v (etar i
hloroform)
- Razvoj antisepse
Joseph
Lister (Glazgov)

- Horace Wells 1845.
 - NO
- William Thomas Green Morton 1846.
 - diethyl ether



Antiseptic Principle of the Practice of Surgery *The Lancet* March - July 1867



1869, British Medical Association at Leeds

THE LANCET.] ON THE ANTISEPTIC PRINCIPLE IN THE PRACTICE OF SURGERY. [Nov. 31, 1866. 555

ment, the jawbone disintegrated, and life suspended in considerable quantity in the nostrum. But about Nov. 1866 the condition became more urgent, and the prostration increased. On Dec. 1866 the left hand was found to be much swollen, and from marking the course of the lymphatic vessels up the leg, the Nov. 1866, an abscess was found above the left ankle, from which fluid was and was squeezed. On the same day the leg was treated with a dry antiseptic solution, followed by ointment. These measures resulted in rapid recovery, so that he had nearly thirty before his death on Dec. 21, 1866.

The examination of the body after death, the lungs and the membranes were found to be normal, except that there was a considerable amount of fluid, which contained some, at the base and in the lateral ventricles. The lungs were completely collapsed, and there was much soft and granular deposit in the ascending aorta. The liver was large, and weighed 40 oz. The ascending aorta was loaded with oil. The tubules were unusually dilated, giving a granular appearance to the organ on section. The gall-bladder contained a soft, fatty secretion, as large as a walnut, many small irregularly shaped fragments of the same material. There were numerous in a small number of each group, which were very irregularly shaped, and were found to contain a large number of pus-corpuscles. The membrane of the gall-bladder had a thickened, white appearance, and the lumen was deeply injected, greenish and excruciating. The bile-ducts contained a similar viscid fluid to that in the gall-bladder, with minute portions of which impregnated bile. This could be squeezed out the ducts without much difficulty. The minute membrane of the stomach and duodenum was completely injected with numerous small abscesses, and the surface was covered with many small ulcers. There was great oedema and congestion of both lungs. Fat was deposited in large quantity throughout the body, and all the soft tissues were deeply injected. The examination made it clear that the fatal result was due to sepsis, while it also showed that the hepatic symptoms were probably the result of extension of the gall-bladder and bile-ducts, caused by the gall-stone, but which was not the cause of death.

In the case from which this preparation was obtained, there was general enlargement of the gall-bladder and prostration, arising from extension of the fluid caused by distension of a bile-duct stone.

CASE 4.—James B., aged sixty-nine, a cookman, was admitted, under Dr. Russell, on May 4th, 1866. With the exception of a similar but less severe case some years before, he had enjoyed good health until four months before admission, when he had been actively seized with acute pain in the right hypochondrium, together with other matter, and vomited. After a few days his state became protracted, and he had great prostration. His condition continued to deteriorate, but the formation subsided. Lately he had suffered from pain in the middle region and throbbing in the head, and he had lost both rest and strength. On admission, the patient was emaciated and feeble; the pulse was 112, and contracting; the skin was cold and the face livid; the eyes were bright yellow. The patient complained of a bad pain in the region of the liver, the abdomen on pressure of which appeared considerably increased, numerous spots of redness in the right mammary line. On more careful examination, it was ascertained that this enlargement was limited to the situation of the gall-bladder, and that posteriorly the liver was enlarged. The patient was treated with calomel, ammonia, vegetable lotion, and, subsequently, but his condition rapidly declined, and on May 18th he died from exhaustion.

At the autopsy, the liver was found to be small, pale, and feeble. Its lower margin did not reach so far as the edge of the rib. The gall-bladder was about five times the normal size, and was filled with a thick, opaque, yellowish-white, grayish fluid. The entire hepatic and common ducts were all completely distended, the common duct being larger than the hepatic, and all were filled with a viscid fluid, clear to the eye. The gall-bladder was about five times the normal size, and was filled with a similar fluid, which flowed out when the liver was cut into. There was no evidence in the gall-bladder or in any of the ducts, but the nature of the contents that in this instance was completely blocked up. The membrane of the gall-bladder was completely thickened, forming a single like prominence about the size of a hard nut, and covered with the membrane had a yellowish, granular appearance, as if from the distension of its wall. There was much adhesion of the entire end of the valve of the heart. The prostate was

ON THE ANTISEPTIC PRINCIPLE IN THE PRACTICE OF SURGERY.

By JOSEPH LISTER, Esq., F.R.S., MEMBER OF SOCIETY IN NEW YORK AND AMERICA.

In the course of an extended investigation into the nature of inflammation, and the healthy and morbid condition of the blood in relation to it, I arrived, several years ago, at the conclusion that the essential cause of suppuration in wounds is decomposition, brought about by the influence of the atmosphere upon blood or serum retained within them, and, in the case of natural wounds, upon portions of tissue detached by the violence of the injury.

To prevent the occurrence of suppuration, with all its attendant risks, was an object manifestly desirable; but all hitherto apparently successful, since it seemed to require an attempt to exclude the oxygen, which was necessarily regarded as the agent by which putrefaction was effected. And when it had been shown by the numerous experiments of Pasteur that the property of the atmosphere depended, not on the oxygen or any gaseous constituent, but on minute organisms suspended in it, which used their energy in their rising, it occurred to me that decomposition in the injured part might be avoided without excluding the air, by applying as a dressing some material capable of destroying the life of the floating particles.

Upon this principle I have based a practice of which I will now attempt to give a short account.

The material which I have employed is carbolic acid in solution, a volatile organic compound which appears to exercise a powerful destructive influence upon the forms of life, and hence in the most powerful antiseptic with which we are at present acquainted.

The first class of cases to which I applied it was that of compound fractures, in which the effects of decomposition in the injured part were especially obnoxious and prominent. The results have been such as to establish conclusively the great principle, that all the local inflammatory reaction and general febrile disturbance which attend severe injuries are due to the exciting and sustaining influence of decomposing blood or clots. For these are actively produced by the antiseptic treatment, so that those which otherwise would be extensively continued to suppuration may be retained with confidence of the best results.

In considering the treatment, the first object must be the destruction of any organic matter which may have been introduced into the wound, either at the moment of the accident or during the time which has since elapsed. This is done by scrubbing the end of the limb through with all possible means of the wound by means of a piece of rag held in tension, forceps and ligature in the hand. This I did not venture to do in the earlier cases; but experience has shown that the same result which may be effected with the blood, and one of the portions of tissue killed by its excessive action, including even parts of the bone, are disposed of by absorption and excretion, provided they are afterwards kept from decomposition. We are therefore enabled to bring the antiseptic treatment into play at a point after the occurrence of the injury at which it would otherwise probably fail. Thus I have now never seen in the Glasgow Infirmary a boy who was subjected with compound fracture of the leg or arm or thigh and a ball wound after the accident, in which suppuration did not lead to constitutional disturbance was avoided by means of carbolic acid, and the bones were freely united five weeks after his admission.

The next object to be kept in view is to guard effectually against the spreading of decomposition, and the second thing to be done is to prevent the absorption of the decomposing matter. A piece was below the British Medical Association in Dublin on the 10th of August, 1866.

The efficacy of a few drops of water in a comparatively small quantity of the compound acid solution is shown by the rapidity of the action.

The Agnew clinic



Thomas
Eakins
1889.god



- Wilhelm Konrad Röntgen 1895.
- Transfuzija krvi
1818.g. prva
uspešna;
– krvne grupe Karl
Landsteiner 1900.

