

DISCLAIMER

This Molina Clinical Policy (MCP) is intended to facilitate the Utilization Management process. Policies are not a supplementation or recommendation for treatment. Providers are solely responsible for the diagnosis, treatment, and clinical recommendations for the member. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (e.g., will be paid for by Molina) for a particular member. The member's benefit plan determines coverage – each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their providers will need to consult the member's benefit plan to determine if there are any exclusion(s) or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid members. CMS's Coverage Database can be found on the CMS website. References included were accurate at the time of policy approval and publication.

OVERVIEW

Protein-energy wasting (PEW) is a metabolic and nutritional disorder characterized by progressive loss of muscle mass, decreased fat stores, and overall depletion of protein and energy reserves. It is common among individuals receiving hemodialysis for chronic kidney disease (CKD) and end-stage renal disease (ESRD). The condition arises from multiple, often overlapping mechanisms, including inadequate dietary intake, chronic inflammation, hypercatabolism, insulin resistance, comorbid illnesses, the physiologic effects of the dialysis procedure, and certain medications. A global meta-analysis of 90 studies reported a median PEW prevalence of 43% in hemodialysis patients, underscoring its clinical significance (Carrero et al. 2018). Patients with CKD who develop PEW face higher risks of morbidity, mortality, and diminished quality of life (²⁻³Hayes 2026).

While enteral (gastrointestinal) nutrition is the preferred method for nutritional delivery, parenteral nutrition becomes an important alternative when oral or enteral intake is insufficient or not feasible. Two specialized parenteral approaches are used in dialysis populations:

1. **Intradialytic parenteral nutrition (IDPN):** a type of parenteral nutritional therapy administered to malnourished patients undergoing hemodialysis.
2. **Intrapertitoneal nutrition (IPN):** a type of nutritional therapy administered into the peritoneal cavity to malnourished patients undergoing peritoneal dialysis.

IDPN is the administration of a hyperalimentation formula comprised of amino acids, glucose, and lipids, during hemodialysis to treat protein-calorie malnutrition. IDPN serves as therapeutic alternative for patients who are candidates for total parenteral nutrition (TPN) but are unable to meet nutritional needs through oral intake alone. The composition of IDPN closely parallels that of TPN, typically providing about 10% amino acids, 40% to 50% glucose, 10% to 20% lipids, or a customized mixture of carbohydrate and lipids based on individual requirements, for a total of approximately 800 to 1200 kcals. The solution is delivered through the venous drip chamber during routine dialysis sessions three times per week, eliminating the need for additional clinic visits, extended dialysis time, or additional lines. IPN follows a similar principle but is administered into the peritoneal cavity during peritoneal dialysis (²⁻³Hayes 2026).

Regulatory Status

The FDA does not regulate IDPN or IPN as procedures but does oversee the devices used, such as hemodialysis blood-access equipment and infusion pumps.

TPN solutions are compounded by licensed pharmacies from individual ingredients (e.g., dextrose, amino acids, and trace elements) according to prescriber specifications and are not subject to the FDA new drug application process.

RELATED POLICIES

MCP-406: Enteral Nutrition

COVERAGE POLICY

Intradialytic nutrition, including intradialytic parenteral nutrition (IDPN) or intraperitoneal nutrition (IPN), may be **considered medically necessary** when ALL the following criteria are met:

1. Member is a candidate for total parenteral nutrition (TPN) (i.e., nutritional status cannot be adequately maintained on oral or enteral feedings)
2. Member is on chronic dialysis with evidence of protein-energy wasting (PEW)
3. Documentation of ALL the following:
 - a. Member cannot be sustained on oral or enteral feedings and requires parenteral nutrition
 - b. Dietary assessment, physical examination, and laboratory values indicative of PEW, including but not limited to, biochemical criteria, progressive drop in body mass index (BMI), reduced total body fat or weight loss, a decrease in muscle mass, low albumin, protein nitrogen appearance, and low protein or energy intakes

Note: Progressive declines in BMI, albumin, and protein nitrogen appearance may be suggestive of PEW. Preferably, each criterion should be documented on at least three occasions, ideally two to four weeks apart (Bansal et al. 2024)

Continuation of Therapy

Continuation of therapy may be authorized when Member has documented evidence of meeting ALL the following criteria:

1. Continuous dependence on dialysis
2. Positive clinical response to therapy
3. Member has not experienced a treatment-related adverse event or toxicity associated with IDPN or IPN treatment

Discontinuation of Therapy

Discontinuation of IDPN or IPN may be reasonable if ONE of the following criteria is met:

