

# Ensuring Financial Access to Hearing Aids for Infants and Young Children

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## KEY WORDS

deaf, hearing aids, assistive technology, early intervention, newborn hearing screening, reimbursement, health insurance

## ABBREVIATIONS

EHDI—Early Hearing Detection and Intervention  
CHIP—Children's Health Insurance Program  
IDEA—Individuals With Disabilities Education Act  
VA—Department of Veterans Affairs  
EPSDT—Early and Periodic Screening, Diagnosis, and Treatment

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## abstract

Many young children with permanent hearing loss do not receive hearing aids and related professional services, in part because of public and private financing limitations. In 2006 the Children's Audiology Financing Workgroup was convened by the National Center for Hearing Assessment and Management to evaluate and make recommendations about public and private financing of hearing aids and related professional services for 0- to 3-year-old children. The workgroup recommended 4 possible strategies for ensuring that all infants and young children with hearing loss have access to appropriate hearing aids and professional services: (1) clarify that the definition of assistive technology, which is a required service under Part C of the Individuals With Disabilities Education Act (IDEA), includes not only analog hearing aids but also digital hearing aids with appropriate features as needed by young children with hearing loss; (2) clarify for both state Medicaid and Children's Health Insurance Programs that digital hearing aids are almost always the medically necessary type of hearing aid required for infants and young children and should be covered under the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program; (3) encourage the passage of private health insurance legislative mandates to require coverage of appropriate digital hearing aids and related professional services for infants and young children; and (4) establish hearing-aid loaner programs in every state. The costs of providing hearing aids to all 0- to 3-year old children in the United States are estimated here. *Pediatrics* 2010;126:S43–S51

The US Public Health Service's Healthy People 2010 goals<sup>1</sup> call for increased access to hearing technology and rehabilitative services, including hearing aids, cochlear implants, and assistive or augmentative devices. Although >95% of newborns in the United States are now screened for hearing loss, many of those who do not pass newborn hearing screening do not receive the follow-up services they need, including timely access to hearing aids.<sup>2-4</sup> In a 2003 survey to which coordinators of all state Early Hearing Detection and Intervention (EHDI) programs responded, 88% cited financing problems for hearing aids as a significant problem for young children with hearing loss.<sup>3</sup>

In this article we summarize the findings and recommendations of the Children's Audiology Financing Workgroup, which was convened in 2006 by the National Center for Hearing Assessment and Management (NCHAM) to consider what is known about public and private financing for hearing aids and related professional services and to develop recommendations for improving access to these services for infants and young children with permanent hearing loss. Pediatricians need to be aware of this information, because parents of children who are newly identified with hearing loss depend on them as a primary source of guidance about how to obtain the services their child needs.<sup>4</sup>

### HEARING LOSS IN INFANTS AND YOUNG CHILDREN: PREVALENCE, CONSEQUENCES, AND COSTS

Significant hearing loss is one of the most common birth defects in the United States: ~3 newborns per 1000 are deaf or hard-of-hearing,<sup>5</sup> and approximately twice that many more acquire permanent hearing loss by school age.<sup>6</sup> The configurations of

hearing loss are more varied in children than in adults, and children are more likely to have asymmetric losses than adults.<sup>7</sup> Consequently, children's hearing aids should have different characteristics than those used by adults. Optimally, children's hearing aids should make all speech sounds audible and comfortable and ensure that high input intensities are limited to a safe level. Relatively recently developed digital hearing aids with features such as automatic feedback cancellation, multiple channels, expansion to reduce low-level noise, and wide dynamic range compression can achieve these goals, whereas analog hearing aids cannot.<sup>8-11</sup>

If permanent hearing loss of any severity is not identified early and treated correctly, there are serious negative consequences for children, their families, and society. Without appropriate access to language, hearing technology, and early intervention, children with hearing loss almost always fall behind their peers in language, cognition, and social-emotional development.<sup>12,13</sup> Even unilateral loss has substantial negative consequences for academic achievement.<sup>14,15</sup> The costs to society are also significant in terms of direct medical costs, special education expenditures, and lost productivity. In 2000, the annual average education expenditure per student for a child with hearing loss was more than twice that for a child without a disability (\$15 992 vs \$6556),<sup>16</sup> and the estimated lifetime economic cost of hearing loss in children is more than \$2 billion (an average of \$417 000 per child).<sup>17</sup> For most children with permanent hearing loss, many of the negative outcomes can be minimized or avoided completely with early identification and intervention, including the use of appropriate hearing technology.<sup>18-20</sup>

