February 26, 2008

H.R. Brereton Barlow, President and Chief Executive Officer
Premera Blue Cross
P.O. Box 327
Seattle, WA 98111-0327

RE: Premera Blue Cross Corporate Medical Policy: CP.MP.PR.1.01.502 Augmentative And Alternative Communication Devices (ACD) and Speech Generating Devices (SGD)

Dear Mr. Barlow:

The American Speech-Language Hearing Association (ASHA) is the professional and scientific association representing approximately 127,000 speech-language pathologists, audiologists, and speech, language, and hearing scientists qualified to meet the needs of the estimated 49 million (or 1 in 6) children and adults in the United States with communication disorders. ASHA has concerns regarding Premera Blue Cross' Corporate Medical Policy (CP.MP.PR.1.01.502) on coverage for augmentative and alternative communication devices.

The policy language of concern to ASHA is "(a)ugmentative communication devices and speech generating devices are considered **investigational** in the management of speech and language impairments that are due primarily to autism or other pervasive developmental disorders." Essentially, this policy intends to exclude coverage for AACs and SGDs for those whose speech-language impairments are "primarily due to autism or other pervasive developmental disorders." Premera's policy refers to augmentative and alternative communication devices as "ACDs," while ASHA uses the nomenclature "AACs" to mean the same class of alternative communication devices.

According to Premera's Web site, Premera Blue Cross presently covers "More than 1.4 million members in Washington and over 114,000 members in Alaska." The Premera Family of Companies covers "more than 1.6 million members in Washington, Alaska, Oregon and Arizona." An estimated 320 to 960 of Premera's approximately 1.6 million members may have autism and be affected by this policy.

Background
ASHA wrote Premera a letter in July of 2006 on this topic, emphasizing that it is current, standard practice for speech-language pathologists to use AACs and SGDs in treating persons with autism and speech-language impairments. The latest iteration of Premera's AAC/SGD policy is effective October 9, 2007. In the decade from October 30, 1997, to October 9, 2007, this policy has been revised nine times or nearly once per year. This demonstrates admirable fluidity in Premera's willingness to revisit its coverage approach, as new information in the field becomes available on AACs and SGDs.

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We are writing Premera for the second time about this topic. We remain highly concerned about several aspects of Premera's Corporate Medical Policy (CP.MP.PR.1.01.502), which:

1. was not developed in accord with Premera's stated policy-making method;

2. was not based on documented, current practice for treating autism-related speech-language disorders;

3. was not reviewed or updated by a speech-language pathologist;

4. was not based on an accurate, in-depth analysis of published literature; and

5. inappropriately characterized all AACs and SGDs as "investigational," when speech-language pathologists have commonly and successfully used them for many years.

Further, this policy inappropriately aggregates into single categories: a) all beneficiaries with speech-language impairments related to autism or other pervasive developmental disorders (PDDs); and b) all AACs and SGDs used to treat beneficiaries with speech-language impairments related to autism or other PDDs.

Policy was not Developed with Premera's Stated Method

Premera developed the policy in a manner inconsistent with its publicly stated method, which exists to ensure that its policy is based on a thorough, balanced view of available evidence: "The Company adopts policies after careful review of published peer-reviewed scientific literature, national guidelines and local standards of practice."[i]

However, this 2007 policy update was based solely upon review of published literature, not with respect to any "national guidelines" or "local standards of practice." Literature is only one of three major information categories for Premera's corporate policy-making. Although ASHA's 2006 letter to Premera quotes from and cites to it, Premera does not refer at all to the ASHA policy document, *Guidelines for Speech-Language Pathologists in Diagnosis, Assessment, and Treatment of Autism Spectrum Disorders Across the Life Span* (ASHA, 2006). It is of concern that Premera would omit to consider the clinical guidelines for speech-language pathologists issued from the profession's primary authoritative source. ASHA's *Guidelines* describe modern protocols to assess and treat communication disorders associated with autism. The *Guidelines* speak to the effectiveness of using AACs and SGDs to treat speech-language impairments in persons with autism. There are various citations in it to recent studies demonstrating the value of these devices in improving patients' communication ability.

