Since 2004, the Colombian table of occupational diseases includes some cardiovascular and gastrointestinal diseases, as well as mental disorders related to psychosocial risks at work. Considering that these diseases are underdiagnosed, and that the bodies responsible for classifying their origin lack the proper tools, the Ministry of Social Protection, with the academic support of Javeriana University, conducted a study to establish technical criteria, as well as methodology to classify stress-related health disorders.

Consequently, a protocol to determine the origin of these diseases was designed and validated, which is used as guide by interdisciplinary teams responsible for defining the origin of these events in social security institutions and disability-classifying committees. The objective was to design a homogeneous and valid method to analyze, assess and establish causal relationships between psychosocial exposures at work and onset of diseases among the working population.

The protocol design is grounded on the following criteria:

- Diseases stem from various causes: the existing documentation on the effects of stress allows asserting that stress-mediated diseases are not exclusively limited to individual conditions, but that widely diverse environmental stimuli are also involved in the causal network of logical processes;
- The epidemiological criteria used to define causality are: antecedence in time, strength of association, consistency of findings, and biological plausibility (of a risk factor with respect to disease);
- Determination of origin presupposes documenting exposure to risk factors, both intra-occupational and extra-occupational;
- Presence of extra-occupational (e.g. biological and individual) risk factors by themselves does not immediately rule out the presence of occupational risk factors;
- To estimate the preponderance of risk factors both occupational and extra-occupational in a case, it is necessary to evaluate both. In other words, it can be said that one phenomenon is larger than another only when the dimensions of both were established;
- The quality of the information documenting the evaluation of all risk factors is essential to validate their consideration within the process to determine the origin of a disease;
- The algorithm included in the protocol can only determine the occupational origin of a disease once the existence of an occupational risk factor was documented.

Developing the protocol involved a revision of the state of the art relative to cardiovascular, gastrointestinal, musculoskeletal, endocrine and nervous system disorders associated with stress reactions. The literature review allowed us document the information on stress-related diseases, which were defined as those in which as a function of their persistence or intensity, stress reactions activate the pathophysiological mechanism of stress. We also analyzed the legal aspects considered in other countries for the determination of the origin of diseases, as well as the process of qualification and procedures to evaluate psychosocial risk factors.

Risk factors for each of the diseases undergoing classification were defined and ranked by clinical medical teams of different specialties using Dean and Nishry’s method of paired comparisons, according to four epidemiological criteria of causality: antecedence in time, strength of association, consistency of findings, and biological plausibility (of the risk factor with respect to the disease) which were estimated by means of quantitative evaluation.

As a function of the previous hierarchy, a valuation matrix for risk factors (psychosocial and non-psychosocial) was developed for each disease, which allows estimate their relative weight within the set of risk factors.

The matrices were validated with a representative group of cases, which allowed calculating ROC curves to estimate the protocol sensitivity and specificity for each disease, as well as the cutoff points to define whether they are occupational or of
common nature. The overall protocol sensitivity was 83% and its specificity 71%. The procedure for origin determination was also defined, which includes qualitative and quantitative criteria for evaluating psychosocial factors based on estimations of intensity, time of exposure and frequency of occurrence, with which the worker’s exposure to risk factors is determined.

**PROCESS FOR ORIGIN DETERMINATION**

According to the protocol, the process to determine the origin of a disease suspected of being derived from stress should follow seven consecutive stages, as follows:

**Stage 1.** Verification of clinical diagnosis: The professional or group of professionals responsible for evaluating a case of stress-related disease presumed of having occupational origin must verify that the disease under study was properly diagnosed;

**Stage 2.** Confirmation that the disease under study might derive from stress: The classifying team must verify that the disease(s) under study is(are) included in the table of occupational diseases in force at the time of classification. When the disease under study is not found in the table, but a causal association with psychosocial risk factors at work is suspected, such association must be documented;

**Stage 3.** Evaluation of intra-occupational and extra-occupational psychosocial risk factors: To obtain good quality information documenting as risk factor, application of methodological triangulation is a must. This procedure assumes that psychosocial factors must be identified based on three different types of evidence to thus reduce bias;

**Stage 4.** Weight of occupational vs. non-occupational psychosocial risk factors: Once detailed evaluations of intra-occupational and extra-occupational psychosocial factors were performed, we compare them to estimate the preponderance of one or another. The larger mean value obtained in the evaluation of intra-occupational and extra-occupational risk factors provides the criterion to include a case in the procedure for origin determination;

**Stage 5.** Evaluation of other risk factors: Bearing in mind that the concept of necessary and sufficient cause is currently giving way to multicausal models of explanation of diseases, the determination of the origin of diseases presumed to derive from occupational stress should be performed from the perspective that they are not caused by a single factor, i.e., the psychosocial, but by the interaction of this with other factors. For this reason, the protocol includes a stage aiming at the recognition and evaluation of other risk factors in each case to establish the weight of an occupational psychosocial factor has vis-à-vis other risk factors of different nature;

**Stage 6.** Weight of all identified risk factors-use of evaluation matrices: Decision-making matrices are used to weigh all the risk factors considered for diseases. The matrices were developed based on the agreement of medical specialists from several areas regarding the consistency of findings, biological plausibility, timing and latency time of risk factors, including the occupational psychosocial factor;

**Stage 7.** Comparison of the relative weight of the occupational psychosocial risk factor obtained in the decision-making matrix with the cutoff point set for this factor in the disease under study.

Once the relative weights of the common and occupational risk factors were considered, a decision is made in regard to the origin of disease. The criterion for this purpose is provided by the relative weight the occupational psychosocial risk factor has in each case.

The protocol developed to determine the origin (common or occupational) of stress-related diseases is based on the principle of multicausality of these diseases. Therefore the methodology requires rigorously documenting exposure to risk factors, both occupational and extra-occupational. The protocol to determine the origin of stress-related diseases is used nationwide as mandatory tool of reference by interdisciplinary teams at social security institutions in the country.

While application of the protocol into practice and scientific breakthroughs in the understanding of the etiology of diseases led to a recent update of the risk assessment matrices, it still maintains the same methodology and algorithm.

**REFERENCES**