



Diagnostic Errors in Respiratory Medicine: A Possible Method of Assessment

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INTRODUCTION

The diagnostic errors are a controversial, hot-topic but also a real-life concern. Starting with 1999 Institute of Medicine's publication: "To Err is Human", academic and mass media's interest grew regarding unintended harm due to medical care procedures. The alarming figures stating that 1 in 10 patients may be harmed due to medical error may be the result of overwhelmed physicians in their attempt to optimize the diagnosis and treatment process.

LEARNING OBJECTIVES

- To assess a possible formula of discovery diagnostic errors
- To find a way to prevent future errors
- To learn how the errors occur in our clinic
- To find out the key factor that leads to a possible error and eliminate it

MATERIALS AND METHODS

Using a database analysis of patients admitted and released from our Clinic of Pulmonary Diseases, we proposed a formula to assess the possibility to identify the diagnostic errors since Romania lacks connected nation-wide medical records.

We analyzed data of the patients admitted, released and deceased within a 35 months' period (23789 entries), between January 1st, 2015 – December 31st 2017.

Database was constructed using patients' identification data, ICD-10-CM diagnostic codes, diagnostic on admittance, diagnostic after 72 h, diagnostic on release (or if deceased, diagnostic based on necropsy) (Table 1).

To assess possible **red-flags** on diagnostic error, we used the following triggers: correspondence between admittance diagnostic and release diagnostic, re-admittance earlier than 30 days with same or other diagnostic, admittance diagnostic and necropsy diagnostic.

Table 1. Database analysis

All Patients	Number	Percent
	23789	
No correspondence Admittance/Release Diagnostic	9212	33,9%
No correspondence Admittance/ First 3 secondary release	8076	38,7%
No correspondence Admittance/72 H diagnostic	8136	34,2%
No correspondence 72 H/Release Diagnostic	4567	19,2%
Re-admitted in less than 30 days	1708	7,2%
Re-admitted in less than 30 days with other diagnostic	1202	70,4% *
Re-admitted in less than 30 days with same diagnostic	506	29,6% *
No correspondence Admittance diagnostic and Necropsy Report	431	1,8%

* Percent from number of patients re-admitted in less than 30 days

Based on this data, we constructed a score-card, attributing:
 "Score=0" for correspondence between admittance and release or necropsy diagnostic,
 "Score=1" for non-correspondence between admittance and release diagnostic (primary or any other first 3 secondary diagnostics),
 "Score=2" for non-correspondence between admittance and necropsy diagnostic,
 "Score=3" for readmittance earlier than 30 Days with other diagnostic
 "Score=4" for readmittance earlier than 30 Days and non-correspondence between admittance and necropsy diagnostic (Figure 1).

RESULTS

Figure 4 1. Matrix for Score assessment of the diagnostic concordance

Score Card	Admittance-Release Concordance	Admittance Diagnosis – Necropsy Report Concordance	Admittance – Release Not Concording	Admittance Diagnosis – Necropsy Report Not Concording
Released	0	N/A	2	N/A
Deceased	N/A	1	N/A	2
Admitted Sooner Than 30 Days With Same Diagnosis	1	1	2	4
Admitted Sooner Than 30 Days With Different Diagnosis	2	3	3	4

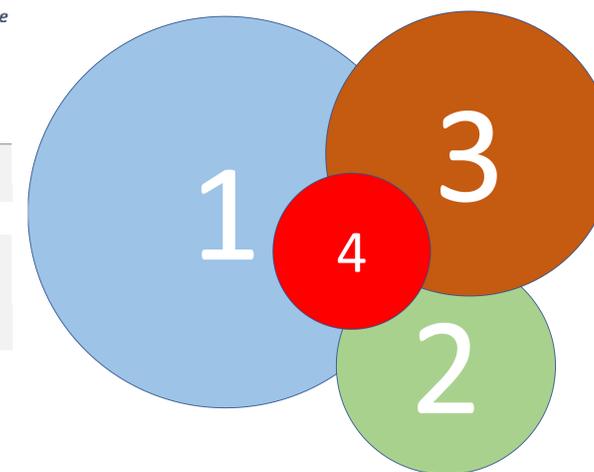


Figure 1. Matrix Score Card

Figure 2. Assessment of Scores

As Figure 2 shows, 33,9% (9212) of patients had no correspondence between admittance and release diagnostic (Score=1). 7,18% (1708) had different cause of death than the admittance diagnostic (Score=2), 5% (1202) of patients returned earlier than 30 days after release (Score=3) and 1,8% of patients were admitted earlier than 30 days after release, with other diagnostic of admittance and non-concordance between admittance and necropsy diagnostic, hence receiving a Score=4 (431).

Since scores of 1 and 2 may be considered possible errors of the process, we considered patients framed in Score 3 and 4 as probable diagnostic errors.

Assessing diagnostic errors is a challenging

Analyzing the figures and judging the pathological diversity of patients who address a Clinical Hospital in an University City, we might say that it is safe to consider the patients with scores higher than 1 as wrongfully diagnosed (and, in consequence treated) but the final percent **6,8%** (derived from 5 % score 2 + 1,8% Score 3 + 0,1% Score 4) is approximate with the percentage many international studies have found: 10%.

Diagnostic errors are difficult to assess and more difficult to be accepted by the physicians, hospital officials and patients. The proposed formula may be a way to make these errors quantifiable and opens a possible window to an attempt to prevent them.