OVERVIEW OF
ADEQUACY OF PRENATAL CARE UTILIZATION INDEX

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The Adequacy of Prenatal Care Utilization (APNCU) Index attempts to characterize prenatal care (PNC) utilization on two independent and distinctive dimensions - namely adequacy of initiation of PNC and adequacy of received services (once PNC has begun). The index uses information readily available on U.S. birth certificates (month of initial PNC visit, number of visits, and gestational age). It is a major improvement over existing indices, and is consistent with the 1985 American College of Obstetricians and Gynecologist (ACOG) recommendations for PNC utilization. This index does not assess quality of the prenatal care that is delivered, only its utilization.

The initial dimension "Adequacy of Initiation of Prenatal Care" characterizes the adequacy of the timing of initiation of PNC. The assumption underlying, this scale is that the earlier PNC begins the better. ACOG recommends PNC begin in the first month of pregnancy; the Institute of Medicine now encourages pre-conceptual care. The month or trimester prenatal care begins is widely used as a measure to assess the adequacy of timing of initiation of PNC, since it accurately and succinctly describes when PNC begins. The APNCU Index uses this measure to assess Adequacy of Initiation of PNC, though the initiation months are collapsed into four distinct groupings: (1,2) (3,4) (5,6) (7-9 or none) months.

The second dimension "Adequacy of Received Services" characterizes the adequacy of received PNC visits during the time period after prenatal care is begun until the delivery. This dimension attempts to characterize if the woman received the appropriate number of prenatal care visits for the time period they were receiving PNC services. It is based on ACOG standards (one visit per month through 28 weeks, one visit every 2 weeks through 36 weeks, and one visit per week thereafter, adjusted for data of initiation of PNC). This is the newly measured dimension of the APNCU-Index.

To assess the Adequacy of Received Services requires four steps. First, it is necessary to determine the number of expected PNC visits for each pregnancy, given the date PNC began and the date of delivery. This can be done easily (by computer or by hand) by noting the number of ACOG recommended visits for a given gestation and then adjusting or reducing, that number based on the date of PNC initiation (assuming missed visits are not made up). For example, in a 40-week pregnancy ACOG recommends 14 visits; if PNC began in month 4 (3 missed visits), then the expected number of visits = 11 (14-3). Second, observed PNC visits are directly obtained from the recorded number of PNC visits noted on the birth certificate (or any other PNC data source). Third, the proportion of observed visits/expected visits is calculated. Fourth, the results are scaled: 0-49% of expected visits = Inadequate; 50-79% = Intermediate; 80-109% = Adequate; 110+% =

Adequate Plus. A similar ratio concept is implicit in the existing Kessner Index. Thus, this second dimension basically uses the fixed ACOG visit recommendation schedule as an underlying metric; defines an (expected) sector of it, beginning at the date of PNC initiation and ending at the gestational date at delivery; and then compares the expected visits with the actual visits received to judge the utilization adequacy. This dimension of Adequacy of Received Services is independent of the prior dimension of Adequacy of Initiation of PNC.

The concepts underlying the two dimensions can perhaps be best understood visually: (see graph next page)

The two dimensions are important in their own right and should be examined separately. The policy and practice issues underlying them may be quite distinct. However, recognizing the popularity of a unitary PNC utilization index and the possible importance of the broadest characterization of PNC utilization adequacy, the two dimensions can be combined into a single summary APNCU Index. The proposed index uses the popular characterization of PNC as inadequate, intermediate and adequate, but also adds a new fourth category of intensive or adequate plus care. Inadequate care is defined as PNC begun after the 4th month or under 50% of expected visits were received. Intermediate care is defined as PNC begun by month 4 and between 50-79% of expected visits were received. Adequate care is defined as PNC begun by month 4 and of 80-109% of expected visits were received. Adequate plus (intensive) care is defined as PNC begun by month 4 and 110% or more of expected visits were received. Inadequate care can be subdivided to isolate those with no PNC.

The present APNCU Index does not adjust for risk conditions of the mother. As ACOG notes, its recommendations are for women without additional risks or complications; more visits would be expected in those cases. Thus, this Index is conservative; it underestimates utilization adequacy (e.g., the number of expected visits has not been increased to account for higher maternal risk status). Future development of the Index will include a maternal risk factor adjustment to increase the number of expected visits for known risk conditions of the mother.

The proposed Adequacy of Prenatal Care Utilization Index can be seen as the second generation of adequacy of prenatal care indices. It improves upon the widely-used Kessner/I.O.M. index, by correcting some of its principle faults - namely its inaccurate characterization of PNC adequacy for women of more than 36 weeks gestation; its failure to distinguish inadequacy due to late initiation from inadequacy due to insufficient visits; its bias towards measurement of adequacy of initiation of care; and its various computational algorithms due to inadequate initial documentation. The APNCU Index should be of great utility to public health officials, health care providers, and health services researchers.

If you have any technical questions about the APNCU Index, please contact me. I am maintaining a listing of all known users. Any future enhancements or modifications will

be quickly distributed to the entire list, so that all users will be operating under similar definitions.

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