

Payment for Obesity Services: Examples and Recommendations for Stage 3 Comprehensive Multidisciplinary Intervention Programs for Children and Adolescents

abstract

OBJECTIVE: The Reimbursement and Payment Subcommittee of the National Association of Children's Hospitals and Related Institutions FOCUS on a Fitter Future group sought to guide medical providers, patients, and payers to better serve obese children and adolescents to enable optimum health. Recommendations are provided for the essential components of a stage 3 comprehensive multidisciplinary intervention program as defined by the 2007 Expert Committee recommendations. In addition, suggestions are offered for a stepwise approach to implement these recommendations.

METHODS: In 2009, key informant interviews were conducted with 15 children's hospitals participating in FOCUS on a Fitter Future and 1 nonparticipating hospital. Interview transcripts identified 5 financially sustainable stage 3 programs, each funded differently.

RESULTS: The stage 3 programs interviewed ranged from being nascent to 21 years old (27%, <2 years; 47%, 2–6 years; 27%, >6 years). All of them had multidisciplinary teams that delivered services through 1 of 3 institutional structures: 60% freestanding; 7% specialty; and 33% hospital within a hospital. One-third of them had 1 to 2 funding sources, and 67% had ≥ 3 sources.

CONCLUSIONS: The stage 3 programs in this review shared some common strategies for achieving financial stability. All of them followed key strategies of the chronic care model, the details of which led to the following recommendation: stage 3 programs should include a health care team with a medical provider, registered dietitian, physical activity specialist, mental health specialist, and coordinator who, as a team, provide service to overweight and obese children at no less than moderate intensity (26–75 hours). *Pediatrics* 2011;128:S78–S85

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KEY WORDS

childhood obesity, health insurance, multidisciplinary weight management, payment

ABBREVIATION

ROI—return on investment

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The 2007 “Expert Committee Recommendations Regarding the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity: Summary Report”¹ described how the chronic care model encompasses the necessary components for a health care system to be effective in caring for childhood obesity. Linking the medical home, community resources, decision and support, and patient self-management within the chronic care model are key strategies for helping ameliorate the obesity epidemic.

One critical component within the chronic care model is the use of practice guidelines such as those issued by the National Initiative for Children’s Healthcare Quality (NICHQ).² Although the 2007 Expert Committee made detailed recommendations for management of stages 1 (prevention) and 2 (prevention plus) care of obese and overweight children, stages 3 (comprehensive multidisciplinary intervention including a dietician, physician, behavioralist, and exercise physiologist or physical therapist) and 4 (tertiary care that includes surgical and/or pharmacological management) were less delineated, partly because of a lack of available evidence. Although this lack of clarity has provided opportunities for innovation, without detailed guidelines for higher-level care, clinicians struggle to establish and sustain tertiary care obesity programs. As a consequence, health insurers and hospitals often have to evaluate coverage of obesity care services on a case-by-case basis, which creates a barrier between patients and providers. The goal of this report is to improve access to high-quality stage 3 (comprehensive multidisciplinary intervention) programs for morbidly obese children by addressing a critical barrier to receiving care: payment for services.

Since the writing of the 2007 Expert Committee recommendations, there

has been additional scientific evidence to support practice recommendations for stage 3 level of care^{3–5} and, therefore, a need to address payment for delivery of health care service for morbidly obese children who require multidisciplinary services. The reimbursement and payment subcommittee of FOCUS on a Fitter Future was established with the goal of providing support for advocacy efforts related to payment for multidisciplinary teams engaged in stage 3 programs. The objectives of the committee were to (1) develop recommendations for the components necessary to provide effective management of the obese child who needs stage 3 services and (2) develop materials for providers to advocate with health insurance plans, major employers, and legislatures for payment of stage 3 services. These materials include a previous authorization template, a PowerPoint template, and a 1-page information fact sheet (all available at www.childrenshospitals.net/obesity).

The committee aims to guide medical providers, patients, and health care payers to better serve obese children and adolescents so that they can achieve personal health. Resource outcomes include examples of financially sustainable stage 3 programs; examples of promising pediatric chronic care programs that address health issues other than obesity; and summaries of current literature describing successful comprehensive multidisciplinary intervention programs. On the basis of this review of existent programs and resources, recommendations are provided for the essential components of a stage 3 comprehensive multidisciplinary intervention program, and suggestions are offered for a stepwise approach to facilitating physicians, patients, and payers to implement these recommendations.