### FINANCIAL BARRIERS TO ACCESSING HEARING AIDS FOR INFANTS AND YOUNG CHILDREN

Despite the demonstrated advantages of early intervention, only ~64% of infants diagnosed with permanent hearing loss are reported to be enrolled in early intervention before 6 months of age.<sup>4</sup> As discussed in other articles in this supplemental issue,<sup>21,22</sup> there are many reasons why infants who do not pass the newborn hearing-screening test are lost to follow-up, including poor communication with parents, insufficient numbers of audiologists with pediatric expertise, and lack of knowledge among health professionals about the consequences of hearing loss.<sup>23,24</sup> Pediatricians who understand these issues can help parents obtain the resources and services their child needs.<sup>4</sup> In this article we summarize the range of audiology financing problems, present a new national cost estimate for audiology and related health services, and outline a series of recommendations from the Children's Audiology Financing Work Group with respect to Medicaid, the Children's Health Insurance Program (CHIP), private health insurance, and hearing-aid loaner programs.

#### Medicaid and the CHIP

More than half of all infants and young children in the United States are enrolled in the Medicaid and CHIP programs,<sup>25</sup> and unlike private health insurance, all Medicaid programs and nearly all CHIP programs cover hearing aids for children.<sup>26</sup> As discussed in detail elsewhere in this supplemental issue,<sup>27</sup> access to appropriate hearing aids and related professional services is nonetheless limited for children covered by Medicaid because of low reimbursement rates in many states, coverage restrictions and limits, limited availability of pediatric audiologists, restrictions caused by definitions of medi-

cal necessity, and difficulties experienced by providers in obtaining timely authorization and reimbursement.

### *Low Reimbursement Rates*

Average Medicaid fees for digital hearing aids are only 38% of those paid by private health insurers.<sup>27</sup> The workgroup noted that many audiologists with pediatric expertise are not participating or are limiting their participation in public programs because of low reimbursement rates. The difficulties caused by low reimbursement rates are exacerbated because current Medicaid reimbursement rates do not adequately take into account the additional time required to provide services to young children compared with providing the same service to adults. Audiologists have also reported delays in receiving payment and burdensome paperwork requirements that further reduce their interest in participating in Medicaid or the CHIP.

### *Medical-Necessity Restrictions*

In all states, Medicaid programs use medical-necessity guidelines when deciding what services will be covered. Such guidelines often require the least costly acceptable alternative to be chosen, according to workgroup members. This can cause problems, because those who write Medicaid policies often do not realize that most young children with hearing loss need features that are only available on digital hearing aids, which are usually more costly.

### *Coverage Restrictions and Limits*

Given that more than half of all young children are covered by Medicaid or the CHIP,<sup>25</sup> the workgroup was concerned that these children frequently do not receive the most appropriate hearing aids: digital hearing aids with specific features. Also, when states contract with managed care organiza-

tions to provide hearing-aid services, it seems that Medicaid coverage policy is often not well understood, and hearing aids are sometimes not covered. Although only 3 of the 36 states that operated separate CHIP programs in 2005 did not cover hearing aids at all, 6 other states imposed dollar limits. In addition, 5 states limited the number of hearing aids for which they will pay during a given time period.<sup>27</sup>

### *Limited Access to Audiologists With Pediatric Expertise*

Audiologist workforce shortages exist throughout much of the United States, in part because of increased demand for audiology services that resulted from the expansion of universal newborn hearing screening. The Bureau of Labor Statistics has projected the need for 1000 more audiologists by 2014 to meet the growing demand for services.<sup>28</sup> Workforce needs are particularly acute for audiologists who have the training, expertise, and equipment to work with young children.

### *Timely Access to Amplification*

Many families and audiologists have reported frequent delays in getting timely access to hearing aids because of lengthy approval procedures.

### **Private Health Insurance**

Approximately 40% of all infants and young children in the United States are privately insured,<sup>29</sup> and these private plans generally do not cover children's hearing aids.<sup>30,31</sup> In addition to the pervasive lack of hearing-aid coverage, the workgroup identified the following problems with private health insurance as a source of funding for hearing aids for children.

