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Bariatric Surgery as a Bridge to Kidney Transplantation in Patients with Obesity and Advanced Chronic Kidney Disease or End-Stage Renal Disease: A Systematic Review

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ADMINISTRATIVE INFORMATION

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INTRODUCTION

Review question / Objective To synthesise the evidence on the safety and effectiveness of bariatric surgery (BS) as a bridge to kidney transplantation (KTx) in adults with obesity and advanced chronic kidney disease (CKD stage 4–5) or end-stage renal disease (ESRD).
Primary question (PICO format): In adults with stage 4–5 CKD or ESRD who are obese and excluded from KTx listing on weight grounds (P), what is the effectiveness of bariatric surgery (I), compared with usual medical weight management or no intervention (C), in enabling formal transplant listing and subsequent KTx, and what is its perioperative and long-term safety profile (O)?
Specific objectives: (1) to characterise the proportion of patients achieving formal transplant listing or eligibility after BS; (2) to summarise perioperative safety, including 30-day mortality and major (Clavien-Dindo ≥III) complications; (3) to describe weight-loss efficacy in this population; (4) to report the proportion of patients undergoing KTx during follow-up and the time interval from BS to KTx; (5) to summarise post-transplant graft function and survival where matched comparisons are available.

Rationale Severe obesity is a common barrier to kidney transplantation (KTx) for patients with end-stage renal disease (ESRD). Most transplant programmes apply explicit body mass index (BMI) thresholds — typically between 35 and 40 kg/m² — above which patients are deemed ineligible for transplant listing, on the basis of higher perioperative risk and historically inferior long-term graft outcomes in heavier recipients.
For patients excluded from listing on weight grounds, conventional medical weight management rarely achieves durable enough weight loss to bring them below the listing threshold. Bariatric surgery has therefore emerged as a potential bridging strategy. Several specialist centres have reported their experience using bariatric surgery — most commonly laparoscopic sleeve gastrectomy or Roux-en-Y gastric bypass

— to enable transplant listing in patients with advanced CKD or ESRD.

However, the existing evidence base is fragmented. Available studies are predominantly small, single-centre retrospective cohorts with marked heterogeneity in inclusion criteria, in the definition of "listing" or "transplant eligibility", in the grading of perioperative complications, and in length of follow-up. There is also potential cohort overlap between published reports from the same institutions. One previous meta-analysis (Lee 2021) pooled across this heterogeneity to produce a single estimate, but the methodological case for pooling is weak given the small number of eligible studies and the variation in outcome definitions.

A rigorous, narrowly-scoped systematic review that maps the available evidence, makes outcome-definition heterogeneity explicit, and uses descriptive synthesis with per-study Wilson confidence intervals — rather than premature pooling — is currently more informative than another pooled estimate. Such a review can also clarify the safety profile of bariatric surgery in this complex population and frame the clinical question for future prospective work.

Condition being studied Severe obesity (BMI ≥35 kg/m², most commonly ≥40 kg/m²) in adult patients with advanced chronic kidney disease (CKD stage 4–5) or end-stage renal disease (ESRD), including patients receiving renal replacement therapy (haemodialysis, peritoneal dialysis, or pre-emptive evaluation), in whom obesity represents a barrier to kidney transplantation listing under institutional BMI thresholds.

METHODS

Search strategy Databases: PubMed/MEDLINE and Cochrane Central Register of Controlled Trials (CENTRAL), searched from database inception to May 2026.

Search structure: Search strings combined Medical Subject Headings (MeSH) controlled vocabulary with free-text terms covering three concept blocks, combined with Boolean AND between blocks and OR within each block:

Block 1 (bariatric surgery): "bariatric surgery" OR "metabolic surgery" OR "sleeve gastrectomy" OR "gastric bypass" OR "Roux-en-Y" OR "gastric banding" OR "biliopancreatic diversion" OR "duodenal switch" OR "one-anastomosis gastric bypass"

Block 2 (kidney transplantation): "kidney transplantation" OR "renal transplantation" OR "kidney transplant" OR "renal transplant" OR "kidney graft" OR "transplant waitlist" OR "transplant listing"

Block 3 (end-stage renal disease / advanced CKD): "end-stage renal disease" OR "end-stage kidney disease" OR "ESRD" OR "ESKD" OR "chronic kidney disease stage 4" OR "chronic kidney disease stage 5" OR "dialysis" OR "haemodialysis" OR "peritoneal dialysis"

Restrictions: No language or publication-date restrictions applied at the search stage. Human studies only.

Update search: A focused PubMed update was performed in May 2026 to capture publications appearing after the initial protocol search.

Supplementary search methods: Reference lists of included studies and of recent narrative reviews were hand-searched for additional eligible records.

Protocol deviation: The working protocol had specified four databases (PubMed, EMBASE, Cochrane CENTRAL, Web of Science) and grey-literature sources. The search was performed in PubMed and Cochrane CENTRAL only — a pragmatic deviation that is acknowledged transparently in the manuscript Limitations section. The two databases retained provide complementary coverage: PubMed for the broad biomedical literature in which the relevant observational studies were published, and Cochrane CENTRAL for trial registry records.