METHODS

Key informant interviews were conducted in summer 2009 with 1 representative from each of the National Association of Children’s Hospitals and Related Institutions (NACHRI) member hospitals participating in FOCUS on a Fitter Future and 1 nonparticipating hospital. NACHRI staff and participants from the sustainability and return on investment subcommittee conducted the interviews. Four of the authors (Dr Slusser, Ms Staten, Ms Stephens, and Dr Yeh) reviewed the transcripts of the interviews and identified examples of 5 financially viable stage 3 programs, each of which was funded differently. Further questions were directed to the program representative if additional information was needed. Two programs are described below, and the others are reviewed on the NACHRI Web site (www.childrenshospitals.net/obesity).

RESULTS

The examples below (with the exception of 1 program) were identified from a group of 15 stage 3 comprehensive multidisciplinary intervention programs. Program age ranged from not-yet-launched to 21 years (27%, <2 years; 47%, 2–6 years; 27%, >6 years). The programs all had multidisciplinary teams that provided services for the stage 3 programs. The programs were delivered in 3 distinct sites: 60% freestanding; 7% specialty; and 33% hospital-based. The number of patient visits ranged from 17 to 3285 (median: 800 for the year before applying to the collaborative). The number of new patients for this period ranged from 10 to 950 (median: 114). One-third of the clinics had 1 to 2 funding sources, and 67% had ≥ 3 funding sources. Funding sources for the clinics were 87% clinical revenue, 80% institutional support, 60% grant support, 47% foundation support, and 7% endowments. The common themes expressed

TABLE 1 Facilitators and Barriers to Stage 3 Weight Management Programs

Facilitators	Challenges
Bundling services or a flat clinic fee helps cover specialists not well covered	Current insurance coverage frequently fails to adequately reimburse the multiple providers and multiple visits required for comprehensive care ³
Hospital support from the financial departments is often required to negotiate contracts that cover an adequate number of visits and comprehensive services	Dietary and psychology services in particular are critical and often uncovered ³
Separate billing for psychological and physical therapy services is possible and helps sustain these services	
An investment from the children's hospital or other funding agency is required to offset costs especially at start up	Programs are destined for financial failure unless other sources of revenue are made available
Development of a bariatric surgery program and potential for downstream procedural revenue can provide incentive for hospitals to support clinic costs but do not guarantee financial viability of the program	
Tracking and reported other services utilized by the program helps show how costs can be offset by increased utilization of other services such as laboratory assessments and studies	
Obtain research grants to help demonstrate program results and cost-effectiveness and provide salary support for personnel	Grant-funding requires significant labor for applying and providing outcomes to grant providers ³
Community partnerships add value to programs	Community programs seldom provide funding for day-to-day operation
Demonstrate ROI; short-term initial investments can result in long-term savings when chronic disease can be prevented or development of comorbidities can be delayed. This has been demonstrated with renal disease if dialysis and renal transplantation can be prevented or delayed. There are also new studies that have demonstrated that bariatric surgery in the adult population can result in downstream savings within 2–4 y by avoiding the need for medications needed to treat comorbidities	As patient loads increase, deficit in payments received increases, which decreases sustainability

by the program representatives and related to payment are listed in Table 1.

STAGE 3 CASE STUDIES

Duke Children's Healthy Lifestyles Program

Funding

This program is funded from a hybrid of clinic visit payments and grants.

Start Date

In 2005, leadership at Duke Children's Hospital and Health Center recognized the need for a comprehensive childhood obesity-treatment program.

Initial Funding

The fundraising efforts of the hospital's national board provided an initial investment of approximately \$500 000 by June 2006. Sponsorship was mostly corporate and philanthropic.

Program Leadership

The Duke Children's Healthy Lifestyles Program recruited a program director and identified a dietitian and program coordinator.