- RTG šake kralja Petra I

iz 1905 godine



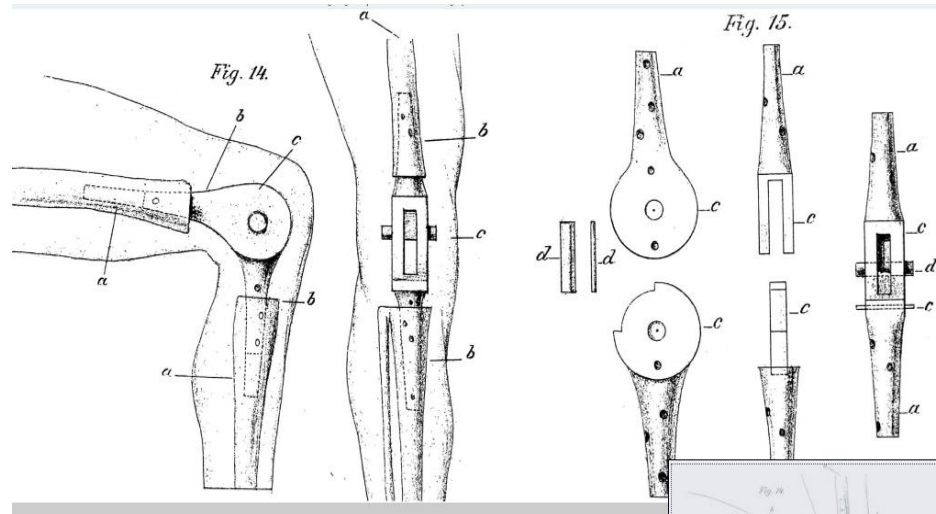
Hirurška ortopedija

- Lane; Lambot
- Veštačke zamene zgloba Hey Groves 1926.
- 1940. godine Moore vitalijumska proteza.
- braća Judet
- AO škola 1958 –Biel



Themistocles Gluck

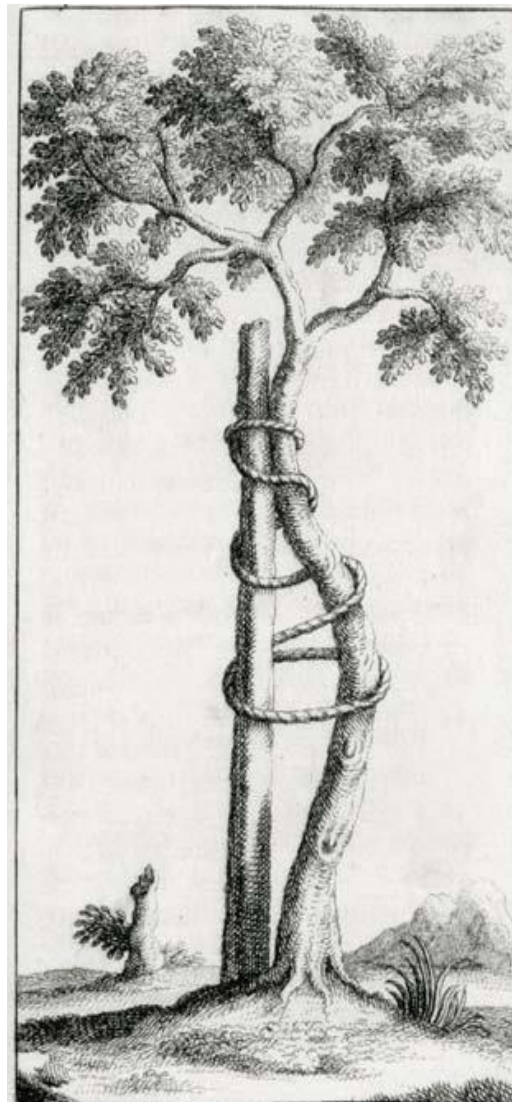
- Zaboravljeni genije
 - čelične ploče za prelom femura i mandibule
 - Veštački zglobovi sredinom 1880. i 1890-ih: ručni zglob, lakat, rame, kuk, koleno, skočni zglob



ORTOPEDIJA

L'orthopedie

**(orthos-ravan, uspravan i
paidon-dete)**



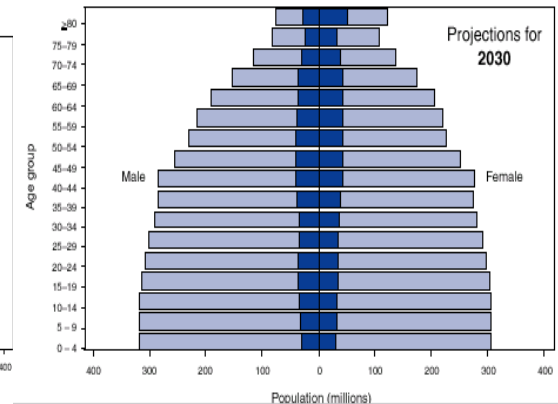
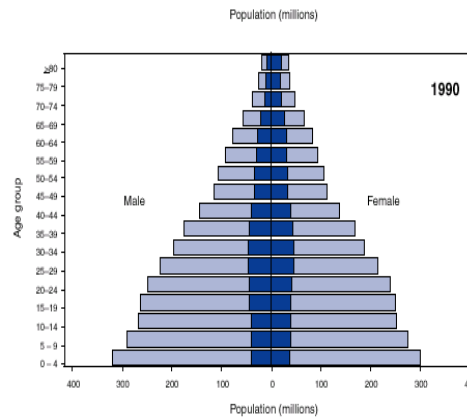
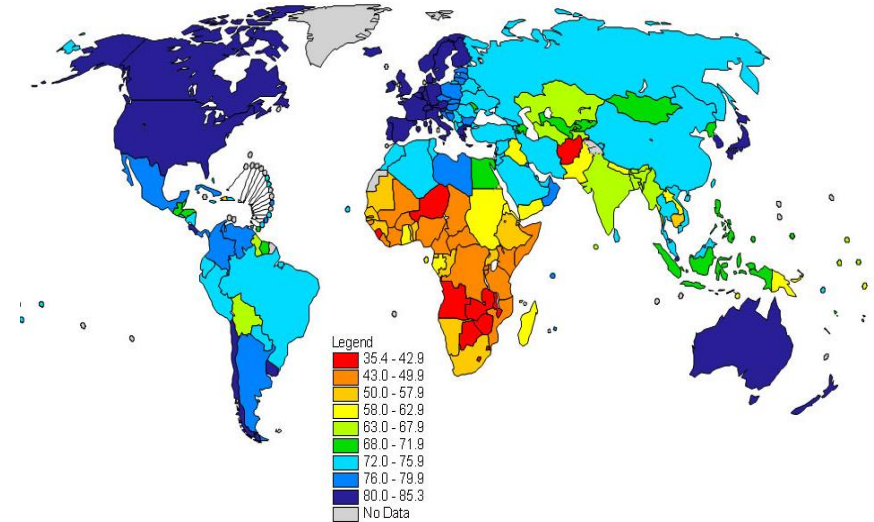
Starenje populacije

U zemljama u razvoju

0 – 15 godina 30 %

preko 65 godina 5.5 %

Promene su izvesne



	Zemlja	Očekivano trajanje života		Zemlja	Očekivano trajanje života
1.	Island	81,5	1.	Japan	87,0
2.	Švajcarska	80,7	2.	Španija	85,1
3.	Australija	80,5	3.	Švajcarska	85,1
4.	Izrael	80,2	4.	Singapur	85,1
5.	Singapur	80,2	5.	Italija	85,0
6.	Novi Zeland	80,2	6.	Francuska	84,9
7.	Italija	80,2	7.	Australija	84,6
8.	Japan	80,0	8.	Južna Koreja	84,6
9.	Švedska	80,0	9.	Luksemburg	84,1
10.	Luksemburg	79,7	10.	Portugalija	84,0

Srbija ⇒ SZO procenjuje očekivano trajanje života za muškarce 72 godine,
a za žene 77. godina



Република Србија*

7 040 272

Процењен број становника, 01.01.2017.

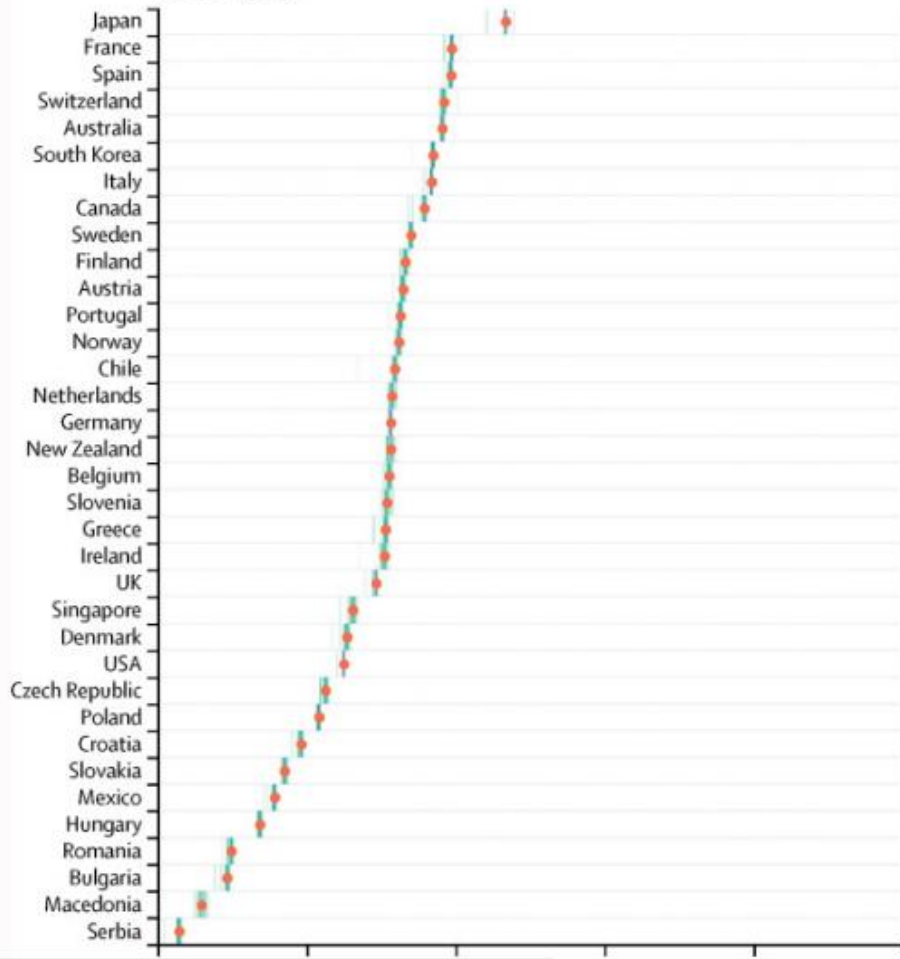
Очекивано трајање живота				Просечна старост	
♂	73,0	78,0	♀	2016	42,9
	70,6	75,9		2006	40,7
	69,9	74,5		1996	39,0