These are some major concerns ASHA has with the policy:

1. It does not accurately reflect findings in published literature as to the benefits of AACs and SGDs in treating persons with autism and speech-language impairments;

2. The policy was reviewed in November 2004 and July 2007 "by practicing Behavioral Health Specialist," which would appear to be someone with lesser credentials than a psychologist or psychiatrist. In addition, a behavioral health specialist of any type is not an expert in speech-language pathology, thus, would not be in the best position to assess research or determine appropriate treatments relevant to speech-language disorders;

3. The policy updates by Premera's "behavioral health specialist" reflect an inadequate comprehension of the meaning of the literature and the most recent two Premera updates were based on reviews two meta-analyses performed by researchers: the 2006 Premera update was based on a Millar, *et al*, meta-analysis of literature from 1975 to 2003;[ii]

4. The 2007 Premera update was based on a meta-analysis by Wilkinson & Hennig, published in 2007, of literature dated from to 1985-2006;

5. It was developed without regard to two major information categories (national guidelines" and "local standards of practice" that Premera publicly states forms the basis for corporate policy-making; and

6. It does not accurately reflect current nation-wide practice in the field of speech-language pathology, as endorsed by the American Speech-Language-Hearing Association.

According to the "Disclaimer" on Premera's policy document, "(t)he Company adopts policies after careful review of published peer-reviewed scientific literature, national guidelines and local standards of practice. Since medical technology is constantly changing, the Company reserves the right to review and update policies as appropriate." So, there are three primary categories of information that Premera considers in making policy. However, in the "Rationale/Source" part of the policy, the only category referred to is "published literature." There is no reference to the other two: 2. "national guidelines;" and 3. "local standards of practice."

Force and Effect of Premera's Policy

As stated in this document, "medical policy is a guide in evaluating the medical necessity of a particular service or treatment."[iii] Under "Scope," Premera also clarifies that, "(m)edical policies are systematically developed guidelines that serve as a resource for Company staff when determining coverage for specific medical procedures, drugs or devices." So, the policy is not intended to be definitive, but is to be used by Premera staff only as a "guide" or "resource" in making coverage determinations, even where specific plan contracts are completely consistent with this policy.

We note that this policy/guide is, indeed, not definitive for coverage determinations as to a Premera Blue Cross member's particular contract in Alaska or Washington state. A member's specific contractual terms in their benefit plan will ultimately govern coverage of AACs or SGDs. Therefore, the policy has limited application, depending on the

construction of the individual plan contracts, which can override or otherwise be inconsistent with it.

"Medical Necessity"
Premera's policy states that, "(a)ugmentative communication devices (ACDs) and speech generating devices (SGDs) are considered durable medical equipment." According to this policy, the "medical necessity" prerequisite for coverage of "durable medical equipment" is met when all five criteria set forth in the "Policy Guidelines" are met. However, the implication is that when Premera terms a device "investigational," that status will not be considered consistent with a finding of "medical necessity."

Presumably, Premera did not make use of an evidence-based technology assessment relating to investigational status or medical necessity of AACs or SGDs from the BlueCross BlueShield Association's (BCBS Assn.) Technology Evaluation Center (TEC) for the purpose of developing this policy. It is not mentioned in the policy and the BCBS Assn. specifically states on its Web site that "TEC Assessments are not recommendations for coverage decisions by health insurance companies." Also, a web search for a TEC Assessment on AACs or SGDs did not produce results. It does not appear that Premera based its classification of AACs or SGDs as "investigational" on any formal, objective, technological assessment. Instead, that appears to be a subjective description.

Premera's Pre-determination of All AACs/SGDs as "Investigational" is Inappropriate
Premera states under "Policy," that "(a)ugmentative communication devices and speech generating devices are considered **investigational** in the management of speech and language impairments that are due primarily to autism or other pervasive developmental disorders."[iv] ASHA believes that the term "investigational" is sufficiently indefinable (and undefined) in Premera's policy, as to render it meaningless for coverage purposes. It is a purely subjective determination. An objective, legal definition can be taken from FDA regulations, where "investigational" basically means a medical device in the preliminary, pre-FDA-approval stage of testing: "21 CFR § 812.3 Definitions. (g) *Investigational device* means a device, including a transitional device, that is the object of an investigation. (h) *Investigation* means a clinical investigation or research involving one or more subjects to determine the safety or effectiveness of a device." Many AACs/SGDs are not the subject of clinical research trials because they do not pose a safety concern, thus do not require FDA approval. Certain kinds of these devices (i.e., an implantable prosthetic larynx) may already be FDA-approved, used in practice and well beyond the FDA investigational stage.