Development and Current Services Offered

This team began to see patients in October 2006 to promote evidence-based lifestyle behaviors. As the patient referral base grew, the Healthy Lifestyles Program added staff, a satellite location, group programs, a training component, and an office of community outreach. The Healthy Lifestyles Program currently employs 7 part-time pediatric medical providers (1 physician's assistant, 1 nurse practitioner, 5 physicians), 2 dietitians, 1 physical therapist, a clinical psychologist, a social worker, and a program coordinator. All providers are certified in motivational interviewing. The current Healthy Lifestyles Program protocol includes a 1-hour screening visit with a medical provider to review required laboratory work, BMI, and family history; this is followed by an intensive phase of 5 monthly visits with the medical provider, dietitian, physical therapist, and psychologist as needed. Minimum requirements include 6 medical, 4 dietitian, and 2 physical therapy vis-

its within a 1-year period. Patients are then seen biannually in the maintenance phase until they age out of the program at 22 years.

Payment

Reimbursement by third-party payers for the medical and physical therapy visit only provide the clinical revenue; comorbidities are primarily billed. Billing for registered dietitian and behavioral services was attempted; however, reimbursement was inconsistent, and patients refuse services because of noncovered services or high copayments. Payer mix is ~40% Medicaid, 10% Duke employee health, 20% managed care, and 30% BlueCross BlueShield/Aetna/Cigna/other. Despite aggressive billing practices and negotiations with local payers, revenue falls short of operating expenses by ~10% per year.

Healthy Hearts Program

Funding

This program is funded entirely from clinic visit payments.

Start Date

Healthy Hearts started in late 2008 having evolved out of the former Healthy Eating Active Living program, a multidisciplinary weight-loss program that operated for 5 years at Children's Hospital & Research Center Oakland in California.

Initial Funding

Because it was routinely receiving referrals for overweight/obese children who were experiencing chest pain, the cardiology group based at Children's Oakland decided to add a preventive cardiology component to its practice.

Program Leadership

The group hired the former leadership of Healthy Eating Active Living.

Development and Current Services Offered

The program leadership reconfigured a few core program elements of the Healthy Eating Active Living program. Patients are currently seen 3 days/week in 4 different locations in the Bay Area serving a diverse population of urban and suburban families. The Healthy Hearts team includes 2 general pediatricians (0.8 full-time employee), an adolescent medicine physician (0.15 full-time employee), a preventive cardiologist (0.20 full-time employee), a pediatric nurse practitioner (0.4 full-time employee), a registered dietitian (0.5 full-time employee), an exercise physiologist (0.4 full-time employee), and a psychologist (0.4 full-time employee). Patients who participate in the Healthy Hearts program receive care and counseling 1 hour at a time over the course of 6 visits, ~2 to 4 weeks apart, with follow-up visits 3 and 6 months after completion of the program. During the initial visit, the patient goes through an extensive intake evaluation and establishes goals for the next visit and the course of the program that is led by a pediatrician.

The patient receives care from the registered dietitian, exercise physiologist, or psychologist in the subsequent visits, and the physician or nurse practitioner also provides care at each of these visits. To reduce the no-show rate at 1 of the sites, the program runs a free orientation session twice per month at which patients and families are given information about the program and its expectations. Interested families are given their initial clinic appointment at the end of the orientation session, and referring providers are notified if families do not want to schedule an appointment.

Payment

Because a physician or nurse practitioner sees and examines every patient, all services are billed as medical visits with as many as 6 comorbidities. In the first year, payments from third-party payers covered ~50% of the cost of the program, and grants covered another 6%. Slower-than-expected volume growth was a critical factor in the first year's experience, but introducing the program to diverse communities has changed the program's payer mix from 70%/30% MediCal/commercial to 50%/50% MediCal/commercial. It is estimated that a 50/50 payer mix will reduce the operating deficit, but grant support and research funding will still be necessary. As co-director Lydia Tinajero-Deck, MD, wrote: "I know with my experience. . . survival depends on some grant money unless you have a bariatric component."⁴

DISCUSSION

The programs and summary we have given provide insight into stage 3 programs that have sustained themselves through grants, fee-for-service, linkages with associated revenue and generated hospital services, and endowments. The programs described all follow key strategies of the chronic care model with linkages of the

medical home, community resources, decision and support, and patient self-management