Процењен
број становника,
средином године,
(хил.)

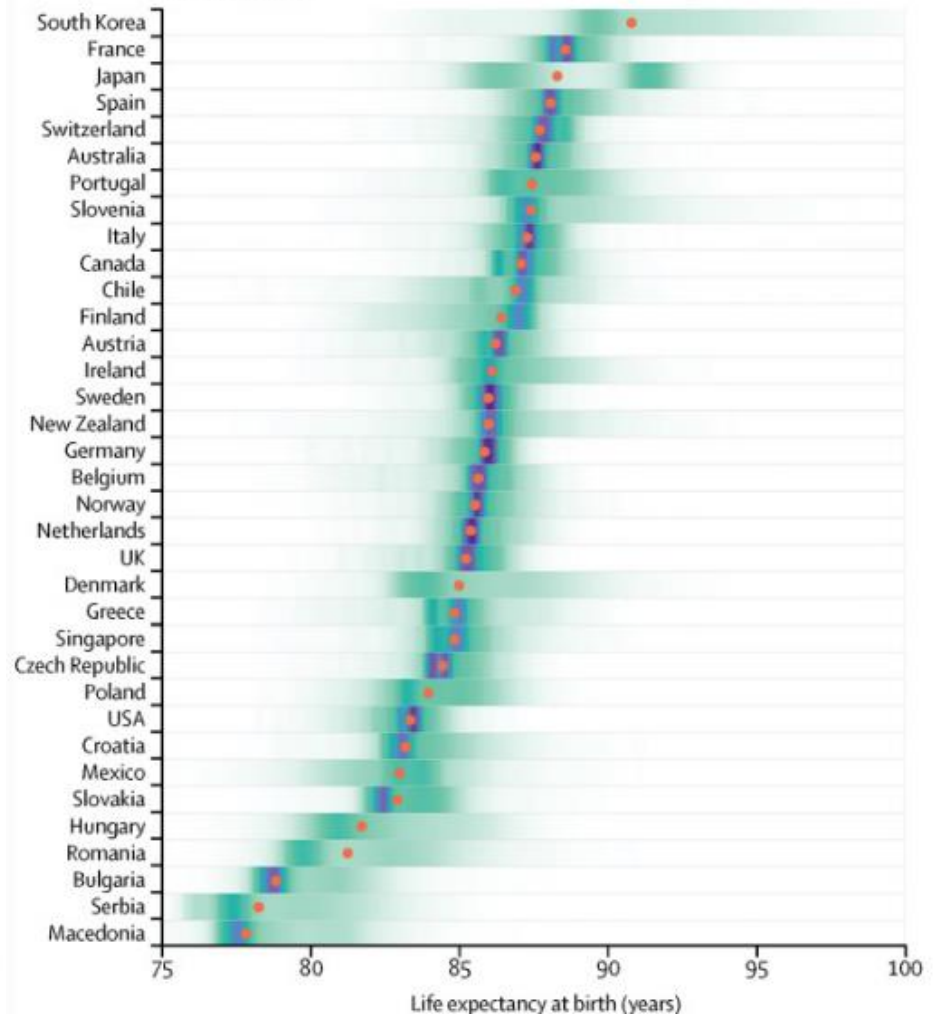


	Живорођени	Умрли	Природни прираштај	Закључени бракови	Разведени бракови	Просечна старост мајке при рођењу првог детета	Стопа укупног фертилитета	
2016	64 734	100 834	-36 100	35 921	9 046	28,3	1,46	2016
2006	70 997	102 884	-31 887	39 756	8 204	26,0	1,43	2006
1996	82 548	98 370	-15 822	40 705	6 860	24,6	1,66	1996

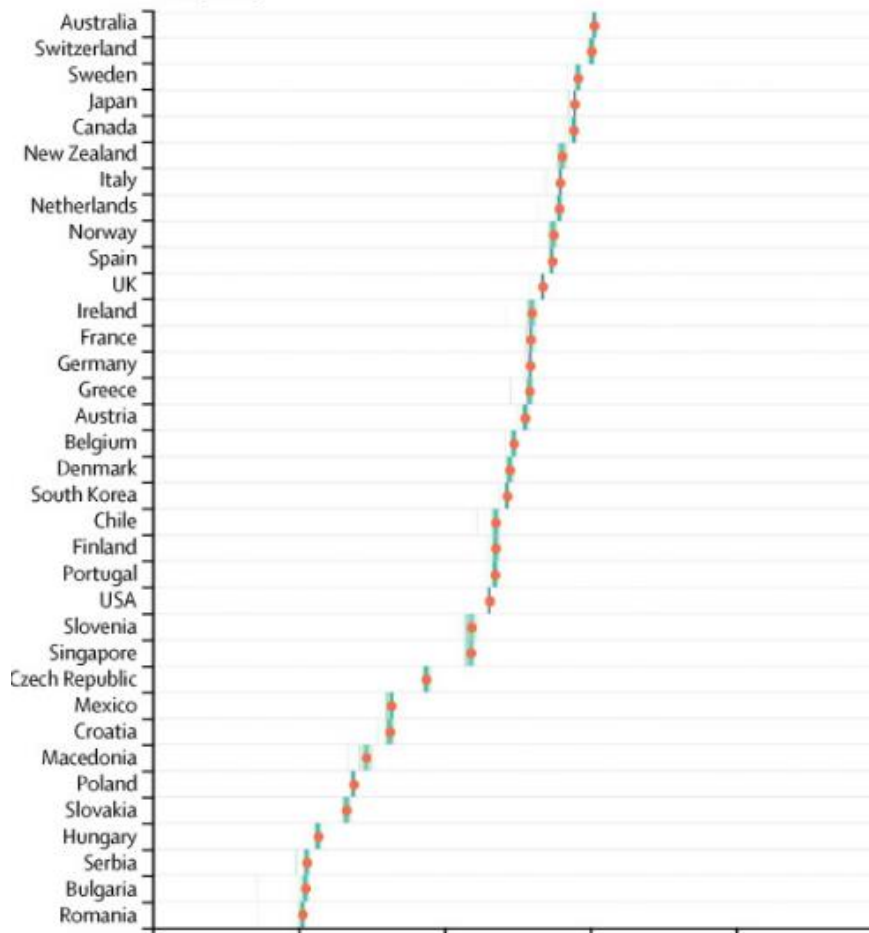
Women (2010)