ASHA does not find it appropriate for any insurer to blanketly re-classify medical devices as "investigational" for purposes of restricting or excluding insurance coverage, if those devices are no longer "investigational," according to FDA's legal classification and definition of the term.

Even if Premera prefers to take the meaning of "investigational"outside the accepted FDA legal definition and traditional meaning, Premera should not pre-determine whether

or not AACs/SGDs are categorically "investigational." While some may be new and truly "investigational," others have a proven track record. For insurance coverage purposes, differentiating between a truly "investigational" medical device and one beyond that stage is an exercise that reflects the relative probability that a patient will benefit from using the device. Different types of AACs/SGDs have been used in certain patients for some time now, to positive clinical effect. The idiosyncratic nature of speech-language disorders, the art of speech-language therapy, and a patient's individuated response to therapy make it difficult to obtain purely objective, large-scale population-based data on patient outcomes strictly attributable to the use of AACs or SGDs.

"Primarily Due to Autism" Standard

How Premera will determine whether or not a given speech or language impairment is "due primarily to autism" or to other PDDs is not clarified. If Premera does decide that an AAC or SGC is being used to treat a speech or language impairment is "due primarily to autism" or other PDDs, the AAC or SGC will be automatically excluded from coverage. However, those speech and language impairments that are not "due primarily" to autism or PDDs are eligible for AAC/SGC coverage, if the patient's case meets the five coverage criteria listed in the policy. While not outrightly stated in the policy, the purpose of Premera considering AACs/SGCs "investigational" is to classify them to be inconsistent with being a "medical necessity" that would require coverage. However, that equation is not entirely logical.

Whether or not a medical device is necessary for the treatment of a patient is a function of how well the device's characteristics mesh with those of the patient and her medical needs. That is strictly an individual-level determination. The question is not how long or broadly a device has been used within the population at large; that may have no bearing on the individual patient's situation.

AACs/SGDs are Established Treatment for Autism-related Speech and Language Impairment

As noted in our previous 2006 letter to Premera on this topic, individuals with autism often benefit from augmentative and alternative communication (AAC), including speech generation devices (SGD), as part of the assessment and/or treatment process designed to enhance functional communication. As in the *DSM*–IV (APA, 1994), in the *DSM–IV–TR*, autistic disorder is a subcategory of pervasive developmental disorders, along with Asperger's disorder, childhood disintegrative disorder, Rett's disorder, and PDD-NOS.

The ASHA policy document, *Guidelines for Speech-Language Pathologists in Diagnosis, Assessment, and Treatment of Autism Spectrum Disorders Across the Life Span* (ASHA, 2006), describes protocols for assessment and treatment of communication disorders associated with autism. The guidelines state that:

"(g)oals should incorporate the functional use of the individual's full communication abilities using a multimodal communication system. Decisions about the integration of modes of communication (e.g., spoken language, gestures, sign language, picture communication, speech generating devices [SGDs], and/or written language) should be individualized according to specific capabilities and contexts of communication, as well as cultural issues." (p. 28)

"A recent meta-analysis of studies examining the efficacy of AAC indicated that the majority of AAC interventions were either highly or fairly effective in terms of behavior change and generalization (Schlosser & Lee, 2000), suggesting that a strong level of evidence exists for these approaches (ASHA, 2004c, 2005; Mirenda, 2003). Nevertheless, the available literature does not predict yet which forms of AAC will be most effective for a specific individual, particularly with respect to individuals with ASD (NRC, 2001). Thus, clinical decisions about unaided AAC techniques and aided AAC techniques should be made on an individual basis by examining the quality and relevance of evidence available and using principles of evidence-based practice." (p. 40)