1. Member tolerates adequate oral or enteral nutrition
2. Protein and/or nutrition status does not improve after 6 months on IDPN or IPN
3. Reasonable sustained improvement in protein and nutrition status as indicated by a serum albumin greater than > 4.0 g/dL AND BMI greater than or equal to 18.5 kg/m²

Limitations and Exclusions

The following are considered **contraindications/exclusions** based on insufficient evidence:

1. Adverse clinical response (e.g., infections, metabolic decompensation of pre-existing diabetes mellitus)

The following are considered **experimental, investigational, and unproven** due to insufficient evidence in the peer-reviewed medical literature to establish long-term safety, efficacy, and effect on net health outcomes:

1. IDPN administered in addition to regularly planned TPN infusions unless given in lieu of their daily TPN
2. IDPN as an adjunct to hemodialysis in patients who would not otherwise be considered candidates for TPN
3. Acute kidney injury patients who do not have end stage renal disease

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4. Specialized IDPN solutions (e.g., Proplete) have purportedly been formulated to meet the needs of the hemodialysis patients who are protein malnourished or who consume adequate calories but insufficient protein. IDPN specialized formulations have not been shown to be clinically superior to standard TPN formulations. There are currently no clinical studies in the published peer-reviewed medical literature that demonstrate the superiority of specialized IDPN preparations. It has not been demonstrated that using specialized solutions results in better outcomes (e.g., serum albumin levels) for dialysis patients in comparison to standard preparations

NOTE: Coverage for specialized IDPN may be contingent on member's health benefit plan's definition of medical necessity. Medically Necessary/Medical Necessity may be defined as "not more expensive than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that individual's illness, injury, or disease." Because there are different IDPN preparations, and one may be significantly more expensive than the other but not proven to be clinically superior, a more costly specialized IDPN solution may be considered not medically necessary under member's plan benefit

DURATION OF APPROVAL: Initial authorization: 3 months; Continuation of treatment: 6 months

QUANTITY LIMITATIONS: IDPN or IPN therapy should not be used as a long-term solution and should be discontinued when the member can tolerate oral or enteral nutritional supplementation (Ikizler et al. 2020)

DOCUMENTATION REQUIREMENTS: Molina Healthcare reserves the right to require that additional documentation be made available as part of its coverage determination; quality improvement; and fraud; waste and abuse prevention processes. Documentation required may include, but is not limited to, patient records, test results and credentials of the provider ordering or performing a drug or service. Molina Healthcare may deny reimbursement or take additional appropriate action if the documentation provided does not support the initial determination that the drugs or services were medically necessary, not investigational or experimental, and otherwise within the scope of benefits afforded to the member, and/or the documentation demonstrates a pattern of billing or other practice that is inappropriate or excessive.

SUMMARY OF MEDICAL EVIDENCE

Randomized Controlled Trials

Kabasawa et al. (2024) conducted a randomized, open-label trial evaluating the efficacy and safety of intradialytic parenteral nutrition (IDPN) with ENEFLUID in adults on maintenance hemodialysis with mild–moderate malnutrition scores (Nutritional Risk Index for Japanese Hemodialysis score of 5–10). Thirty-four patients completed the 12-week intervention (16 intervention, 18 control). The primary outcome was the change in serum transthyretin (TTR) concentration, a marker of nutritional status. Secondary outcomes included changes in other nutrition-related laboratory values, dietary energy and protein intake, plasma amino acid levels, and intradialytic blood glucose profiles. The primary outcome showed no significant difference in TTR change between groups ($P = 0.41$). Significant improvements were observed in the intervention group for blood urea nitrogen ($P = 0.007$), zinc ($P = 0.02$), and normalized protein catabolic rate ($P = 0.02$). Energy intake increased slightly in the intervention group and declined in controls, yielding a significant between-group difference ($P = 0.04$); protein intake likewise differed ($P = 0.05$). The decline in total plasma amino acids was smaller ($P = 0.04$), and essential amino acids increased in the intervention group versus a decrease in controls ($P < 0.001$). Hypoglycemia duration during dialysis was shorter in the intervention group at both 2 weeks after study initiation ($P = 0.01$) and 2 weeks before completion ($P = 0.04$), with greater time-in-range glucose early in the study ($P = 0.005$). Safety labs showed a significant between-group difference in B-type natriuretic peptide change ($P = 0.02$). Study limitations included the small, exploratory sample size without formal power calculation, a relatively short 12-week follow-up, open-label design with potential behavioral bias, absence of measurements for certain micronutrients, and enrollment limited to Japanese patients, which may restrict generalizability. In conclusion, 12 weeks of ENEFLUID IDPN did not improve serum TTR but favorably influenced select nutritional and glycemic parameters and was well tolerated, supporting the need for larger, longer trials to confirm clinical benefits.