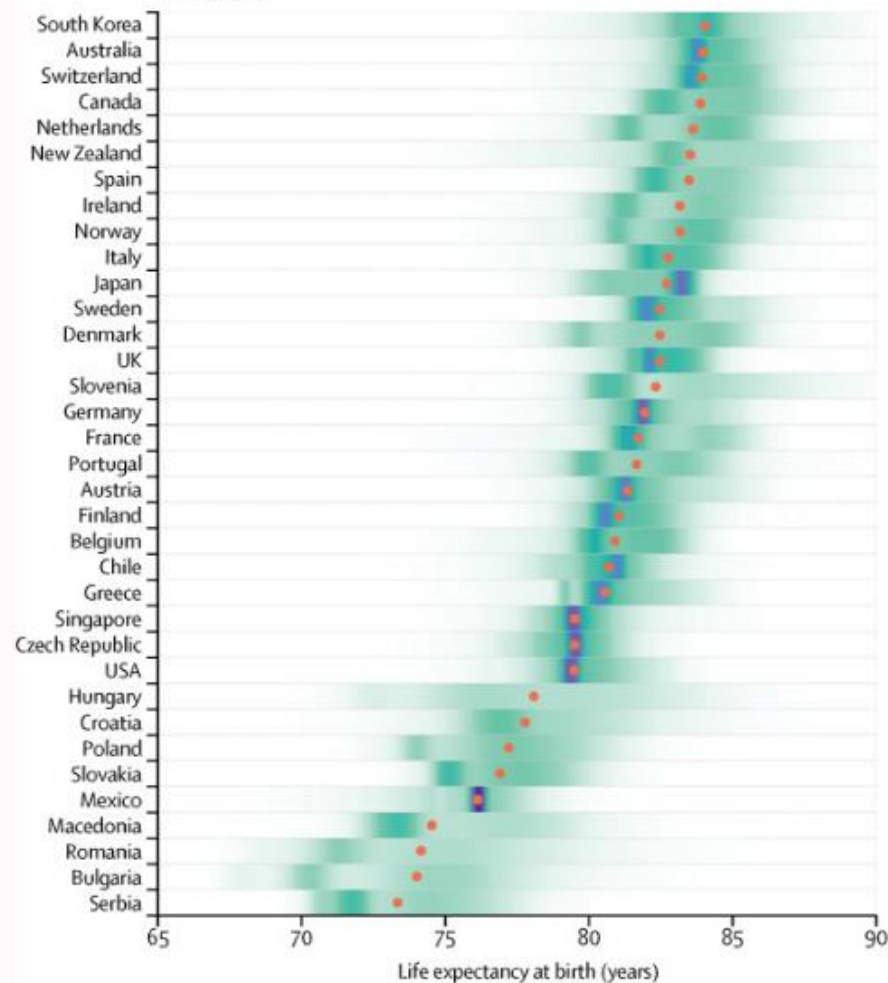
Women (2030)



Men (2010)



Men (2030)



Ortopedska hirurgija

- **Bolesti zglobova - osteoartroze i reumatoid arthritis;**
- **Bolesti kičmenog stuba (LS i vrat)**
- **Osteoporotični prelomi**
- **Vanzglobni reumatizam**
- **Sportske povrede, povrede u industriji i saobraćaju**

- **Prethodno navedena oboljenja izazivaju bol, fizičku nesposobnost i gubitak lične i ekonomske nezavisnosti obolelog**
- **Ova oboljenja zahvataju milione ljudi svih starosnih grupa, kultura, rasa i zemalja**

U prvoj sveobuhvatnoj studiju o uticaja svih bolesti i faktora rizika na zdravlje ljudi, /The Lancet 2012. g/

- muskuloskeletna oboljenja su *drugi najveći uzrok* invaliditeta u svetu
 - (mereno kao *broj godina života sa invaliditetom (years lived with disability YLDs)*).
- na *četvrtom mestu* po uticaju na sveobuhvatno zdravlje svih ljudi na nasoj planeti
 - (kada se uzmu u obzir i smrtnost i invalidnost (DALYs)).
- Incidenca MS oboljenja je porasla za 45% u poslednjih 20 godina i njihov broj će nastaviti da raste i u narednom period.

MS oboljenja utiču na više od 1,7 milijardi ljudi širom sveta.

Procena obolelih u svetu (*Lancet 15 December 2012*)

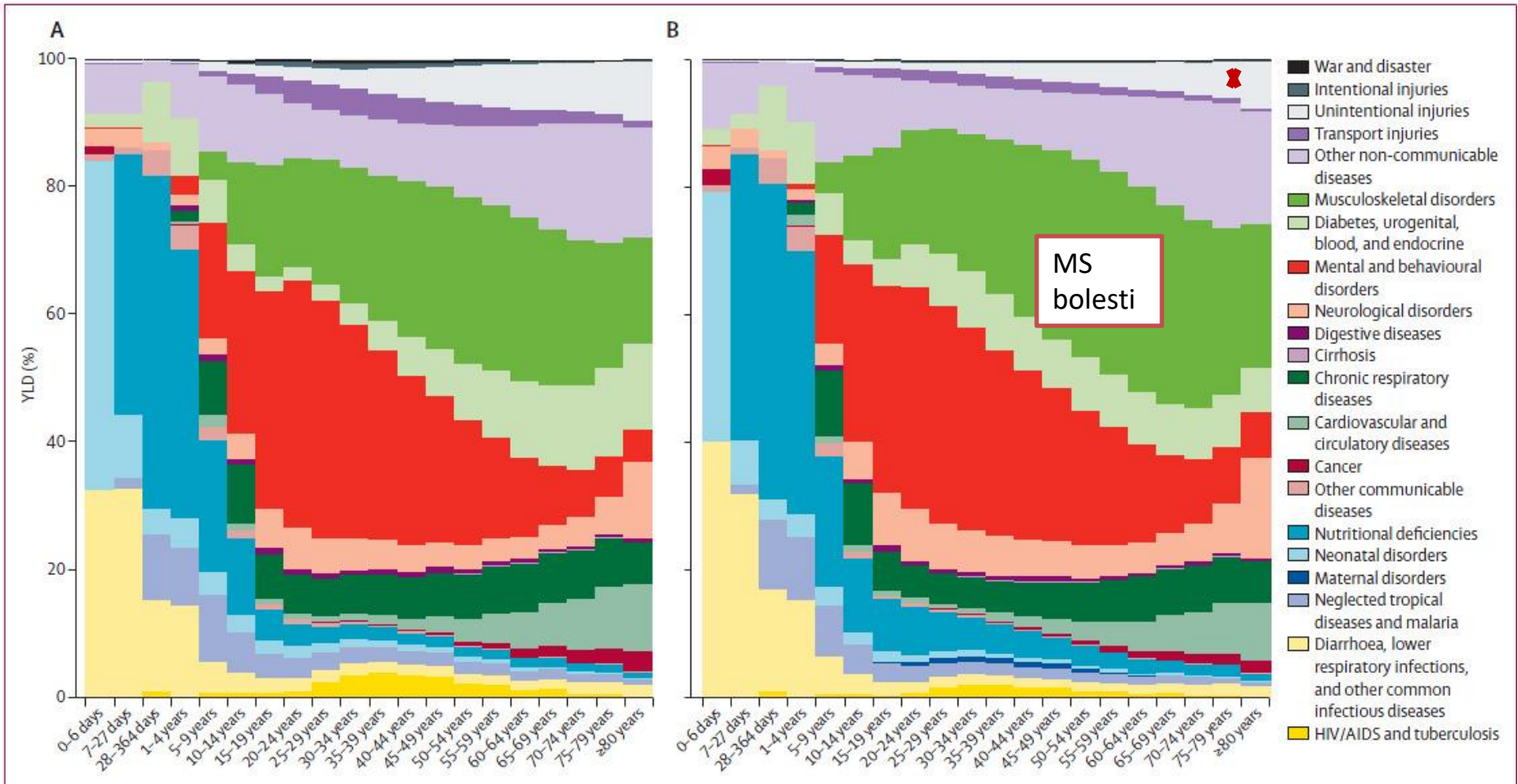
• Bol u leđima	632.045 miliona
• Bol u vratu	332.049 miliona
• OA kolena	250.785 miliona
• druga MS oboljenja	560.978 million

Drugi najveći uzrok invaliditeta u svetu

(mereno kao *broj godina života sa invaliditetom*)
(*years lived with disability YLDs*)
(*Lancet 15 December 2012*)

- Kao grupa MS bolesti uzrokuju 21.3% svih godina života sa invaliditetom (years lived with disability (YLDs))**
- Na prvom mestu su mentalni poremećaji 22.7% (YLDs)**