"The use of both unaided and aided AAC approaches with individuals with ASD has been associated with (a) improvements in behavior and emotional regulation (Frea et al., 2001); (b) improvements in speech, expressive language, and social communication (Garrison-Harrell et al., 1997; Light, Roberts, DiMarco, & Greiner, 1998; Mirenda, 2003; Schlosser, 2003); and (c) improvements in receptive language development and comprehension (Brady, 2000; Peterson, Bondy, Vincent, & Finnegan, 1995). Although consumers often raise concerns as to whether the implementation of AAC approaches interferes with or inhibits the development of speech, there is no evidence to support this notion (Mirenda, 2001, 2003; NRC, 2001). Thus, AAC approaches can be useful components of a comprehensive educational program designed to promote social communication, language, literacy, and related cognitive behaviors, and behavior and emotional regulation (NRC, 2001). The following three sections summarize evidence for the broad applications of AAC for individuals with ASD." (p. 40)

Literature Findings

The meta-analysis that Premera considered involved in-depth data analysis from the studies of interest. Distinct communicative improvement in autistic patients treated with AACs or SGDs is demonstrated in a variety of studies analyzed for that meta-analysis. *(See attached Tables 1 and 2 from* Millar, et al, 2006.*)* Premera recognized in the policy that 94% of the participants in these studies demonstrated increased speech production during or following at least one of the AAC interventions investigated. Despite that conclusion obviously supporting the clear benefit of AACs to patients and the fact that a number of study participants had autism, Premera dismissed the importance of the 3,089 studies because the studies "had very small sample sizes," "were not specific to a particular developmental characteristic," and did not have a primary goal of determining the impact of AAC on speech development." (See attached Tables 1 and 2 from the Millar meta-analysis, showing speech improvements in autistic participants within a number of studies.) There is considerable data to fully support the benefit of coverage for the AAC/SGD cases that the policy, instead, targeted for exclusion.

Potential AAC/SGDs Users are Minuscule Percent of Beneficiaries

Beneficiaries who have autism or a PDD and can benefit from an AAC or SGD are a miniscule percentage of any covered population. Based on the autism prevalence rate of 2 to 6 per 1,000 (Centers for Disease Control and Prevention, 2001), an estimated 320 to 960 of Premera's approximately 1.6 million members could potentially have autism. That rate would encompass the entire spectrum of autistic disorders at all severity levels. Out of those, not everyone will need or seek an AAC or SGD.

Conclusions
Premera's coverage exclusions for certain AAC or SGDs legitimately used to treat speech-language disorders should not be based simply on broad etiological or diagnostic categories. Premera's coverage determinations should require a more sophisticated analysis where Premera takes into account the specific AAC or SGD, the specific disorder being treated, how the AAC or SGD fits into the treatment plan, and the patient's specific characteristics. In other words, Premera's coverage determination for any AAC or SGD should focus on the individual case, just as any coverage determination involving "medical necessity" should be handled.

While the term "investigational" can be defined in many ways, it remains undefined in the policy, presumably leaving it to individuals to define it subjectively for the purpose of coverage determinations. It is unclear just how much evidence Premera would require to conclude that a device used commonly and successfully to treat a given disorder is no longer "investigational." The nature of evolving, useful technology in any medical field is that it will obviously continue to be investigated, modified, and improved over time while used to benefit patients along the way. In the larger sense, any technology that is not static can be considered "investigational." Just based on the revision dates in this policy, Premera has been looking at the use of AACs/SGDs for at least the past decade.

That length of time alone would suggest that the use of at least some of these devices is well beyond an initial, investigatory stage. ASHA's careful scrutiny of research data (that Premera cites in the policy) on patients with autism who have used AACs/SGDs in treatment consistently demonstrates improvement in some aspects of communicative function. Moreover, ASHA's members routinely use AACs/SGDs to treat speech-language disorders related to autism. It is the common, accepted practice in the field of speech-language pathology, publicly endorsed by the primary association for speech-language pathologists and audiologists.

Whether a speech-language impairment is due to autism or any other etiology is largely irrelevant to the question of whether or not the device in question can facilitate improvement in the patient's condition and quality of life. Of course, the degree of benefit conferred to any one patient will vary with a number of variables, regardless of the etiology of the disorder treated. Some persons with autism may benefit spectacularly with SGDs and others less so. There is no blanket situation that justifies a categorical exclusion of SGD coverage solely on the basis of the patient's disorder, whether it is autism or not. Premera's five criteria to determine medical necessity for AACs/SGDs should be applied on a case-by-case basis, regardless of the disorder's etiology.