Kittiskulnam et al. (2022) conducted a prospective open label randomized controlled trial comparing 18 participants who received IDPN and standard dietary counseling versus 20 participants in the control group who received intensive dietary counseling. Eligible participants were over 18 years of age, receiving maintenance hemodialysis for at least 3 months, having spontaneous dietary intake of energy ≥ 20 kilocalorie (kcal)/kilogram (kg)/day and protein intake ≥ 0.8 g/kg/day, unable to tolerate sufficient oral intake, and presence of protein-energy wasting (PEW) defined as at least two of the following criteria of serum albumin level ≤ 3.5 g/dL 16, 17, serum prealbumin ≤ 30 mg/dL 18, mild to moderate malnutrition evaluated by 7-point subjective global assessment in category B, or malnutrition inflammation score ≥ 5 points. The study had 3 intervention months followed by 3 intervention free months. The primary outcome was serum

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albumin level increase. The secondary outcomes were prealbumin serum changed, increased muscle mass, increased strength, composite nutritional scoring system, and biomarkers. The average baseline serum albumin level, spontaneous energy, and protein intake were 3.5 ± 0.3 g/dL, 21.3 ± 7.8 kcal/kg/day, and 0.9 ± 0.3 g/kg/day, respectively. After 3 months of IDPN supplementation, the mean serum albumin level increased by 0.3 g/dL from baseline and was significantly higher in the IDPN compared with the control group ($p = 0.01$). Body weight significantly increased from 59.3 ± 12.1 to 61.2 ± 11.9 kg after 3 months of IDPN treatment ($p = 0.006$) whereas it remained unchanged in the control group ($p = 0.22$). After adjusting for baseline consumption, oral energy intake elevated by 281.2 ($p = 0.001$) kcal/day and protein intake increased by 8.0 ($p = 0.04$) g/day at 3 months in the IDPN group. In contrast, spontaneous energy intake was significantly reduced in the control group ($p = 0.004$). No adverse effects related to IDPN administration were reported.

Systematic Reviews and Meta-Analyses

Lindholm et al. (2026) conducted a systematic review to evaluate the safety and efficacy of amino acid-based peritoneal dialysis (AAPD) solutions in patients with chronic kidney disease (CKD) receiving peritoneal dialysis. A meta-analysis could not be performed due to significant heterogeneity in study designs, patient populations, and outcomes. The review included 10 RCTs, 3 systematic reviews, 19 observational/real-world studies, and 2 experimental studies. In general, AAPD produced favorable effects on nutritional surrogate measures, although results were heterogeneous. For example, a crossover study of ($n = 18$) continuous ambulatory peritoneal dialysis (CAPD) patients showed an increase in serum albumin using one daily 2-L Nutrineal exchange, from a baseline of < 30 g/L to 26.8 - 30.1 g/L at 6 months ($p < 0.01$). In another study of ($n = 22$) hypoalbuminemia CAPD patients treated for a mean of 13.6 months with AAPD, serum albumin increased from 22.5 to 25.7 g/L, normalized protein catabolic rate increased from 0.90 to 1.09 g/kg/day, while body weight remained stable ($p = 0.0036$). In a 3-year RCT of ($n = 60$) malnourished CAPD patients, serum albumin and cholesterol were maintained or increased with daily AAPD use, while they declined using glucose-dialysate controls. Other studies demonstrated improved nitrogen balance, increased protein synthesis, increased mid-arm muscle circumference, improved amino-acid availability, and higher prealbumin/transferrin with AAPD use. However, a retrospective study ($n = 32$) found no significant improvement in serum albumin or total protein at 12 months, and the authors of the systematic review emphasized that pooled evidence for albumin and anthropometric improvement was inconsistent. For metabolic outcomes, the IMPENDIA/EDEN RCT ($n = 251$) found that a glucose-sparing regimen, using an amino acid solution plus icodextrin, reduced hemoglobin A1c by approximately 0.5 percentage points more than conventional glucose-based peritoneal dialysis solutions, and improved triglycerides, very-low-density lipoprotein, and apolipoprotein. However, because of it being a combined glucose sparing regimen, the effects cannot be attributed solely to the amino acid solution. AAPD was generally well tolerated; however, increased blood urea nitrogen, transient nausea, hypotension, and mild hyperammonemia were reported. Limitations include heterogeneity, reliance on surrogate outcomes, absence of GRADE, and potential bias from industry-funded studies. The authors concluded that one daily exchange of 1.1% AAPD appears generally well tolerated and may improve nutritional surrogate markers while reducing glucose exposure, particularly in malnourished or high-risk patients; however, long-term effects on technique survival and mortality remain uncertain and require larger, independent multicenter trials.

