TABLE I. Charlson Comorbidity Index*

Score	Condition
1	Myocardial infarction (history, not ECG changes only)
	Congestive heart failure
	Peripheral vascular disease (includes aortic aneurysm ≥6 cm)
	Cerebrovascular disease: CVA with mild or no residua or TIA
	Dementia
	Chronic pulmonary disease
	Connective tissue disease
	Peptic ulcer disease
	Mild liver disease (without portal hypertension, includes chronic hepatitis)
	Diabetes without end-organ damage (excludes diet-controlled alone)
2	Hemiplegia
	Moderate or several renal disease
	Diabetes with end-organ damage (retinopathy, neuropathy, nephropathy, or brittle diabetes)
	Tumour without metastases (exclude if >5 years from diagnosis)
	Leukaemia (acute or chronic)
	Lymphoma
3	Moderate or severe liver disease
6	Metastatic solid tumour
	AIDS (not just HIV-positive)

Abbreviations: AIDS = acquired immunodeficiency syndrome; CVA = cerebrovascular accident; ECG = electrocardiogram; HIV = human immunodeficiency virus; TIA = transient ischaemic attack

* For each decade >40 years of age, a score of 1 is added to the above score

TEACH-ONE

Charlson Concept

HAP 464
Spring 2021
Jo-Vivian Yu

TABLE OF CONTENTS

WHAT IS CHARLSON'S INDEX? (1987)

"The **Charlson Comorbidity Index** is a method of **categorizing comorbidities*** of patients based on the *International Classification of Diseases* (ICD) diagnosis codes"

- Purpose: predict **risk of death** within groups of people (ie hospital patients) in a year
- Types of categories (**total: 19 categories**) : diabetes, heart disease, high blood pressure (HBP), etc
- Each comorbidity category has an associated number (1-6)
  - Number is based off of mortality rate
    - 1 = low mortality rate
    - 6= high mortality rate

* comorbidities - presence of one or more addition conditions often co-occurring with a primary condition

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* For each decade >40 years of age, a score of 1 is added to the above score

HOW TO GET YOUR CHARLSON'S INDEX SCORE:

1. **Determine** conditions and their score
2. **Add** up total score!
3. Determine score meaning:
    a. The ***higher the sum***, the higher mortality is the result of these conditions

DEYO/CHARLSON COMORBIDITY INDEX (1992)