To use an extreme but illustrative example, who would deny the vast public benefit from physicist Stephen Hawking's use of a computerized speech generating device?[v] A clinical trial is not required to perceive its obvious benefit. It allows a person to communicate, which would otherwise be impossible. While such devices do not necessarily enable or improve a person's ability to speak unaided, they certainly facilitate communication of thoughts.

Demanding clinical trial-type evidence for a panoply of devices that do not require clinical trials is to miss the forest for the trees. The art of speech-language therapy is highly individualized because the disorders at issue manifest in very idiosyncratic ways within a broad spectrum of autism disorders. Autism itself is not well understood in the medical community.

Communication is the foundation of human relationships that build a community. Enhancing communication for healthier communities is consistent with Premera's corporate goals of social responsibility and of being a public policy leader.[vi] Improved communication relates to better physical and mental health for the person with autism and their entire circle of family and friends. Premera recognizes this in the policy: "Communication of medical needs allows the individual to maintain or improve their health." A preventive health effect saves for healthcare services costs in the long run. Certainly, even modest improvement in communications can reap great rewards for some of the most vulnerable persons whom Premera insures.

We gladly offer to consult with those of you at Premera about the positive impact you can make by providing reasonable coverage of SGDs for those with communication disorders of all etiologies, including autism.

Please contact Angela Foehl, ASHA's Director of Private Health Plans Advocacy, at afoehl@asha.org or my phone at 301-296-5677, if you have any questions about this letter.

Sincerely,

Angela Foehl, J.D., M.P.H.

cc:

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Table 1 Excerpts
Excerpted data on study participants with autism who used aided AAC interventions, from the Millar-Light meta-analysis: "Table 1 Studies, published between 1975 and 2003, involving AAC interventions with individuals with developmental disabilities that documented speech production before and during/after intervention." "[c]Data regarding changes in speech production were not reported for individual participants but as a group. The authors concluded that the children demonstrated increases in speech production."

Source: Millar DC, Light JC, Schlosser RW, "The impact of augmentative and alternative communication intervention on the speech production of individuals with developmental disabilities: A research review;" *J. Speech Lang Hear Res 2006;49(2):248-64*

Study/design	**Goal**	**No. of participants and age[a,b]**	**AAC intervention**	**Authors' conclusions re. speech (no. of participants)**
Bondy & Frost (1994)	Teach function	1 participant with autism	Aided with no speech output	Increase (1)
Bonta & Watters (1983)	Teach single words	1 participant with autism	Unaided	Increase (1)
*Charlop-Christy et al. (2002)	Teach function	3 participants with autism	Aided with no speech output	Increase (3)
DiCarlo, Stricklin, & Banajee (2001)	Teach single words	6 participants with Down syndrome, autism, or cerebral palsy	Unaided	Increasec
Multiple baseline		1–3 years old		
Fulwiler & Fouts (1976)	Teach single words	1 participant with autism	Unaided	Increase (1)
Case study		5 years old		
Garrison-Harrel, Kamps, & Kravits (1997)	Teach function	3 participants with autism	Aided with no speech output	Increase (3)
Kravits, Kamps, Kemmerer, & Potucek (2002)	Teach function	1 participant with autism	Aided with no speech output	Increase (1)

Table 2 Participant information, AAC interventions, and speech outcomes for studies presenting the "best evidence" regarding the effects of AAC intervention on the speech production of individuals with developmental disabilities.

Source: Millar DC, Light JC, Schlosser RW, "The impact of augmentative and alternative communication intervention on the speech production of individuals with developmental disabilities: A research review;" *J. Speech Lang Hear Res 2006;49(2):248-64*