Godine života sa invaliditetom



Najčešći pojedinačni uzroci invaliditeta

1990		2010		
Mean rank (95% UI)	Disorder	Disorder	Mean rank (95% UI)	% change (95% UI)
1.3 (1 to 3)	1 Low back pain	1 Low back pain	1.1 (1 to 2)	43 (34 to 53)
2.2 (1 to 3)	2 Major depressive disorder	2 Major depressive disorder	1.9 (1 to 3)	37 (25 to 50)
2.5 (1 to 3)	3 Iron-deficiency anaemia	3 Iron-deficiency anaemia	3.3 (2 to 6)	-1 (-3 to 2)
4.4 (4 to 7)	4 Neck pain	4 Neck pain	4.3 (3 to 7)	41 (28 to 55)
6.0 (4 to 8)	5 Other musculoskeletal disorders	5 COPD	5.8 (3 to 10)	46 (32 to 62)
6.1 (4 to 9)	6 COPD	6 Other musculoskeletal disorders	5.9 (4 to 8)	45 (38 to 51)
6.1 (4 to 9)	7 Anxiety disorders	7 Anxiety disorders	6.4 (4 to 9)	37 (25 to 50)
8.7 (6 to 15)	8 Migraine	8 Migraine	8.9 (6 to 15)	40 (31 to 51)
10.0 (7 to 14)	9 Falls	9 Diabetes	9.1 (6 to 13)	68 (56 to 81)
11.4 (8 to 16)	10 Diabetes	10 Falls	10.1 (7 to 14)	46 (30 to 64)
12.1 (8 to 17)	11 Drug use disorders	11 Osteoarthritis	12.3 (9 to 17)	64 (50 to 79)
12.2 (6 to 19)	12 Hearing loss	12 Drug use disorders	12.5 (9 to 16)	40 (27 to 54)
14.0 (9 to 19)	13 Asthma	13 Hearing loss	13.5 (7 to 20)	29 (22 to 36)
14.9 (10 to 21)	14 Alcohol use disorders	14 Asthma	15.3 (10 to 20)	28 (21 to 34)
15.0 (11 to 21)	15 Osteoarthritis	15 Alcohol use disorders	15.8 (12 to 21)	32 (16 to 50)
15.2 (11 to 20)	16 Road injury	16 Schizophrenia	16.0 (9 to 22)	48 (37 to 60)
17.1 (9 to 25)	17 Bipolar disorder	17 Road injury	16.1 (12 to 20)	30 (13 to 49)
17.1 (9 to 24)	18 Schizophrenia	18 Bipolar disorder	16.6 (9 to 23)	41 (31 to 51)
19.5 (12 to 27)	19 Dysthymia	19 Dysthymia	18.6 (13 to 26)	41 (34 to 48)
19.8 (13 to 25)	20 Diarrhoea	20 Epilepsy	21.8 (18 to 27)	36 (27 to 47)
22.2 (13 to 35)	21 Eczema	21 Ischaemic heart disease	21.9 (17 to 29)	48 (40 to 57)
22.7 (19 to 28)	22 Epilepsy	22 Eczema	22.3 (16 to 35)	29 (19 to 39)
23.9 (18 to 32)	23 Tuberculosis	23 Diarrhoea	23.1 (19 to 28)	5 (-1 to 11)
24.5 (19 to 34)	24 Ischaemic heart disease	24 Alzheimer's disease	25.9 (21 to 33)	80 (71 to 88)
25.3 (21 to 33)	25 Neonatal encephalopathy*	25 BPH	26.3 (20 to 35)	84 (48 to 120)
	30 Alzheimer's disease	26 Tuberculosis		
	35 BPH	27 Neonatal encephalopathy*		

Ascending order in rank ----- Descending order in rank

■ Communicable, maternal, neonatal, and nutritional disorders
■ Non-communicable diseases
■ Injuries



Najčešći uzroci invaliditeta Evropa

Ranking legend



Cause	Global	High-income Asia Pacific	Western Europe	Australia	High-income North America	Central Europe
Low back pain	1	1	1	1	1	1
Major depressive disorder	2	4	2	2	2	2
Iron-deficiency anaemia	3	26	48	22	88	14
Neck pain	4	3	4	3	4	4
Chronic obstructive pulmonary disease	5	21	9	10	6	10
Other musculoskeletal disorders	6	2	5	4	3	5
Anxiety disorders	7	8	6	6	5	6
Migraine	8	11	8	8	15	8
Diabetes mellitus	9	7	7	11	8	7
Falls	10	5	3	5	12	3
Osteoarthritis	11	6	13	15	10	9
Drug use disorders	12	12	11	9	7	16
Other hearing loss	13	13	18	19	20	12
Asthma	14	15	12	7	11	21
Alcohol use disorders	15	16	17	17	16	18
Schizophrenia	16	17	21	13	9	13
Road injury	17	19	14	14	27	11
Bipolar affective disorder	18	20	19	20	19	19
Dysthymia	19	22	20	21	21	20
Epilepsy	20	32	33	44	32	25
Ischaemic heart disease	21	18	15	18	17	15
Eczema	22	24	26	23	25	22
Diarrhoeal diseases	23	30	31	31	29	41
Alzheimer's disease and other dementias	24	10	10	12	14	17



Ukupni uticaj bolesi na zdravlje stanovništva

*Disability adjusted life years **DALYs***

One DALY= Loss of 1 year of healthy life

Kardiovaskularne bolesi	11.8%
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Neoplazme	7.6%
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Mentalne bolesi	7.4%
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Muskuloskeletne bolesi	6.8%
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- **Muskuloskeletne bolesti su najbrže rastući uzrok koji utiče na zdravlje stanovništva**
 - uvećanje od 45% u periodu 1990 – 2010 (Lancet)
- **Osteoartroze su najbrže rastuća pojedinačna bolest**

Uticaj na radnu nesposobnost

- Reumatske tegobe su glavni razlog odsustva sa posla zbog bolesti u razvijenim zemljama
- posle respiratornih oboljenja najčešći razlog **kratkoročnog odsustva** (manje od dve nedelje).
- **Najčešći razlog dugoročnog odsustva**
više od polovine svih izostanaka koje traju duže od dve nedelje (u Norveškoj)

Uticaj na zdravstveni sistem

- LM bolesti su *drugi najčešći razlog upućivanja pacijenata na specijalistički pregled* u većini zemalja sveta (**10–20%** konsultacija)
- LM oboljenja su **najskuplje bolesti** za zdravstveni sistem (u Švedskoj 22.6% ukupnih troškova za lečenje)

- Ukupni direktni troškovi
 - 0,7% od bruto nacionalnog proizvoda u Holandiji, 1,0% u Kanadi, a 1,2% u SAD
- Indirektni troškovi (gubitak produktivnosti i plate)
 - 2,4% od bruto nacionalnog proizvoda u Kanadi