Adar et al. (2026) conducted a meta-analysis to evaluate the effects of oral nutritional supplementation (ONS) and/or IDPN on serum albumin in adults with ESRD on hemodialysis. The analysis included 8 RCTs for a total of 382 patients. Intervention participants received ONS and/or IDPN while control groups received nutritional counseling or placebo, with follow-up ranging from 30 days to 6 months. The primary outcome was nutritional status indicated by end-of-treatment serum albumin. ONS/IDPN was associated with significantly higher end of follow-up serum albumin than control, with a standardized mean difference (SMD) of 0.372 (95% confidence interval [CI] 0.103-0.641, $p = 0.007$), with low-to-moderate heterogeneity ($I^2 = 39.69\%$, 95% CI 0%-73.37). The authors also analyzed C-reactive protein as an exploratory marker of inflammation and found no significant difference between groups (SMD -0.645, 95% CI -2.478 to 1.189, $p = 0.489$); therefore, an increase in serum albumin was not accompanied by a demonstrated reduction in inflammation. Limitations include relatively small sample sizes, short follow up no longer than 6 months, and varying populations and intervention types. Additionally, the small evidence base prevented a separate analysis of ONS versus IDPN. The authors concluded that ONS and/or IDPN significantly improves serum albumin in adults receiving maintenance hemodialysis and may therefore improve a marker of malnutrition risk. However, it remains unclear whether an improvement in serum albumin translates into meaningful clinical outcomes.

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Anderson et al. (2019) published a systematic review that assessed the efficacy and adverse effects of IDPN for treating malnutrition in hemodialysis patients. Five RCTs and 6 comparative observational studies were included in the review (4 prospective and 2 retrospective). Clinically relevant improvements in individual indicators of nutrition status, global nutrition status, mortality, morbidity, hospitalization, and quality of life (QOL) were among the outcomes. Primary studies compared IDPN to oral supplements, dietary counseling, or standard care. The studies did not define usual care, which could include dietary counseling or oral supplements based on patient condition and physician recommendation. Except for one large retrospective cohort study (n=24196), the study sample sizes were small (ranging from 12 to 196). Malnutrition criteria varied across studies, with most using serum albumin of 3.5 g/dL or 4.0 g/dL along with at least one other predictor (weight loss, BMI, nutritional score or assessment). No studies compared IDPN to enteral nutrition. It was noted that IDPN did not improve patient mortality, hospitalization, or QOL compared to oral supplements and dietary counseling. Additionally, observational studies reported mixed results for IDPN compared to usual care for mortality, with results differing based on baseline serum albumin levels. The systematic review concluded that "IDPN does not appear to improve patient health or clinically important nutritional outcomes compared to the standard and recommended treatments of oral supplementation or dietary counseling." While the authors agree the limited evidence gives testament to IDPN's safety the authors further noted that "IDPN is recommended by guidelines for malnourished patients on hemodialysis who have not responded to nutritional counseling, oral, and/or enteral treatments. Nevertheless, despite the paucity of data indicating advantage over advised treatments, IDPN is frequently sought or utilized before beginning other forms of treatment."

