

Predictive scores, complexity assessment tools and fruit salads. One, none and one hundred thousand?

Micaela La Regina,¹ Roberto Nardi,² Andrea Fontanella³

¹Internal Medicine, La Spezia; ²Internal Medicine, Bologna; ³Internal Medicine, Napoli, Italy

Dear Editor,

Complexity is the quality of being intricate and compound. It refers to the degree of complication of a system or of a system component, determined by such factors as the number and intricacy of interfaces, the number and intricacy of conditional branches, the degree of nesting, and the types of data structures.¹ According to these meanings, complexity in a patient involves the intricate entanglement of two or more systems (e.g., body diseases, family-socio-economic status, therapies). In complexity, the interaction of multiple different factors in the same patient (social, medical, family, therapy, etc.) and its consequence have to be assessed in a multidimensional approach. Measuring patients' complexity has important implications for clinical decision-making (including end of life palliative care), organization of care and resources allocation. Nevertheless, complexity is not considered at all in most clinical guidelines that address single diseases. A cluster disease approach in research - meaning clustering as the process of nosographic grouping diseases into meaningful associations with an index one - could be a first step in the development of new respectful of complexity guidelines.²

Indeed, nowadays the concept of complexity in Internal Medicine lacks a precise definition. *The complexity of measuring clinical complexity* is the title of an editorial published on the *Annals of Internal Medicine*

in 2011.³ This uncertainty can be particularly significant.⁴ In the global assessment of acutely ill patients some doctors believe that *one look is much better than one thousand words*, suggesting, for instance, that a considerable amount of information can be gleaned just by looking at the patients and their gait.⁵ Unfortunately, in this attempt to simplify the clinical approach in predicting prognosis, their statement did not consider a lot of variables, such as breathlessness, bleeding, nausea and vomiting, diarrhea; they also did not consider whether or not patients needed urgent treatment, or the amount of expertise, equipment and physical work required to manage them. How can all these different requirements of every individual patient be captured in a single simple score? This is the question. A multi-dimensional assessment provides useful prognostic information in the complex patients.⁶ So, which could be the best way to measure clinical complexity in Internal Medicine wards? In this matter anything and everything could be said, in analogy with the title of Pirandello's novel *One, none and one hundred thousand*. We could choose to consider some single elements of our patients (such as clinical stability, short and/or long term needs, life expectancy, readmission rate, treatment requirements, expertise of professionals, equipment, transfer need to higher level, doctors and nurses workload, complication prevention, occupational therapy and physiotherapy, home care/nursing, home care, palliative care/supportive care, and so on...), really running in this way the risk of making a *fruit salad* without satisfying our guests with the main appetizing meal. On the contrary, we could also try to look for surrogate tools that can synthetically reflect the different aspects of complexity. From prognostic scores we should not expect to consider all the variables involved. The less is better, the whole is worse. In developing any new index of complexity and its prognostic implications, investigators should focus on easily accessible and adaptable items in the clinical record, better if using some assessment tools commonly just applied in the hospital Internal Medicine wards, both by doctors and nurses. This is our job and the key for future clinical research.

Correspondence: Micaela La Regina, Internal Medicine-Risk Management, ASL 5 Liguria, via Fazio 30, 19121 La Spezia, Italy.

Tel.: +39.0187.533782.

E-mail: micaela.laregina@asl5.liguria.it

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