Study/design	Participant			AAC intervention			Speech outcomes	
	Participant ID and gender	Disability[a]	Age	Type of AAC	Treatment condition[b]	No. of sessions[c]	PND	Change in speech production during/after AAC intervention[d]
Barrett & Sisson (1987)	J.	Mod. MR; behavior disorder	5;3	Unaided manual signs	T1 (TC)	87 (2)	57	Increase; 3 words*, 1 word*
Alternating treatments design within a multiple-baseline design	Male				T2 (MTC)	87 (2)	51	Increase; 2 words, 1 word
	M.	Mod. MR; behavior disorder	13		T1(TC)	67 (2)	38	Increase; 2 words, 1 word
	Male				T2 (MTC)	67 (2)	72	Increase; 3 words*, 2 words
Charlop-Christy et al. (2002)	A.	Autism	12	Aided with no speech output	T1 (PECS-Academic)	4	67	Increase; 60% of opportunities*[e]
Multiple baseline	Male				T2 (PECS-Play)	4	33	Increase; 40% of opportunities*
	J.	Autism	3;8		T1 (PECS-Academic)	5	82	Increase; 100% of opportunities*
	Male				T2 (PECS-Play)	5	73	Increase; 80% of opportunities
	K.	Autism	5;9		T1 (PECS-Academic)	9	43	Increase; 80% of opportunities*

	Male				T2 (PECS-Play)	9	50	Increase; 100% of opportunities*
Conaghan et al. (1992)	J.	Profound MR; mod. bilateral HI	18	Unaided manual signs	T1 (DR)	27	93	Increase; 6 two-word phrases*
Alternating treatments design	Male				T2 (DR + PR)	56	98	Increase; 7 two-word phrases*
	T.	Severe MR; mild bilateral HI	36		T1 (DR)	23	0	No change
	Male				T2 (DR + PR)	39	0	No change
	F.	Profound MR; bilateral high-freq. HI	60		T1 (DR)	16	94	Increase; 7 two-word phrases*
	Male				T2 (DR + PR)	31	94	Increase; 7 two-word phrases*
	M.	Severe MR; mild HI in left, severe HI in right	18		T1 (DR)	11	100	Increase; 4 two-word phrases
	Female				T2 (DR + PR)	25	100	Increase; 4 two-word phrases*
Kouri (1988)	J.S.	Autism	3	Unaided manual signs	T1 (TC)	24 (2)	21	Increase; 0 words, 10 words
Withdrawal design	Male							
	T.A.	Dev. delay	2;4		T1 (TC)	17 (2)	45	Increase; 20 words; 20 words
	Male							
	B.V.	Down syndrome	2;10		T1 (TC)	25 (2)	82	Increase; 5 words, 52 words
	Female							
Linton & Singh (1984)	J.	Profound MR; mod. bilateral HI	18	Unaided manual signs	T2 (PP + R)	30	90	Increase; 2 words*
Alternating treatments	Male							

design								
	F.	Severe MR; bilateral high-freq. HI	59		T1 (PP)	9	0	No change
	Male				T2 (PP + R)	19	63	Increase; 1 word*
Sisson & Barrett (1984)	E.	Mod. MR; Behavior disorder	7	Unaided manual signs	T1 (TC)	127 (3)	100	Increase; 4 words*, 2 words*, 2 words*
Alternating treatments design within a multiple-baseline design	Male							
	M.	Mild MR; Behavior disorder	8;1		T1 (TC)	206 (3)	100	Increase; 4 words*, 4 words*, 4 words*
	Male							
	T.	Mild MR; Behavior disorder	4;8		T1 (TC)	113 (3)	98	Increase; 4 words*, 3 words*, 3 words*
	Male							

Note. PND = percentage of nonoverlapping data; mod. = moderate; MR = mental retardation; TC = total communication, MTC = modified total communication, PECS = picture exchange communication system; HI = hearing impairment; DR = directed rehearsal; DR + PR = directed rehearsal plus positive reinforcement; PP = positive practice; PP + R = positive practice plus reinforcement; DDdev. = developmental; freq. = frequency.