Non-Randomized Studies, Retrospective Reviews, and Other Evidence

Deng et al. (2026) conducted a prospective, multicenter, single-arm interventional real-world study to evaluate AAPD for malnutrition in adults receiving CAPD. The study enrolled 149 patients with malnutrition, defined as serum albumin < 35 g/L, prealbumin < 300 mg/L, or Subjective Global Assessment (SGA) score > 7. For 6 months, one daily 2-L bag of 1.1% AAPD solution replaced the usual 1.5% dextrose solution for the overnight dwell, while daytime peritoneal dialysis and routine nutritional management continued according to usual practice. The primary outcomes were changes in serum albumin and prealbumin, while secondary measures included SGA scores, normalized protein catabolic rate (nPCR), hand-grip strength, mid-arm muscle circumference, and BMI. Mean serum albumin increased from a baseline of 30.4 g/L to 33.2 g/L at month 3 and 34.5 g/L at month 6, for a mean 6-month increase of 3.8 g/L (95% CI 3.15-4.39, p < 0.001). Prealbumin increased from a baseline of 302.8 mg/L to 340.9 mg/L at month 3 and 348.7 mg/L at month 6, for a mean 6-month increase of 39.8 mg/L (95% CI 26.7-56.9, p < 0.001). By month 6, SGA scores decreased from a median of 12.0 to 10.0, nPCR increased from 1.14 to 1.38 g/kg/day, and hand-grip strength increased from 21.40 to 23.45 cm/kg and were all statistically significant. BMI remained unchanged and mid-arm muscle circumference showed a statistically significant decrease, which the authors interpreted as indicating that 6 months was insufficient to improve medium or longer-term nutritional measures. Fifty-three patients (35.6%) experienced 56 treatment-emergent events, but only 3 events (2.0% of patients) were considered related to AAPD, which included abdominal pain, abdominal distension, and allergic reaction. Thirty-one patients (20.8%) experienced serious adverse events, including 17 cases of peritonitis, 4 cases of diabetic foot infection, 3 cases of respiratory infection, and 1 death of unknown cause. An additional and important safety finding was a tendency toward metabolic acidosis, as serum bicarbonate decreased by 3.64 mmol/L at month 3 and 2.43 mmol/L at month 6. Study limitations include a single-arm, self-controlled design without randomization or a concurrent control group, missing data, less rigorous and short-term follow-up, and possible confounding. The authors concluded that AAPD improved serum albumin, prealbumin, and clinical symptoms in malnourished CAPD patients, but that 6 months alone was insufficient to substantially improve longer-term nutritional measures such as body composition. While treatment-related adverse reactions are generally mild, acidosis should be monitored.

Slusser-Hogan et al. (2025) conducted a 5-year retrospective chart review to evaluate the effects of IDPN on albumin levels in adult patients with ESKD receiving in-center hemodialysis 3 times a week. Of 2,270 patients screened, 1,631 (n = 1,631) had sufficient baseline and follow-up data for analysis. Patients typically had hypoalbuminemia, unintentional weight loss of $\geq 5\%$ over 3 months, and/or BMI < 20 kg/m², and 99.3% of patients had already been placed on ONS. Mean age was 69.1 years and mean baseline albumin was 3.11 g/dL. IDPN was administered during each dialysis session 3 times a week, and was individualized, but generally provided 85-100 g of amino acids and 476-570 kcal per treatment. A clinically significant albumin response was defined as an increase of ≥ 0.2 g/dL. At 6 months, mean albumin increased by 0.330 g/dL (95% CI 0.305-0.356, p < 0.001), while 82% of patients achieved a clinically significant response. At 12 months, mean albumin increased by 0.366 g/dL (95% CI 0.323-0.408, p < 0.001), with 85.8% achieving a clinically significant response. In time-to-response analysis, patients with diabetes were more likely

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to respond than those without diabetes (hazard ratio [HR] 1.16, 95% CI 1.02-1.33, $p = 0.022$), while documented residual kidney function was associated with a lower likelihood of response (HR 0.54, 95% CI 0.36-0.80, $p = 0.002$). Patients receiving IDPN without lipid emulsions also had higher odds of response at 6 months (OR 1.68, 95% CI 1.17-2.41, $p = 0.005$), although patients prescribed lipids tended to be sicker and more malnourished, limiting conclusion. Fewer than 8% of patients experienced adverse effects, and were characterized as “minor, minimal, and treatable,” but not further described. Study limitations include retrospective design, incomplete records, and reliance on serum albumin rather than direct clinical outcomes (e.g., mortality, quality of life, composite nutritional score). The authors concluded that IDPN was associated with clinically significant improvement in serum albumin and was safe in patients on in-center hemodialysis who had not adequately responded to nutrition counseling and ONS.

Hayes (2023) published a Health Technology Assessment (HTA) report, titled *Intradialytic Parenteral Nutrition (IDPN) for End-Stage Renal Disease in Adults*, which assessed the efficacy and safety of IDPN for malnourished patients with CKD or ESRD receiving hemodialysis. Seven studies met the inclusion criteria for this report: 4 RCTs and 3 retrospective comparative cohort studies. In all studies, IDPN was given 3 times per week during hemodialysis treatments to malnourished ESRD patients with baseline serum albumin values less than 3.5 g/dL. Although IDPN treatment regimens varied between trials, they often comprised the standard components of protein, fat, and carbs. The duration of the treatment varied from 16 weeks to 1 year. IDPN was compared to oral supplements in 3 studies dietary/nutritional counseling in 2 studies and usual/standard care in 2 studies. No studies comparing IDPN to enteral tube feeding assistance were identified. The HTA concluded that IDPN is relatively safe and is related to improvements in baseline laboratory markers (serum albumin, serum prealbumin, creatinine), BMI/body weight, and death rates when compared to traditional therapy; however, benefits over traditional therapy were not found. The findings also reflect individual study limitations, heterogeneity in IDPN formulation trials, and unanswered questions about patient selection criteria for IDPN and long-term benefits.