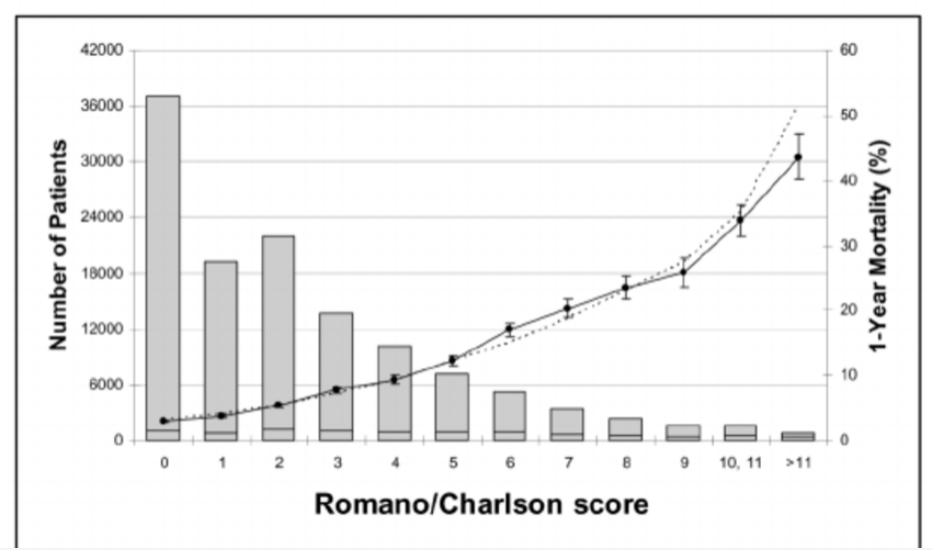
	T1DM	T1DM Controls	P Value	T2DM	T2DM Controls	P Value
Deyo/Charlson Comorbidity Index (mean CCI)[a]	3.88	0.72	<.001	2.47	0.77	<.001
Dementia (%)	147 (2.2)	83 (1.3)	<.001	2839 (1.5)	2432 (1.3)	<.001
Chronic pulmonary disease (%)	1374 (21.0)	831 (12.7)	<.001	31,108 (16.0)	25,920 (13.3)	<.001
Rheumatologic disease (%)	35 (0.5)	80 (1.2)	<.001	1793 (0.9)	2744 (1.4)	<.001
Hypertension (%)	2382 (36.3)	3386 (51.6)	<.001	94,257 (48.4)	98,062 (50.4)	<.001
Dyslipidemia (%)	895 (13.6)	1536 (23.4)	<.001	48,415 (24.7)	49,572 (25.5)	<.001
Obesity (%)	25 (0.4)	16 (0.2)	0.16	742 (0.4)	500 (0.3)	<.001
Nephropathy (%)	125 (1.9)	0 (0)	<.001	3462 (1.8)	24 (0.01)	<.001
Neuropathy (%)	27 (0.4)	2 (0.03)	<.001	788 (0.4)	52 (0.03)	<.001
Retinopathy (%)	280 (4.3)	1 (0.02)	<.001	2871 (1.5)	48 (0.02)	<.001
Acute myocardial infarction (%)	20 (0.3)	10 (0.2)	0.07	434 (0.2)	457 (0.2)	0.44
Ischemic heart disease (%)	678 (10.3)	530 (8.1)	<.001	20,055 (10.3)	18,337 (9.4)	<.001
Congestive heart failure (%)	381 (5.8)	132 (2.0)	<.001	5762 (3.0)	3913 (2.0)	<.001
Peripheral vascular disease (%)	175 (2.7)	177 (2.7)	0.91	4785 (2.5)	5142 (2.6)	0.0003
Cerebrovascular disease (%)	165 (2.5)	212 (3.2)	0.01	5168 (2.7)	6131 (3.2)	<.001
Osteoarthritis (%)	258 (3.9)	704 (10.7)	<.001	11,738 (6.0)	19,945 (10.2)	<.001
Osteoporosis (%)	118 (1.8)	428 (6.5)	<.001	5260 (2.7)	14,517 (7.5)	<.001
Asthma (%)	87 (1.3)	139 (2.1)	<.001	2889 (1.5)	4385 (2.3)	<.001

Deyo/Charlson Index for Type 1 and type 2 diabetes

- Purpose: **predict long term survival**
- **Modified** 19 categories → 17 categories
  - Based on various chronic medical conditions at the time

ROMANO VERSION OF CHARLESON'S INDICES

- **Created** ICD-9-diagnosis derived from charlson's conditions
- Improved score accuracy
- With Deyo/Charlson comorbidity index, it allowed calculations to be created using **hospital's administrative data**



Task 1:

Part 1

Find original Charlson, Deyo's Version of Charlson, and the Romano's Version of Charleson indices

HINT:

USE YOUR RESOURCES (PUBMED, GOOGLE, MASON LIBRARY, ETC)

Part 2:

For each index, identify how many articles have cited the work

HINT:

USE GOOGLE SCHOLARS TO DISCOVER HOW MANY ARTICLES HAVE CITED IT

Part 3:

Describe the number of diagnoses used by each of these three approaches. Which index best predicts mortality rate?

HINT:

USE GOOGLE - USE TERMS SUCH AS "PREDICTS" AND "MORTALITY" RATE

Task 1:

Part 1

Find original Charlson, Deyo's Version of Charlson, and the Romano's Version of Charleson indices

ANSWER:

MAY VARY -- but should look very similar to pictures seen in previous slides!

Part 2:

For each index, identify how many articles have cited the work

ANSWER:

Charlson's Index: 4571
Deyo/Charlson Index: 8873
Romano Index: 1799

Part 3

Describe the number of diagnoses used by each of these three approaches. Which index best predicts mortality rate?

ANSWER:

Charlson's Index: 19
Deyo/Charlson Index: 17
Romano Index: 17

Romano's best predicts mortality rate because of improved ability to predict the mortality rate

GOOD LUCK!