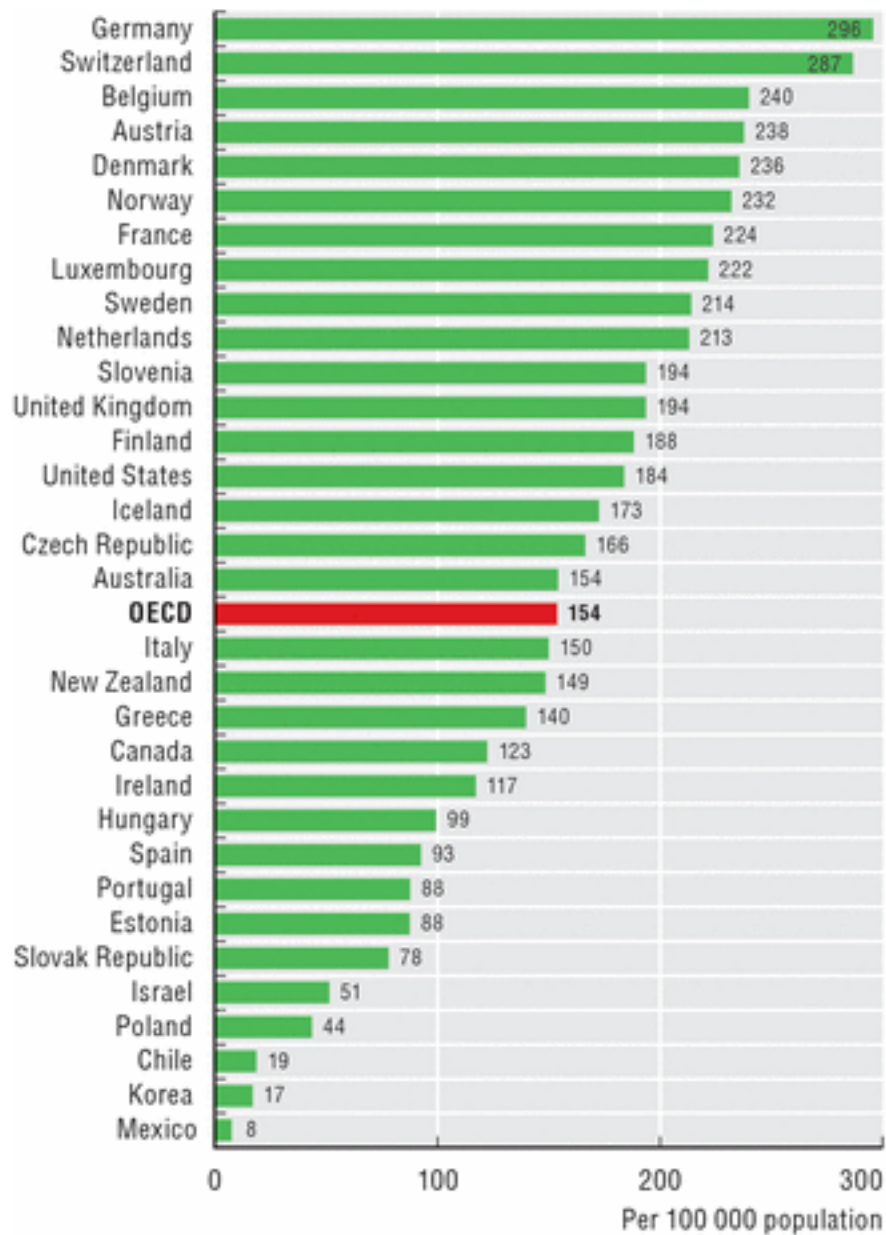
Najčešće hirurške procedure u SAD

– Sectio Cesarea:	1.300,000
– <i>Totalna proteza kolena:</i>	719,000
– <i>Repozicija preloma:</i>	671,000
– Histerektomija:	498,000
– Koronarni stent:	454,000
– Koronarni bypass graft:	395,000
– <i>Totalna proteza kuka:</i>	332,000

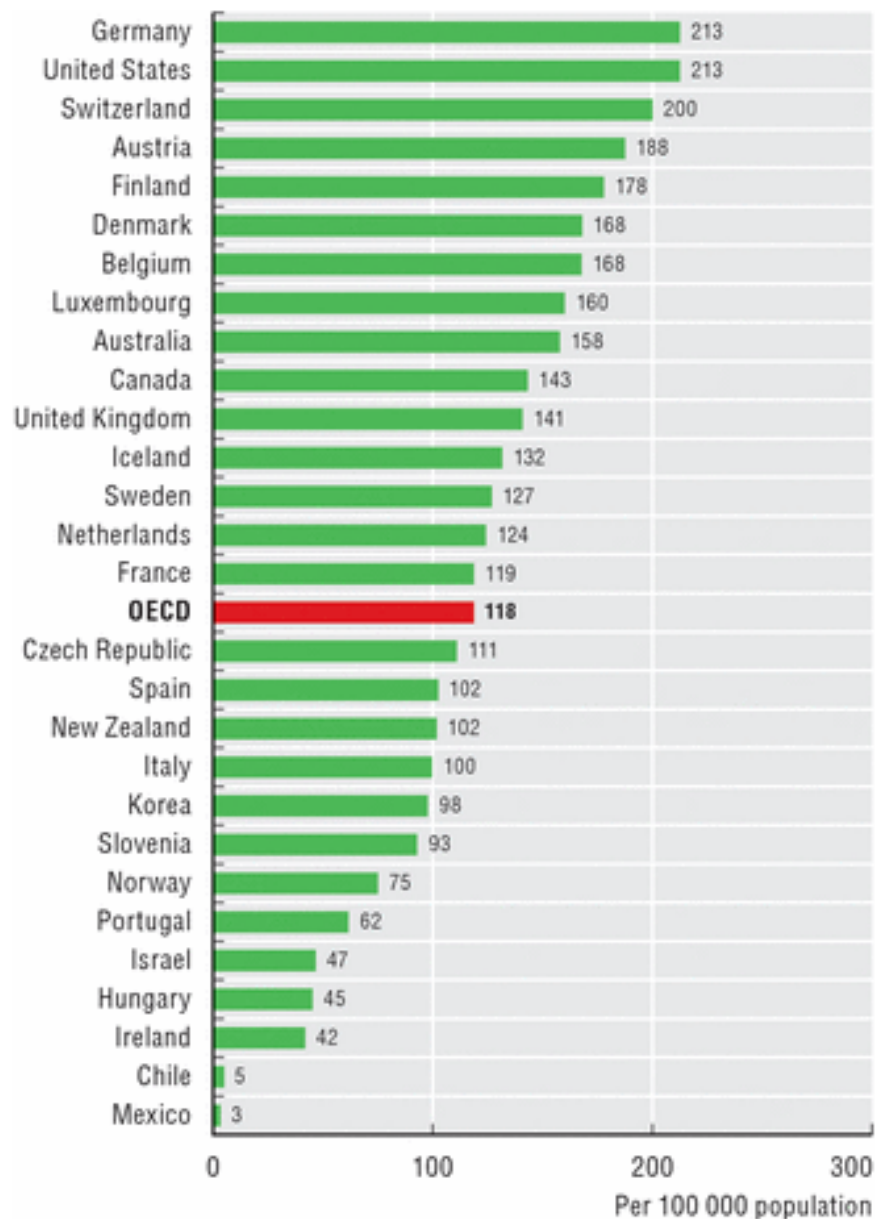
Najčešće hirurške procedure u Kanadi

2012–2013:

- Sectio Cesarea : 100,686
- *Totalna proteza kolena:* 57,829
- *Totalna proteza kuka:* 47,297
- Histerektomija: 40,127
- Koronarna dilatacija: 40,074



TP Kuka
/
100.000
stanovnika



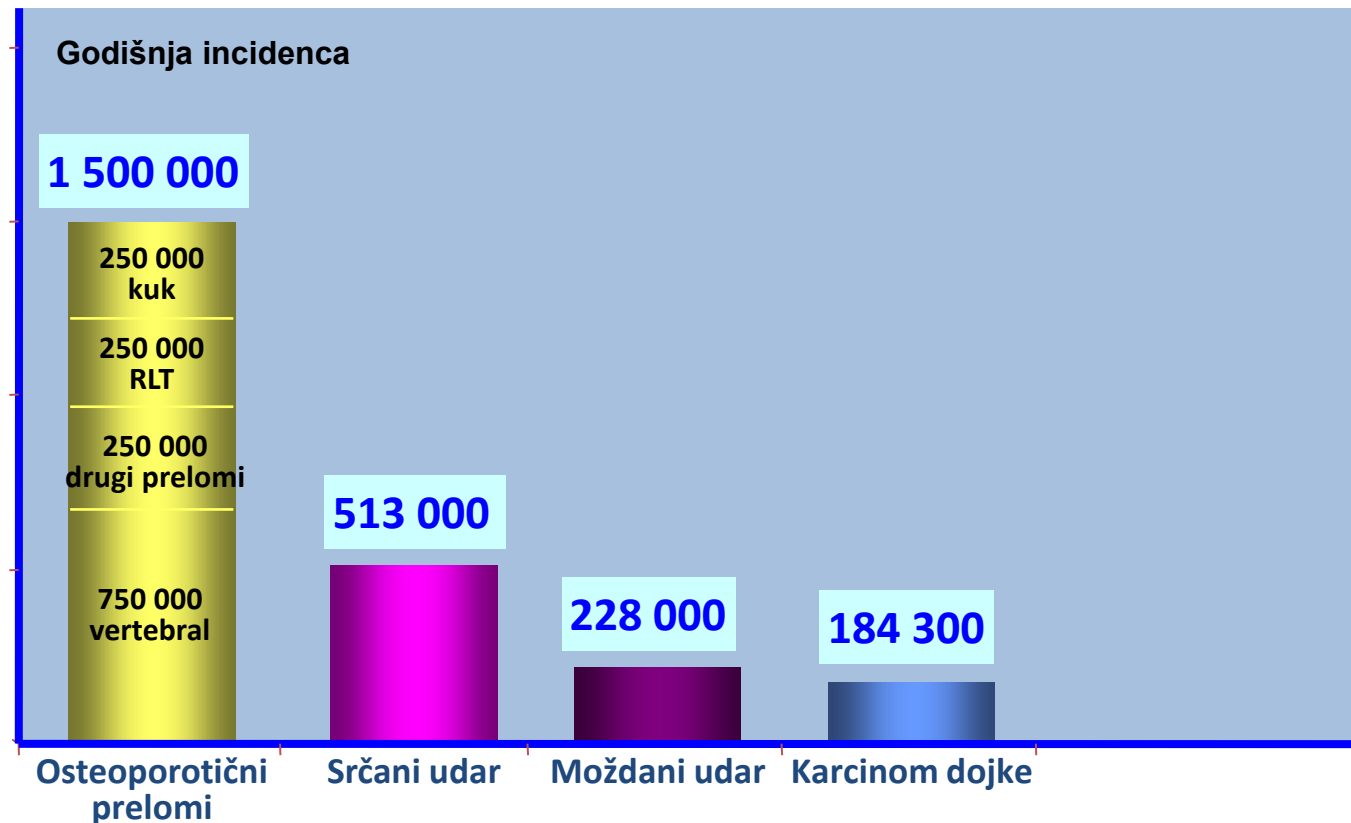
TP Kolena
/
100.000
stanovnika

Source: OECD Health Data 2011.