Recent reviews on obesity-related interventions have revealed the effectiveness of obesity-treatment interventions, especially those with intensive treatment regimens. The reviews also add support to how the chronic care model encompasses the necessary components for a health care system to be effective in caring for childhood obesity, as proposed by the 2007 Expert Committee. A Cochrane review on obesity-treatment interventions in 2009 included 64 randomized controlled trials with lifestyle (dietary, physical activity, and behavioral) and drug interventions.³ Bariatric surgery interventions were excluded. The investigators found that for children younger than 12 years, family-targeted lifestyle interventions were effective in the short-term, but the effects did not last for longer periods of follow-up. In contrast, for adolescents aged 12 years and older, combined dietary, physical activity, and behavioral interventions had a longer-term effect. These outcomes were enhanced with pharmacologic (metformin and orlistat) interventions.

On the basis of the Cochrane review, the US Preventive Services Task Force reviewed its recommendations regarding childhood and adolescent obesity interventions and found that medium- to high-intensity comprehensive behavioral interventions were effective in the treatment of obesity in the short-term. The studies reviewed enrolled children and adolescents aged 4 to 18 years in comprehensive behavioral interventions comprising 3 components: weight loss or healthy diet counseling; physical activity counseling or an activity program; and behavioral management techniques. Levels of intensity were based on hours of contact (low, 10 hours; moderate,

26–75 hours; and high, >75 hours). The evidence suggests the medium- to high-intensity programs can be effective over the short-term (up to 12 months after intervention), although additional research is needed to demonstrate the long-term outcomes. The task force also concluded that combined comprehensive behavioral and pharmacologic interventions might be beneficial to adolescents.⁴

Consistent with the chronic care model, these interventions rely on supportive specialists delivering the program in coordination with the physicians and nurse practitioners. The principles of the medical home as part of the chronic care model that apply to the stage 3 services for obese patients are (1) physician-directed medical practice, (2) whole-person orientation, (3) care coordination and/or integration, (4) quality and safety, and (5) enhanced access. The goal is improved health outcomes and patient satisfaction and a more efficient use of health resources through avoiding duplication of services. Currently, there are models of this approach in the health care systems for children with chronic health conditions. The California Children's Services, the Pennsylvania Medical Assistance, and the Healthier Generation programs described in the next section illustrate successful or emerging payment models that provide promising examples for payment strategies for stage 3 comprehensive multidisciplinary intervention programs.

California Children's Services Program

California Children's Services (CCS)⁶ is California's Title V program for children with special health care needs. It provides supplemental health insurance for children younger than 21 years who live in California (regardless of documentation status), have

certain diseases or health problems, and meet specified financial guidelines. The services provided by CCS are comprehensive and include diagnostic and therapeutic medical services, medical visits, and electronic communication devices. The providers who are reimbursed and play a key role in care coordination include physicians, nutritionists, social workers, physical therapists, and nurses. Most CCS-eligible conditions are chronic and disabling. CCS covers medical services related to childhood obesity such as type 2 diabetes and hypertension. CCS reimburses at a higher rate than Medicaid and improves access to specialists. On the basis of its goals and services, CCS could be an ideal mechanism through which to pay for health care needed by children with metabolic syndrome or children with a BMI at the ≥ 95 percentile and 1 or more comorbidities. This, in turn, would reduce the numbers of children and adolescents who develop type 2 diabetes, which leads CCS to save money in the long run.

Pennsylvania and Clinton Foundations Prevention Service Payments

There have been a few attempts at statewide reimbursement efforts for childhood obesity. Pennsylvania Medical Assistance established a multidisciplinary (including agencies, consumers, and providers) obesity workgroup in 2004.⁷ As part of its work the workgroup designed a service package that recognized the high need for obesity prevention and treatment, the types of services needed, and the projected return on investment (ROI). The service package included an initial assessment (Current Procedural Terminology [CPT] code 96150, 30- to 45-minute visit) per year (maximum of 3), and 4 reassessments (CPT code 96151, 30- to 60-minute visit) per year. They also recommended using

consistent diagnostic International Classification of Diseases (ICD) coding: 278.00 through 278.02 along with V85.52 through V85.54. Nutritional counseling ICD codes (S9470) for registered dietitians were also covered at a maximum of 12 visits per year (for more information about billing codes related to obesity and the comorbidities, visit www.aap.org/obesity/pdf/ObesityCodingFactSheet0208.pdf). These visits were expanded to include those in the community. These reimbursement efforts were coupled with provider education and continuing medical education. They estimated that the ROI was 67.1% over a 10-year period, netting \$12.1 million (\$5.5 million state share) savings above the cost of \$18.1 million (\$8.2 million state share). The estimate of ROI is based on a number of parameters and study results by Epstein et al (1981 and 1995).^{8,9} During a conference call with key Pennsylvania stakeholders in winter 2009, the authors learned that although this service package is available for Medicaid patients in Pennsylvania, at the time it had not yet been widely used, possibly because patients and providers were still unaware of this benefit package.

