September 25, 2012

Washington State Department of Social & Health Services

Information Sheet:
Division of Developmental Disabilities
Acuity Assessments and Algorithms

The DDD CARES assessment is a computerized assessment (evaluation) tool. One of the end products of the CAREs assessment is an "**acuity**" level. This level or score provides the same basis for documenting assessed elements and for standardizing the key questions that are part of the CARES assessment. The design helps provide consistency from client to client by minimizing subjective bias and assists in promoting objective assessment of a person's support needs.

Algorithms are the computerized "recipe" for implementation of mathematical principles and formulas.

To analyze client assessment information and calculate a clients' acuity score and other findings, the CARES program uses "**algorithms**" that guide the computer, step by step, exactly what to do. An algorithm is a procedure or formula for solving a problem. The computer then "executes" the algorithm, following each step in the same way, to accomplish the analysis of each client's information.

The predesigned computer algorithms tell the computer *what* to do and how to do it. The results from the CARES aalgorithms provide DDD case managers with numerical recommendations for:

- A calculation from the assessed information that identifies client's relative level of need and
- Determination regarding which assessment modules a client receives as part of his/her DDD assessment; and
- Assignment of a service level to support a client's assessed need

These are the steps that DDD follows to create these computerized formulas: .

Step 1—Define the Algorithm

Subject matter expert staff must thoroughly understand the assessment process and substance. They have to answer the following questions:

- What factors are related to the item you want to predict?
- What will be the "gold standard" for what you want to predict?
- How should the factors be combined to achieve the best possible match with the "gold standard"?

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Input and collaboration is essential from stakeholder representatives and program managers. They understand the business process in which the algorithm will operate and help identify the most relevant factors based on extensive clinical, treatment, educational and personal experience with clients.

Step 2 – Linking the Algorithm to Service Units

Once the acuity measure is defined, the algorithm is linked to service units. There are several key questions to answer in this step. Stakeholders and program managers are consulted to ensure that the proposed process will work effectively within the service delivery environment.

- Will the unit be hours, dollars, other?
- How will acuity be linked to that unit?
- In addition to acuity, what other factors need to be considered in determining overall cost to provide services?

Step 3 – Planning for Implementation

Once the acuity measure and allocation method are defined, a plan is developed for implementation of the new method. Implementation planning requires careful attention to ensure that the new process or timelines for implementation will not excessively disrupt the service system. When done properly, implementation planning is just as big of a project as defining the algorithm itself. Stakeholder input is critical and often answer these types of questions.

- How will the new allocation process impact current services?
- How to mitigate impact for areas that will experience significant changes?
- What will the exception request process be?

Step 4 – Implementation

The implementation process is closely followed, as unplanned and unexpected situations may occur with implementation. These questions apply at this step.

- Is the new process being implemented as planned?
- Is the algorithm performing as anticipated under real conditions?
- Are there any unanticipated impacts?

Step 5 – Continued Monitoring and Development

The algorithm development process does not end once the new process has been successfully implemented. Because service systems evolve, so do technical advances and our understanding of computerized processes, the algorithms are subjected to continuous quality improvement over time.

- Is the algorithm still working successfully in a changing world?
- Is new knowledge available that can make the algorithm even better?
- Did the algorithm achieve its intended purpose?
- Depending upon the amount of human interaction that is involved in the algorithm application process, are staff following the process as trained or drifting from the designated method?