### *Lack of Employer Awareness*

Insurers and employers are not well informed about the importance of hearing aids for young children and

the consequences of hearing loss and delayed identification among children.

### *Hearing-Aid Riders Seldom Taken by Employers*

Insurers may offer hearing-aid coverage riders on their policies, but employers seldom take the rider options because of the increased costs required.

### *Mandated Benefits Do Not Cover Full Cost*

In the 7 states with mandated coverage of hearing aids as of January 1, 2006, there are typically dollar limits that range from \$400 to \$1400 per ear per 36 months, which results in high out-of-pocket expenditures for families.

### *Plan Network Provider Restrictions*

Families sometimes have to pay higher fees for audiologists with pediatric expertise because they are often not in-network, preferred providers.

### **Part C Early-Intervention Program**

In 1997, Congress passed Pub L. No. 99–457 (the Individuals With Disabilities Education Act [IDEA]), which gives resources and guidelines for all states to provide early-intervention services to 0- to 3-year-old children with disabilities. Better coordination between this federal program and the activities of state EHDI programs would help ensure that young children with hearing loss have access to hearing aids and related professional services. The following factors limit the degree to which Part C is helping children with hearing loss gain access to hearing aids.

### *Variability in States' Early-Intervention Program Eligibility Criteria Related to Hearing Loss*

Federal regulations that accompany the law (34 CFR Part 303.16) require states to provide appropriate early-

intervention services to any infant or toddler who “is experiencing developmental delays as measured by appropriate diagnostic instruments and procedures in one or more of the areas of cognitive development, physical development, communication development, and adaptive development” or who has “a diagnosed physical or mental condition that has a high probability of resulting in developmental delay.” Infants and toddlers with permanent hearing loss will almost always exhibit developmental delays in 1 or more of the specified developmental areas if appropriate early-intervention services are not provided.<sup>12</sup> However, existing development assessments are not sensitive enough to measure these delays until children are at least 1 year old, which is far too late for early-intervention programs to begin.<sup>18–20,32</sup> Most states stipulate that infants and young children with “hearing loss” are eligible for services. However, the type and degree of hearing loss that must be present to be eligible is different from state to state,<sup>35</sup> and some states only provide services to children with more severe degrees of hearing loss, although there is clear evidence that children with mild and moderate hearing loss would also benefit from hearing aids.<sup>18,34</sup>

### *Part C Statute/Regulations Are Silent on Whether Hearing Aids Are an Assistive Technology*

It seems that Part C programs in most states consider hearing aids to be a noncovered medical device. Neither the statute nor the regulations explicitly address hearing aids, and at the time that the workgroup met, there had been no policy letters from the Department of Education or pertinent legal cases to clarify this issue. Moreover, even among states that do cover them, digital hearing aids with the most appropriate features may not be

fully covered because of funding limitations.

### *Limited Funding*

Unlike Part B of the IDEA, for which funding has steadily increased over the last decade, Part C funding has increased an average of only 1% per year since 2002.<sup>35</sup> Limited funding has led to delays in timely evaluations and eligibility determinations.

### **Hearing-Aid Loaner and Other Programs**

Other publicly and privately supported programs that could pay for hearing aids and related services are hearing-aid loaner programs, state Title V programs for children with special health care needs, and Assistive Technology Act programs. Hearing-aid loaner programs currently operate in 28 states but serve relatively few children.<sup>36</sup> These programs are administered by multiple sources, including Part C, state agencies, service organizations (such as Lions and Sertoma Clubs), schools, audiology clinics, hospitals, and EHDI programs. Programs in 7 states (Oregon, Vermont, Pennsylvania, Texas, Arizona, Ohio, and Indiana) accounted for 70% of the hearing aids loaned in 2005, with most of the existing programs loaning very few. Most of the loans are for short periods of time while repairs are being made or a hearing aid is being evaluated for purchase.