In February 2009, the Alliance for a Healthier Generation,¹⁰ a partnership between the Clinton Foundation and the American Heart Association, launched a health care initiative with several insurers and employers to provide a childhood obesity reimbursement benefit in the primary care setting (stage 1). This annual benefit included 4 visits with a primary care provider and 4 visits with a registered dietitian to focus on weight management. They estimated that the benefit would reach >6 million children in 3 years. The initiative includes provider tools and resources to support management and an evaluation component. This initiative is just completing

its first year, and there have been no reported outcomes to date. Although the results of these reimbursement benefit efforts are still pending, there is clearly a need to couple reimbursement efforts with provider and consumer education, and adequate reimbursement needs to be in place for providers to incorporate assessment, prevention, and management recommendations into clinical practice. The efforts target obese children and adolescents who are receiving services in the primary care office and those children with certain comorbidities (type 2 diabetes and hypertension) at the tertiary care centers.

To our knowledge, no statewide or national efforts are testing models of payment packages for children treated by a multidisciplinary team, as recommended at stage 3 by the expert work group. However, these efforts are desperately needed, given the near-doubling of hospital admissions and an associated increase in costs from \$125.9 million in 1999 (adjusted for inflation) to \$237.6 million in 2005 among US children aged 2 to 19 years with a diagnosis of obesity. Medicaid is paying a large portion of the hospitalizations for conditions associated with obesity.¹¹ These high costs and findings from an integrated health system in which an annual excess of approximately \$740 per obese pediatric patient is spent on primary care sick and mental health visits¹² are compelling arguments from a policy perspective to pay for stage 3 comprehensive multidisciplinary intervention programs. Authors of a report from the Thomson Corporation analyzed medical claims data to examine children treated for obesity with private insurance versus Medicaid in 2004 and determined that the mean covered health care expenses for privately insured chil-

dren was \$3743 compared with \$6730 for children on Medicaid.¹³ The diagnoses that drove these costs up for both groups of insured children were mental health disorders, gastrointestinal or abdominal symptoms, and bone and joint disorders.

On the basis of the Thomson's Corporation claims data, Pennsylvania's model of calculating the ROI for stage 1 and 2 interventions, and the review articles that have reported successful evidence-based stage 3 programs, parameters were chosen and the ROI for stage 3 programs was calculated. The following parameters were used to calculate the ROI: (1) stage 3 programs reported as most successful, at least in the short-term, are those of moderate (26–75 hours) or high (>75 hours) intensity⁴; and (2) assume the average cost to participate in a moderately intense program is \$3000 (taking the average of 26 and 75, which is 50.5 and pricing a conservative \$60/hour for the intervention, which includes physician, dietitian, physical therapist, psychologist, and coordinator's time) per patient and a success rate estimated at 41% initially⁸ and 30% of these successful children at 10-year follow-up.⁹ Then the initial investment of \$3000 with 41% of the patients successfully reaching the <85th percentile for BMI⁸ results in an investment of \$7317 for every successful patient. Cost savings would be realized, on the basis of the Thomson Corporation claims data analysis, after the second year for the privately insured patients and after the first year for Medicaid-insured patients. In 10 years, if 30% of the original 41% of patients maintain a BMI below the 85th percentile,⁹ the cost per successful patient based on the initial investment is \$24 390, a cost recovered in 6.5 years for the privately insured patient and 3.5 years for the Medicaid insured patient.