National and Specialty Organizations

American Society for Parenteral and Enteral Nutrition (ASPEN) clinical guidelines and consensus recommendations state that IDPN alone should not be used as the sole nutrition intervention for malnourished CKD patients. IDPN is a supplemental nutrition intervention that can be used in patients when oral intake and/or enteral nutrition (EN) interventions have failed or are insufficient to meet nutrition goals. Existing data suggest that IDPN is safe in certain patients and can improve weight, appetite, serum albumin levels, and survival in malnourished hemodialysis patients. More research is needed to determine which patient populations would benefit most from this intervention (Brown 2010; Worthington et al. 2017).

2017 ASPEN task force consensus recommendations state that IDPN may be considered for adult and pediatric patients with CKD who are malnourished and cannot tolerate adequate oral intake or EN. Additionally, the recommendations support initiation of IDPN in pediatric patients when TWO of the following criteria are met (Worthington et al. 2017):

- Serum albumin concentration less than 3.5 g/dL
- Evidence of protein malnutrition based on a normalized protein catabolic rate (less than 0.8 g/kg/d, energy intake less than 25 kcal/kg/d)
- Weight loss equal to or greater than 10% ideal body weight over 3 months
- Dysfunctional gastrointestinal tract
- Inability to administer adequate EN especially if fluid limited
- Inadequate weight gain over one month

2010 ASPEN clinical guidelines on nutritional support in adult acute and chronic renal failure state that IDPN should not be used as a nutritional supplement in malnourished CKD V hemodialysis patients (Grade C recommendation based on at least one level II investigation). According to the guidelines, IDPN “is limited by the need to complete the entire nutrient infusion during the hemodialysis treatment, and by the potential for such rapid administration of glucose and lipid to cause adverse effects.” For patients with intestinal failure or limited food intake, IDPN often fails to meet the full nutrition requirements. Although studies have shown IDPN is associated with increased body weight and serum albumin concentration, it has not been shown to reduce mortality. If intestinal function permits, patients with renal failure who require nutrition support should receive enteral nutrition (Grade E recommendation based on level IV or V evidence) (Brown 2010).

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National Kidney Foundation (NKF) / Kidney Disease Outcomes Quality Initiative (KDOQI) *Clinical Practice Guidelines for Nutrition in Chronic Kidney Disease* guidelines, recommend that TPN or IDPN may be options to provide nutrients if the enteral route is inadequate (Ikizler et al. 2020). However, feeding through the gastrointestinal route should be preferred for as long as possible.

The KDOQI also recommends that in adults with CKD with PEW, a trial of IDPN should be administered to patients with stage 5 CKD who are on maintenance hemodialysis (recommendation level 2C) to improve and maintain nutritional status if nutritional requirements cannot be met with existing oral and enteral intake. IDPN is not intended as long-term nutritional support and should be discontinued once nutritional status improves and the patient can use the oral or enteral route. Importantly, improvement criteria should be individualized. If IDPN with oral intake cannot meet the patient's requirements, or if the GI tract is impaired, daily TPN should be considered (Ikizler et al. 2020).

For adult patients with stage 5D CKD on peritoneal dialysis with PEW, the KDOQI recommends to not substitute conventional dextrose dialysate with amino acid dialysate "as a general strategy to improve nutritional status," but notes that it's reasonable to consider a trial to improve and maintain nutritional status if requirements cannot be met with existing oral and enteral intake (expert opinion) (Ikizler et al. 2020).

The **European Society for Clinical Nutrition and Metabolism (ESPEN)** published a practical guideline on clinical nutrition in hospitalized patients with acute or chronic kidney disease (Sabatino et al. 2024). The guideline states that IDPN should be used in non-critically ill, hospitalized patients with CKD and kidney failure who are on hemodialysis and who are either malnourished or at risk of malnutrition and have failed to respond, or do not tolerate, oral nutritional supplementation (ONS) or EN. However, because of its non-superiority to ONS and its time limitation (hemodialysis is usually a 4-hour session 3 times a week), the widespread use of IDPN before first-line interventions (i.e., ONS) is not recommended.