Every state has a Title V Program for Children with Special Health Care Needs that is funded in part through the federal Title V block grant.<sup>37</sup> All states also have an Assistive Technology Act program, which is funded in part with federal grants, to operate a comprehensive statewide program of technology-related assistance for individuals of all ages with disabilities.<sup>38</sup> Unfortunately, little information is available about the extent to which such programs are providing hearing

aids to young children with permanent hearing loss. Although hearing-aid loaner banks are frequently mentioned as a way of helping to increase access to hearing aids for infants and young children, there are a number of problems with this approach, including the following.

### *Lack of Funding*

Most hearing-aid loaner programs have reported that they have insufficient funding to purchase and maintain hearing aids and accessories and to staff loaner programs.

### *Lack of Appropriate Hearing Aids*

Hearing-aid loaner programs often rely on recycled hearing aids with older technology that are not optimal for infants and young children.

### *Lack of Awareness*

Parents, Part C coordinators, educators, and providers are often unaware of the existence of hearing-aid loaner programs in their state.

## **NATIONAL COST ESTIMATES FOR HEARING AIDS AND RELATED PROFESSIONAL SERVICES**

Understanding how to improve accessibility to hearing aids for 0- to 3-year-old infants and young children requires information about the number and cost of hearing aids that are needed. On the basis of the assumptions outlined below, the workgroup estimated that providing hearing aids to all infants and young children in the United States in a 0- to 3-year-old cohort would require 44 800 digital hearing aids and related professional services at a per-aid cost of \$3000, for a total of \$134 640 000. As explained below, a significant amount of this total is already being spent (see Table 1).

### **Prevalence**

On the basis of results from successful universal newborn hearing-screening

**TABLE 1** Estimated Annual Number and Cost of Hearing Aids Needed for Infants and Young Children Aged 0 to 3 Years in the United States

No. and Cost of Hearing Aids	Age				Total
	Newborn	1–12 mo	12–24 mo	24–36 mo	
Prevalence, per 1000	3	1.2	1.2	1.2	—
No. with bilateral hearing loss who need hearing aids (No. of hearing aids required)	9600 (19 200)	3840 (7680)	3840 (7680)	3840 (7680)	21 120 (42 240)
No. with unilateral loss who need hearing aids (No. of hearing aids required)	1200 (1200)	480 (480)	480 (480)	480 (480)	2640 (2640)
Total No. with unilateral and bilateral hearing loss who need hearing aids (No. of hearing aids required)	10 800 (20 400)	4320 (8160)	4320 (8160)	4320 (8160)	23 760 (44 880)
Total cost (at \$3000 per aid), \$	61 200 000	24 480 000	24 480 000	24 480 000	134 640 000

programs, ~3 per 1000 (or 12 000) newborns per year have permanent hearing loss (which includes mild bilateral and unilateral hearing loss).<sup>39–41</sup> By school age, the prevalence of hearing loss increases by threefold because of acquired and late-onset hearing loss resulting from trauma, noise exposure, infections such as meningitis and cytomegalovirus, and other hereditary and environmental causes.<sup>6</sup> Thus, there would be an additional 1.2 cases of hearing loss per 1000 children for each age cohort from 0 to 12, 13 to 24, and 25 to 36 months.

### Bilateral and Unilateral Hearing Loss

The cost model assumes that 80% of infants and young children with hearing loss have bilateral loss and that each such child will receive 2 hearing aids. The remaining 20% have unilateral hearing loss and only half of them will require 1 hearing aid.<sup>3,4</sup>

### Take-up Rate

It was assumed that all infants and young children with hearing loss are identified early and that all those who require hearing aids receive them. In other words, the model assumes that there will be no financing or distribution problems and that no families will decide not to use hearing aids for personal reasons. In addition, although many children with profound hearing loss will receive a cochlear implant, it was assumed that almost all children

will use hearing aids until they are given the implant at 12 months of age and will continue to use a hearing aid on the nonimplanted side.