[a]Disability is reported per the studies cited. [b]The different intervention conditions in each study are designated by different numerals (e.g., in Conaghan et al., 1992, the treatment consisted of instruction in manual signs using directed rehearsal alone [Treatment 1 = T1] and in combination with positive reinforcement [Treatment 2 = T2]). The types of intervention are coded as described in the studies. [c]The total number of sessions is reported. If the sessions occurred in two or three sets (as in a multiple baseline across two or three sets of stimuli), the number of sets of sessions is indicated in parentheses (e.g., in the Barrett & Sisson study, there were a total of 87 sessions for J. in T1, grouped in two sets: one set of 75 sessions that targeted the first set of sentences and one set of 12 sessions that targeted the second set of sentences). [d]The gain scores represent approximate values because they were extrapolated from the graphic presentation of the data in the studies. Gain scores are reported separately for each application of the AAC intervention when the intervention was applied to more than one set of stimuli, as in a multiple-baseline-across-behaviors design, or when the treatment was replicated, as in an ABAB design. Gain scores are marked by an asterisk if there were ceiling effects. For example, in the Barrett & Sisson study, in T1 (TC), J. demonstrated an increase of 3 spoken words when the AAC intervention was applied to the first set of sentences and a gain of 1 spoken word when the AAC intervention was applied to the second set of sentences; ceiling effects were observed for both sets of sentences. [e]The percentage of structured opportunities with spontaneous speech was measured in each session with the participants. Gain scores are reported as a change in the percentage of opportunities with spontaneous speech, comparing the maximum point in baseline with the maximum point following AAC intervention.

ENDNOTES:

[i] Premera Blue Cross' Corporate Medical Policy (CP.MP.PR.1.01.502), effective October 9, 2007: "**Disclaimer:** This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. The Company adopts policies after careful review of published peer-reviewed scientific literature, national guidelines and local standards of practice. Since medical technology is constantly changing, the Company reserves the right to review and update policies as appropriate. ***Member contracts differ in their benefits.*** **Always consult the member benefit booklet or contact a member service representative to determine coverage for a specific medical service or supply.** CPT codes, descriptions and material are copyrighted by the American Medical Association."

[ii] J Speech Lang Hear Res. 2006 Apr;49(2):248-64. Links
The impact of augmentative and alternative communication intervention on the speech production of individuals with developmental disabilities: a research review.
Millar DC, Light JC, Schlosser RW.The Pennsylvania State University, University Park, USA. dcmillar@radford.edu
"PURPOSE: This article presents the results of a meta-analysis to determine the effect of augmentative and alternative communication (AAC) on the speech production of individuals with developmental disabilities. METHOD: A comprehensive search of the literature published between 1975 and 2003, which included data on speech production before, during, and after AAC intervention, was conducted using a combination of electronic and hand searches. RESULTS: The review identified 23 studies, involving 67 individuals. Seventeen of these studies did not establish experimental control, thereby limiting the certainty of evidence about speech outcomes. The remaining 6 studies, involving 27 cases, had sufficient methodological rigor for the "best evidence analysis" (cf. >R. E. Slavin, 1986). Most of the participants (aged 2-60 years) had mental retardation or autism; the AAC interventions involved instruction in manual signs or nonelectronic aided systems. None of the 27 cases demonstrated decreases in speech production as a result of AAC intervention, 11% showed no change, and the majority (89%) demonstrated gains in speech. For the most part, the gains observed were modest, but these data may underestimate the effect of AAC intervention on speech production because there were ceiling effects. CONCLUSIONS: Future research is needed to better delineate the relationship between AAC intervention and speech production across a wider range of participants and AAC interventions."
PMID: 16671842 [PubMed - indexed for MEDLINE]

[iii] Premera Blue Cross' Corporate Medical Policy (CP.MP.PR.1.01.502), effective October 9, 2007: "**Disclaimer:** This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. The Company adopts policies after careful review of published peer-reviewed scientific literature, national guidelines and local standards of practice. Since medical technology is constantly changing, the Company reserves the right to review and update policies as appropriate. ***Member contracts differ in their benefits.*** **Always consult the member benefit booklet or contact a member service representative to determine coverage for a specific medical service or supply.** CPT codes, descriptions and material are copyrighted by the American Medical Association."

[iv] Premera Blue Cross' Corporate Medical Policy (CP.MP.PR.1.01.502), effective October 9, 2007, p. 2.

[v] "Professor Hawking "speaks" using a computer running a program called EqualizerTM from Words Plus Inc." Retrieved February 26, 2008, from http://www.patts.org/defined.htm

[vi] Premera Blue Cross "2006 Corporate Social Responsibility Report" from the Premera Blue Cross website: "Premera provides important thought leadership on strategic areas of public policy that directly affect the quality, affordability and accessibility of health care in our regions. We collaborate in organizations engaged in addressing broad issues of public policy, lending our business acumen and industry expertise to inform public debate and identify possible solutions that support our ability to serve our members and improve health care in our communities."