A 2026 **international expert consensus statement** and guidance document recommends the initiation of IDPN in patients with confirmed PEW who consume > 50% of their nutritional requirements orally but are still unable to meet their total energy and protein needs despite ONS or EN (Strong consensus, 100% agreement). However, the authors emphasize that "unlike TPN, IDPN is supplemental in nature and cannot provide total nutritional support." IDPN is not a last-resort intervention for severely malnourished patients who require full nutritional support, and it also shouldn't replace EN in those with moderate to severe PEW. "The role of IDPN is to bridge the nutritional gap between a patient's nutritional needs and their actual dietary and protein intake, including ONS, in patients undergoing hemodialysis." The authors also caution not to initiate IDPN in patients with volume overload, uncontrolled diabetes or hypertension, or severe hypertriglyceridemia (> 500 mg/dl) (Consensus, 82% agreement), emphasizing that these are not absolute contraindications but that these conditions should be optimized before initiating IDPN. Regarding discontinuation, the authors state that nutritional support, including IDPN and parenteral nutrition, can be discontinued when the patient shows "an overall improvement in appetite, spontaneous dietary intake, weight gain, and improvement or resolution of the clinical condition causing PEW" (Strong consensus, 100% agreement) (Wang et al. 2026).

The **International Society of Renal Nutrition and Metabolism (ISRNM)** and **International Society for Peritoneal Dialysis (ISPD)** published a joint practice recommendation on nutrition management in peritoneal dialysis (Wang et al. 2026). The ISRNM and ISPD "do not recommend intra-peritoneal amino acids as a stand-alone treatment for the prevention or management of PEW" (Grade 1 recommendation, level of evidence D). The authors note that while metabolic studies show that it can increase amino acid uptake, decrease net amino acid losses, and provide other potential benefits, RCTs and observational studies suggest there is no significant nutrition benefit. A recent systematic review found no positive effects on anthropometric measures, body weight, BMI, or serum albumin. However, intra-peritoneal amino acids may be reasonable to consider as an adjunctive therapy to ONS or EN due to its provision of daily amino acids. Intra-peritoneal amino acids may be considered "as an adjunctive therapy if nutritional counseling, ONS, and EN are insufficient to meet the protein intake targets."

CODING & BILLING INFORMATION

CPT (Current Procedural Terminology)

Code	Description
90935	Hemodialysis procedure with single evaluation by a physician or other qualified health care professional
90937	Hemodialysis procedure requiring repeated evaluation(s) with or without substantial revision of dialysis prescription
90945	Dialysis procedure other than hemodialysis (e.g., peritoneal dialysis, hemofiltration, or other continuous renal replacement therapies), with single evaluation by a physician or other qualified health care professional
90947	Dialysis procedure other than hemodialysis (e.g., peritoneal dialysis, hemofiltration, or other continuous renal replacement therapies) requiring repeated evaluations by a physician or other qualified health care professional, with or without substantial revision of dialysis prescription
90951	End-stage renal disease (ESRD) related services monthly, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 4 or more face-to-face visits by a physician or other qualified health care professional per month
90952	End-stage renal disease (ESRD) related services monthly, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 2-3 face-to-face visits by a physician or other qualified health care professional per month
90953	End-stage renal disease (ESRD) related services monthly, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 1 face-to-face visit by a physician or other qualified health care professional per month
90954	End-stage renal disease (ESRD) related services monthly, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 4 or more face-to-face visits by a physician or other qualified health care professional per month
90955	End-stage renal disease (ESRD) related services monthly, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 2-3 face-to-face visits by a physician or other qualified health care professional per month
90956	End-stage renal disease (ESRD) related services monthly, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 1 face-to-face visit by a physician or other qualified health care professional per month
90957	End-stage renal disease (ESRD) related services monthly, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 4 or more face-to-face visits by a physician or other qualified health care professional per month
90958	End-stage renal disease (ESRD) related services monthly, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 2-3 face-to-face visits by a physician or other qualified health care professional per month
90959	End-stage renal disease (ESRD) related services monthly, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents; with 1 face-to-face visit by a physician or other qualified health care professional per month
90960	End-stage renal disease (ESRD) related services monthly, for patients 20 years of age and older; with 4 or more face-to-face visits by a physician or other qualified health care professional per month
90961	End-stage renal disease (ESRD) related services monthly, for patients 20 years of age and older; with 2-3 face-to-face visits by a physician or other qualified health care professional per month
90962	End-stage renal disease (ESRD) related services monthly, for patients 20 years of age and older; with 1 face-to-face visit by a physician or other qualified health care professional per month
90963	End-stage renal disease (ESRD) related services for home dialysis per full month, for patients younger than 2 years of age to include monitoring for the adequacy of nutrition, assessment of growth and