### Type of Hearing Aids, Accessories, and Related Professional Services

The most appropriate hearing aids for infants and young children are behind-the-ear models with automatic feedback cancellation, multiple channels, expansion to reduce low-level noise, and wide dynamic range compression.<sup>7–10,42</sup> Accessories (eg, ear molds, pediatric earhooks, batteries, and cords) and related professional services (eg, assessment and evaluation, fitting and programming, and repairs) are also needed. The model assumes that infants and young children require more frequent professional services than adults because of the complexity and variation in their hearing loss.<sup>7</sup>

### Cost of Hearing Aids, Accessories, and Related Services

The per-aid cost for the hearing aid, accessories, and related professional services was estimated at \$3000 on the basis of fiscal impact statements from 2 states that assessed the cost of mandating private health insurance coverage for hearing aids.<sup>43</sup> The hearing aid and accessories account for 60% (\$1800) of this total cost, and the related professional services account for the balance.<sup>44</sup>

### FINANCING RECOMMENDATIONS FOR INCREASING ACCESS TO HEARING AIDS

Financial barriers should not prevent any infant or young child with permanent hearing loss from obtaining hearing aids with appropriate features and related professional services. Four possible solutions are described below, including (1) Part C early-intervention programs, (2) Medicaid and the CHIP, (3) private health insurance mandates, and (4) expansion of hearing-aid loaner programs (which could be used as a supplement to any of the others).

#### Part C Early-Intervention Program

The federal Part C regulations should clarify that the definition of children with a diagnosed physical condition that has a high probability of resulting in developmental delay includes all children with a permanent hearing loss. It is also important to clarify that the definition of assistive technology<sup>45</sup> includes digital hearing aids with appropriate features needed by infants and young children with hearing loss. Part C may be able to reduce the costs of purchasing hearing aids by accessing the national contracts for hearing aids established by the Department of Veterans Affairs (VA). The VA negotiates discounts of up to 85% on the basis of volume purchasing.<sup>46</sup>

#### Pros

- Under this option, all infants and young children with permanent

hearing loss will have access to appropriate hearing aids and related services.

- Coverage of hearing aids and related professional services is consistent with the congressional intent for Part C “to enhance the development of infants and toddlers with disabilities, to minimize their potential for developmental delay. . . and to reduce the educational costs to our society, including our Nation’s schools, by minimizing the need for special education and related services after infants and toddlers with disabilities reach school age.”
- Coverage under Part C can significantly reduce the costs of future special education services needed by these children under Part B of the IDEA.<sup>17</sup>
- Timely and appropriate provision of hearing aids will facilitate and enhance the delivery of effective early-intervention services.<sup>18–20</sup>
- Programs can require family contribution toward the cost of hearing aids and related professional services on the basis of income but cannot deny services if payment is not made.
- As a payer of last resort, Part C can draw on private and public insurance.
- The VA hearing-aid purchasing program is efficient and uniform across states, and bulk purchasing would yield huge cost savings to families and taxpayers.<sup>46</sup> Part C has an existing nationwide infrastructure to support bulk purchasing.

### Cons

- Full implementation will require additional funding.
- The Part C system is not consistently integrated with the medical service system.

- Accessing the VA national hearing-aid contracts will require approval by the VA and additional provisions to ensure that the hearing aids offered under the contract are appropriate for infants and young children.

### Medicaid and CHIP Programs

This option would require clarification that for nearly all infants and young children with hearing loss, digital hearing aids with appropriate features, not analog aids, are the medically necessary type of hearing aid required and are a mandatory benefit under Early and Periodic Screening, Diagnosis, and Treatment (EPSDT). Furthermore, reimbursement rates for digital hearing aids and related professional services should be increased to ensure full payment of the \$3000 bundled fee, and the timeliness of approving and paying for digital hearing aids for infants and young children needs to improve.

### Pros

- More than half of all infants and young children with permanent hearing loss can benefit under this option.<sup>25</sup>
- Medicaid already mandates coverage of hearing aids and related professional services for infants and young children through EPSDT.

### Cons

- The potential exists for slow and variable implementation by states.
- States have discretion to establish their own medical-necessity definitions and payment rates.
- Cooperation with Part C is required, and the level of collaboration among Part C, Medicaid, and managed care organizations is variable in states.
- In a small number of states, the CHIP either excludes coverage of hearing

aids or imposes coverage limitations or cost-sharing requirements.

### Private Health Insurance

Under this option, legislative mandates could be passed in every state to require coverage of digital hearing aids and related professional services for infants and young children with permanent hearing loss.