Deset najskupljih bolesti u SAD

- **Septikemija** **\$20.3 Mld**
- **Osteoartroze** **\$14.8 Mld**
- **Komplikacije upotrebe implantata, opreme isl** **\$12.9 Mld**
- **Porodjaji** **\$12.4 Mld**
- **Akutni infarkt miokarda** **\$11.5 Mld**
- **Spondylosis, diskopatije i sl** **\$11.2 Mld**
- **Pneumonija** **\$10.6 Mld**
- **Congestive heart failure:** **\$10.5 Mld**
- **Koronara ateroskleroza** **\$10.4 Mld**

Osteoporotični prelomi i druge bolesti



American Heart Association, 1996

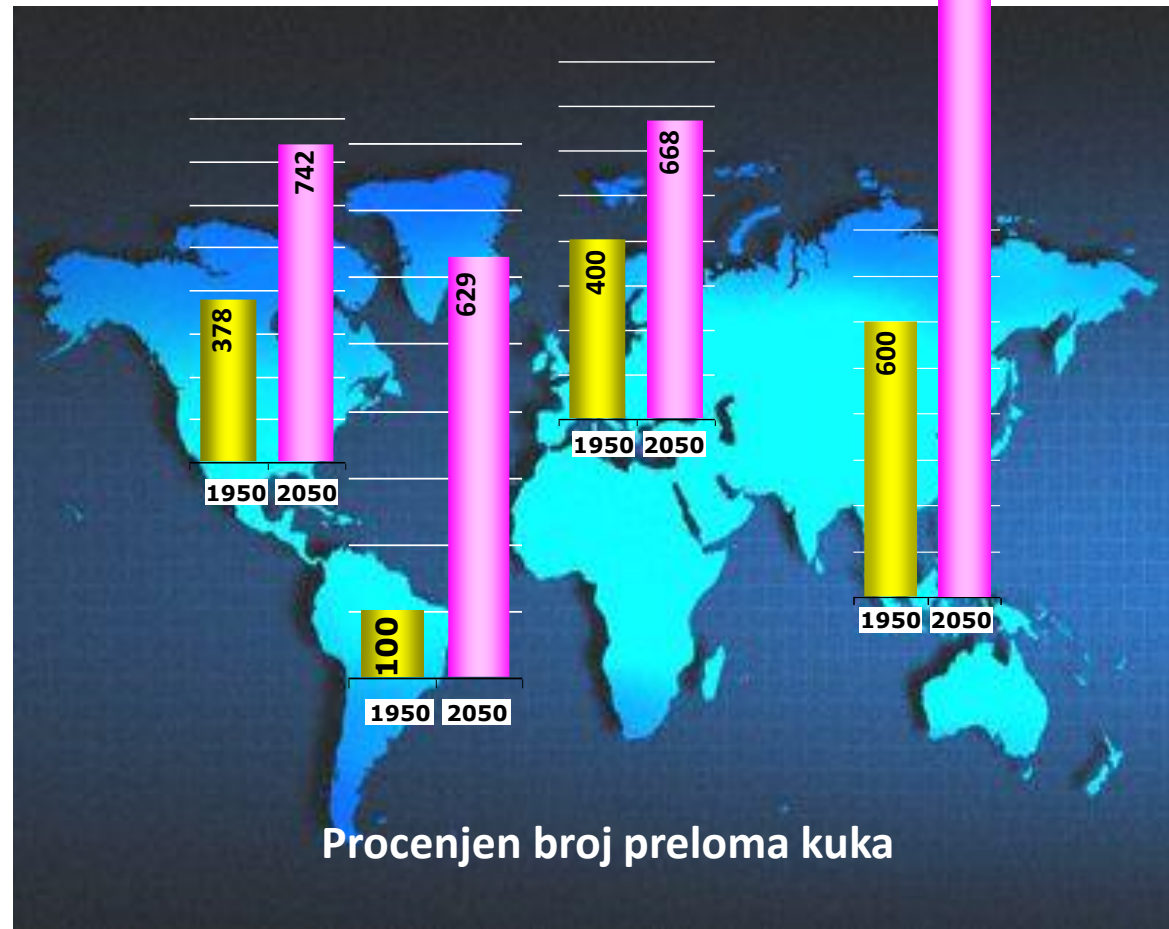
American Cancer Society, 1996

Riggs & Melton Bone, 1995; 17:505S-511S

4/14/2021

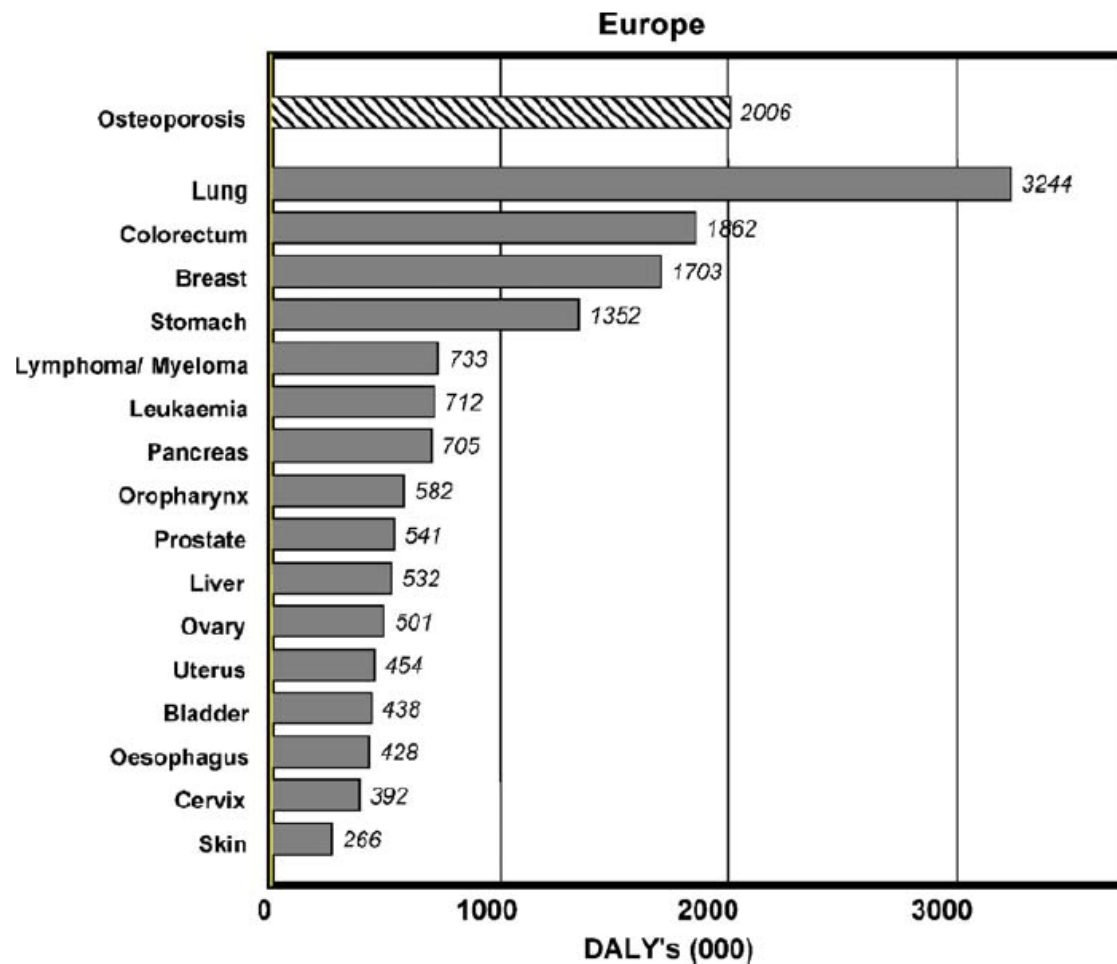
Projektovani broj preloma kuka u svetu

Ukupni broj preloma kuka:
1990 = 1.66 million
2050 = 6.26 million

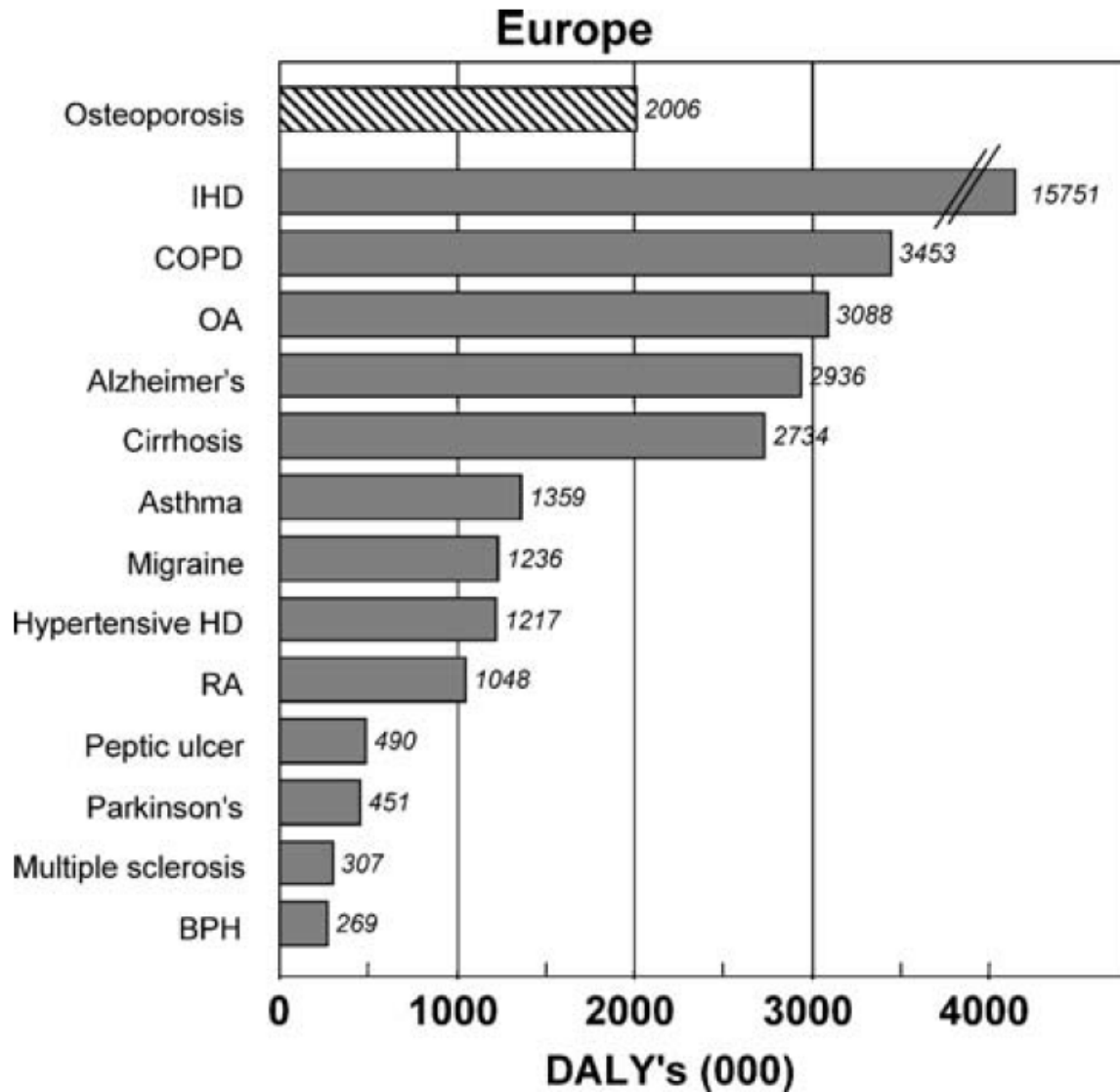


Osteoporotični prelomi

Fig. 4 Disability-adjusted life-years (DALYs) lost due to osteoporosis and to different neoplastic disorders in Europe