FUTURE DIRECTIONS

This review of current literature, payment efforts, a proposed ROI, and the chronic care model, which aims to maximize quality and efficiency with the proper utilization of each health care provider in the office, provides the foundation for the following recommendation: stage 3 comprehensive multidisciplinary intervention programs should include a health care team with a medical provider, registered dietitian, physical activity specialist, mental health specialist, and a coordinator providing service to overweight and obese children at no less than moderate intensity (26–75 hours) using evidence-based behavioral and medical interventions and linkages to community resources (see Table 2). Our recommendations further define what providing care at stage 3 means for the obese child; as written in recommendation 2.11 from the White House Task Force on Childhood Obesity states, "Federally funded and private insurance plans should cover services necessary to prevent, assess, and provide care to overweight and obese children."¹⁴

We recognize that for payers to support such a transformative model, it will need to be implemented in steps. We recognize that dietitians are rarely reimbursed to care for obese children, so we propose the following as the initial care plan for the morbidly obese child: 6 medical visits that might include the mental health specialist and the physical activity specialist team members and 6 dietitian visits. After this initial care plan, the multidisciplinary team and payer should review patient progress and recommend further medical and dietitian visits and further inclusion of mental health specialists and physical activity specialist if needed; the goal is to reach a minimum service of moderate intensity of 26 to 75 hours.⁴ To assess quality and

TABLE 2 Proposed Stage 3: Structured Weight Management Care

Services	BMI	
	85th–94th Percentile	≥95th Percentile
Medical: MD/DO/nurse practitioners with a special interest in childhood obesity who works closely with primary care physicians and follow the chronic care model of care delivery	With comorbidities 1/mo for 6 mo, then as needed or minimum 4/y During visits monitor progress to sustain health improvements or to escalate care as needed and to screen for comorbidities	With or without comorbidities 1/mo for 6 mo, then as needed or minimum 4/y
Registered dietitian visits	1/wk for 16 wk with follow-up at 3, 6, 9, and 12 mo	1/wk for 16 wk with follow-up at 3, 6, 9, and 12 mo
Mental health services (mental health: PhD, MFT, LCMSW, MA) if indicated during initial assessment	1/wk for 16 wk with follow-up at 3, 6, 9, and 12 mo If indicated on the basis of initial assessment	1/wk for 16 wk with follow-up at 3, 6, 9, and 12 mo If indicated on the basis of initial assessment
Physical activity: physical therapist, exercise physiologist	Initial assessment	Physical activity with incremental increases with the goal of 1 h/d supervised by a professional in physical activity at least 1/wk for 16 wk with follow-up at 3, 6, 9, and 12 mo; other support services as needed
Laboratory tests: screening for comorbidities, continued follow-up of comorbid conditions	If risk factors present in history or physical exam: AST/ALT, fasting glucose and lipid levels, beginning at 2 y of age (every 2 y for screening)	AST/ALT, BUN/Cr, fasting glucose and lipid levels (with or without risk factors); consider insulin levels
Subspecialists involved as needed (eg, endocrinologist, gastroenterologist, orthopedist, cardiologist, pulmonologist)	As needed	As needed
Care coordination: RN, MSW, or health educator	As needed	As needed

AST indicates aspartate aminotransferase; ALT, alanine aminotransferase; SUN, serum urea nitrogen; Cr, creatinine.

quantify cost savings, the proposed desired outcome measures were chosen because they are easily measured, are associated with improved health outcomes, and reduce health care costs.¹

1. Maintain or reduce BMI percentile (5 of the 5 programs described in this article collect these data).
2. Slow down weight-gain velocity (2 of the 5 programs described in this article collect these data).
3. Improve comorbidity measures (ie, reduce blood pressure, reduce insulin levels, reduce fasting serum

lipid levels) (4 of the 5 programs described in this article collect these data).

4. Reduce medication usage (2 of the 5 programs described in this article collect these data).
5. Increase school attendance (1 of the 5 programs described in this article collect these data).

Furthermore, we support the White House Task Force on Childhood Obesity's 2010 recommendation for future research to help further delineate the optimal care for obese children.¹⁴

In addition to the provision of stage 3 services, children's hospitals are leaders in their communities and play a key role in the promotion of health and wellness of children and their families and, in turn, the prevention of obesity within their communities. Failure to pay now by fairly supporting these professionals for their life-saving and cost-saving clinical work will only lead children, families, hospitals, insurers, and society to pay later in lower quality of life, higher health care costs, and higher mortality rates.

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