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	development, and counseling of parents
90964	End-stage renal disease (ESRD) related services for home dialysis per full month, for patients 2-11 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents
90965	End-stage renal disease (ESRD) related services for home dialysis per full month, for patients 12-19 years of age to include monitoring for the adequacy of nutrition, assessment of growth and development, and counseling of parents
90966	End-stage renal disease (ESRD) related services for home dialysis per full month, for patients 20 years of age and older
90967	End-stage renal disease (ESRD) related services for dialysis less than a full month of service, per day; for patients younger than 2 years of age
90968	End-stage renal disease (ESRD) related services for dialysis less than a full month of service, per day; for patients 2-11 years of age
90969	End-stage renal disease (ESRD) related services for dialysis less than a full month of service, per day; for patients 12-19 years of age
90970	End-stage renal disease (ESRD) related services for dialysis less than a full month of service, per day; for patients 20 years of age and older

HCPSCS (Healthcare Common Procedure Coding System)

Code	Description
B4164	Parenteral nutrition solution: carbohydrates (dextrose), 50% or less (500 ml = 1 unit) home mix
B4168	Parenteral nutrition solution; amino acid, 3.5%, (500 ml = 1 unit) home mix
B4172	Parenteral nutrition solution; amino acid, 5.5% through 7%, (500 ml = 1 unit) home mix
B4176	Parenteral nutrition solution; amino acid, 7% through 8.5%, (500 ml = 1 unit) home mix
B4178	Parenteral nutrition solution: amino acid, greater than 8.5% (500 ml = 1 unit) home mix
B4180	Parenteral nutrition solution; carbohydrates (dextrose), greater than 50% (500 ml = 1 unit) home mix
B4185	Parenteral nutrition solution, not otherwise specified, 10 grams lipids
B4189	Parenteral nutrition solution; compounded amino acid and carbohydrates with electrolytes, trace elements, and vitamins, including preparation, any strength, 10 to 51 grams of protein premix
B4193	Parenteral nutrition solution; compounded amino acid and carbohydrates with electrolytes, trace elements, and vitamins, including preparation, any strength, 52 to 73 grams of protein premix
B4197	Parenteral nutrition solution; compounded amino acid and carbohydrates with electrolytes, trace elements and vitamins, including preparation, any strength, 74 to 100 grams of protein premix
B4199	Parenteral nutrition solution; compounded amino acid and carbohydrates with electrolytes, trace elements and vitamins, including preparation, any strength, over 100 grams of protein premix
B4216	Parenteral nutrition; additives (vitamins, trace elements, heparin, electrolytes), home mix, per day
B4220	Parenteral nutrition supply kit; premix, per day
B4222	Parenteral nutrition supply kit; home mix, per day
B4224	Parenteral nutrition administration kit, per day
B5000	Parenteral nutrition solution compounded amino acid and carbohydrates with electrolytes, trace elements, and vitamins, including preparation, any strength, renal Aminosyn RF, Nephramine, Renamine premix
B5100	Parenteral nutrition solution compounded amino acid and carbohydrates with electrolytes, trace elements, and vitamins, including preparation, any strength, hepatic, Hepatamine premix
B5200	Parenteral nutrition solution compounded amino acid and carbohydrates with electrolytes, trace elements, and vitamins, including preparation, any strength, stress branch chain amino acids Freamine hbc premix

CODING DISCLAIMER: Codes listed in this policy are for reference purposes only and may not be all-inclusive. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement. Listing of a service or device code in this policy does not guarantee coverage. Coverage is determined by the benefit document. Molina adheres to Current Procedural Terminology (CPT®), a registered trademark of the American Medical Association (AMA). All CPT codes and descriptions are copyrighted by the AMA; this information is included for informational purposes only. Providers and facilities are expected to utilize industry standard coding practices for all submissions. When improper billing and coding is not followed, Molina has the right to reject/deny the claim and recover claim payment(s). Due to changing industry practices,

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Molina reserves the right to revise this policy as needed.



APPROVAL HISTORY

10/14/2026	Policy revised. Removed criteria that necessitates severe pathology of the alimentary tract. Title changed to "Intradialytic Parenteral Nutrition (IDPN) and Intraperitoneal Nutrition (IPN)." IRO peer reviewed on October 1, 2026 by a practicing physician board certified in nephrology.
10/08/2025	Policy reviewed. No changes to coverage criteria.
10/09/2024	Policy reviewed. No changes to coverage criteria.
10/12/2023	Policy reviewed. No changes to coverage criteria.
10/12/2022	New Policy. IRO Peer Review 8/22/2022 by a practicing physician board-certified in Nephrology.

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