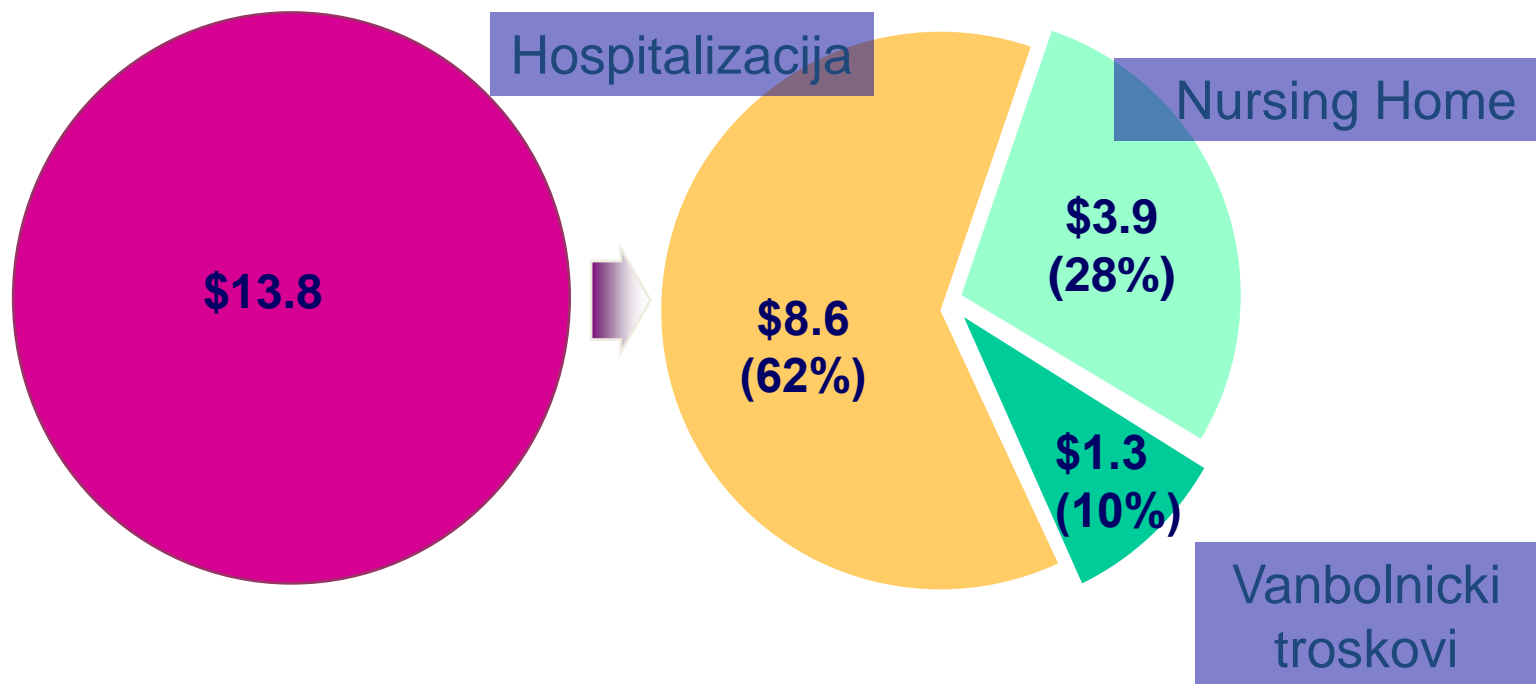


Osteoporotični prelomi



Troskovi lečenja osteoporotičnih preloma

Ukupni troškovi



Zaključak

- Najčešće bolesti i povrede u većini zemalja sveta krajem prošlog i početkom ovog veka su vezane za ortopedsku hirurgiju – degenerativna oboljenja lokomotornog aparata i osteoporotični prelomi.
- Osim medicinskog značaja, ove bolesti zbog masovnosti pojavljivanja predstavljaju i veoma ozbiljan socijalni i ekonomski problem u gotovo svim društvenim zajednicama.

- Izneti podaci pokazuju da muskulo-skeletne bolesti predstavljaju *veoma ozbiljan zdravstveni i socijalni problem* u svim delovima sveta i u našoj zemlji i da im treba dati *isti tretman i obezbediti iste resurse* kao i drugim bolestima koje značajno utiču na zdravlje stanovništva, kao što su maligne bolesti, mentalna i kardiovaskularna oboljenja.