### Pros

- Approximately 20% of infants and young children with permanent hearing loss can benefit from this option.
- The increase in premiums from adding a hearing-aid mandate for children is likely to be <1%.<sup>43</sup>

### Cons

- This option would not cover all privately insured infants and young children, because self-insured plans are excluded from these types of mandates under the Employee Retirement Income Security Act of 1974 (ERISA).<sup>47</sup>
- State legislatures are becoming increasingly reluctant to require insurance mandates, and insurers and employers are likely to oppose mandates.
- Mandated benefits are not likely to cover the full cost of hearing aids, and cost-sharing requirements may make the cost of purchasing hearing aids prohibitive.
- This option requires separate implementation by each state.

### Hearing-Aid Loaner Programs

Hearing-aid loaner programs could be established in each state and operated by the Part C early-intervention program, Assistive Technology Act program, EHDI program, or other program with statewide capacity to provide for quick, short-term access to digital hearing aids.

### Pros

- All infants and young children who need access to hearing aids while awaiting coverage under Part C, Medicaid, the CHIP, or private health insurance can benefit.
- The legal authority already exists to administer hearing-aid loaner programs through Part C, Assistive Technology Act, or EHDI programs.
- The costs of administering a state-wide hearing-aid loaner program are relatively low.

### Cons

- New funding would be required, because few existing loaner programs currently operate statewide.
- The program would be most effective if it were enacted in conjunction with another option.

## CONCLUSIONS

Hearing loss is one of the most common birth defects in the United States. Although impressive strides have been made in screening all newborns for hearing loss, more progress is needed to ensure that infants and young children with hearing loss receive timely evaluation and treatment, including hearing aids. Delays in treatment are especially problematic for infants and young children who are at a critical stage in developing communication and social skills. Even brief delays can result in significant problems with language acquisition, cognition, academic achievement, and social-emotional development and can lead to substantial societal costs.

Current financing arrangements for hearing aids are not adequate for 0- to 3-year-old children with hearing loss. Lack of coverage through private health insurance plans, restrictive eligibility and coverage under states' early-intervention programs, medical-necessity restrictions and low reimbursement rates in many Medicaid

and CHIP programs, and limited availability of hearing-aid loaner programs are the main financial barriers that impede access to hearing aids for infants and young children.

The Children's Audiology Financing Work Group estimated that in a given year, ~24 000 0- to 3-year-old children in the United States need a hearing aid. The total cost of providing appropriate hearing aids and related services to these infants and young children would be approximately \$134.6 million per year, much of which is already being spent through EPSDT, Part C programs, and private insurance. The total cost estimate is based on several key assumptions: (1) that the prevalence of permanent congenital hearing loss among newborns is 3 per 1000 and that an additional 1.2 per 1000 acquire late-onset hearing loss for each year between 0 and 36 months of age; (2) that 1 pair of hearing aids is required up to the age of 3 years for children with bilateral loss and 1 aid is required for those with unilateral loss; and (3) that the per-aid cost for a digital hearing aid with features needed by children, accessories, and related professional services is \$3000.

Providing hearing aids and related professional services to this young population will likely yield significant future cost savings, most particularly for the special education system. The lifetime economic cost of permanent hearing loss in children in terms of special education expenditures, direct medical costs, and lost productivity is estimated to be more than \$400 000 per child.<sup>17</sup>

The Children's Audiology Financing Workgroup concluded that the option with the most potential to eliminate financial access barriers for all infants and young children with hearing loss is to clarify that under the Part C regulations, all infants and young children with permanent hearing loss are eligi-

ble for services and also clarify that the definition of assistive technology includes digital hearing aids with appropriate features as needed by infants and young children with hearing loss. The workgroup also recommended that Part C programs explore the possibility of accessing national purchasing contracts that have been established by the VA to reduce the cost of purchasing hearing aids. It is important to note that although new funding would be required to implement this option, Part C would not have to bear the full financial burden of this program expansion because it could draw on public and private insurance sources. Establishing loaner programs in every state in tandem with the Part C policy option would further increase access to hearing aids by providing short-term availability for infants and young children who are awaiting coverage from a public or private source. Other policy options for improving private insurance, Medicaid, and the CHIP, although useful, would not benefit as many infants and young children.

Remarkable progress has been made in the last decade in identifying infants with hearing loss; comparable efforts will be needed in the next decade to ensure that they receive the necessary intervention and treatment services, including high-quality hearing aids and related professional services.

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