Full search strings: The complete search strings as run in each database, with dates and hit counts, are provided as Supplementary Material with the published manuscript.

Participant or population Adults (≥18 years) with stage 4 or stage 5 chronic kidney disease (CKD), including patients receiving renal replacement therapy (haemodialysis, peritoneal dialysis, or pre-emptive evaluation for kidney transplantation), who underwent bariatric surgery with the documented intention of facilitating subsequent kidney transplantation. Patients had a body mass index (BMI) above the institutional listing threshold (typically ≥35 or ≥40 kg/m²) at the time of bariatric surgery referral.

Exclusions:

(1) Patients in whom bariatric surgery was performed independently of any transplant intention — so-called "remote" or "incidental" bariatric surgery, where the procedure preceded the development of renal disease — as this falls outside the bridging-to-transplant question.

(2) Patients who underwent bariatric surgery after kidney transplantation (post-transplant bariatric surgery), as this represents a conceptually distinct clinical question addressed in a separate literature.

(3) Paediatric patients (<18 years).

Mixed-population studies: For studies that report both planned and remote bariatric surgery patients within the same cohort, only the prospectively-defined planned-bariatric subgroup is extracted; the remote-bariatric cohort is cited narratively in the Discussion but does not contribute to the primary synthesis.

Intervention Any bariatric surgical procedure performed with the documented intention of facilitating subsequent kidney transplantation, regardless of surgical approach (open, laparoscopic, or robotic). Eligible procedures include:
(1) Sleeve gastrectomy (laparoscopic sleeve gastrectomy [LSG] or vertical sleeve gastrectomy [VSG]) — the dominant procedure in the included literature
(2) Roux-en-Y gastric bypass (RYGB)
(3) One-anastomosis gastric bypass (OAGB) / mini-gastric bypass
(4) Adjustable gastric banding (LAGB)
(5) Biliopancreatic diversion with or without duodenal switch
(6) Vertical banded gastroplasty
Concurrent procedures performed at the time of bariatric surgery (e.g., paraumbilical hernia repair) are not exclusionary, provided the bariatric procedure remained the primary intervention.
No restriction is applied on the timing of bariatric surgery relative to dialysis initiation or transplant evaluation, provided the bariatric procedure was undertaken with the documented intent of enabling subsequent kidney transplantation.

Comparator Comparator definition varies by included study design and is not a strict inclusion criterion (single-arm case series without an internal comparator are also eligible). Where comparators are reported, they include:
(1) Matched non-bariatric kidney transplant recipients — e.g., age- and BMI-matched controls who underwent kidney transplantation without prior bariatric surgery (Zahran 2025: 1:2 age/BMI-matched; Matar 2026: 1:5 propensity-matched post-KTx complications analysis).
(2) Matched non-renal-failure bariatric surgery recipients — e.g., patients with normal renal function undergoing the same bariatric procedure during the same period (Gaillard 2020: 1:3 non-ESRD LSG controls; Dobrzycka 2020: 1:1 non-ESKD controls; Hansel 2019: 1:1 eGFR ≥90 controls).
(3) Patients' own pre-bariatric weight-management period — within-study before-and-after comparison of weight, BMI, comorbidity burden, and listing status (Freeman 2015).
(4) No comparator — single-arm case series describing outcomes in a defined cohort of bariatric-then-transplant patients (Al-Bahri 2017; Jamal 2015; Carandina 2017; Bouchard 2020).
Comparisons reported by the original authors are summarised narratively in the synthesis; no new comparative analyses across studies are performed.

Study designs to be included Original primary research studies of the following designs are eligible for inclusion:
(1) Cohort studies — prospective or retrospective
(2) Case-control studies — including matched case-control designs
(3) Matched-pair studies and propensity-score-matched analyses
(4) Case series — with a minimum of three patients meeting the inclusion criteria
(5) Subgroup analyses within larger mixed-population cohorts, where the relevant planned-bariatric subgroup is prospectively defined by the original authors and reported separately
Excluded study designs: narrative reviews, systematic reviews, and meta-analyses (cited for context but not extracted as primary data); editorials, commentaries, and letters without primary data; single-patient case reports (n=1); conference abstracts without subsequent full peer-reviewed publication; animal studies and in-vitro studies; modelling, economic, or cost-effectiveness studies without primary clinical outcome data.
No randomised controlled trials of bariatric surgery as a bridge to kidney transplantation are currently available; the eligible evidence base is therefore observational.

Eligibility criteria Studies are eligible if they meet ALL of the following criteria:
Inclusion criteria:
(1) Population: adults (≥18 years) with stage 4 or stage 5 chronic kidney disease (CKD) or end-stage renal disease (ESRD), including patients receiving renal replacement therapy
(2) Intervention: any bariatric surgical procedure (as defined in field 13), performed with the documented intention of facilitating subsequent kidney transplantation
(3) Outcomes: at least one of — formal transplant listing or eligibility approval; completed kidney transplantation during follow-up; perioperative complications; perioperative mortality; weight-loss efficacy
(4) Study design: original primary research (cohort, case-control, matched-pair, propensity-matched, or case series with n≥3 eligible patients), as defined in field 15

(5) Publication: full peer-reviewed publication in any language
Exclusion criteria:
(1) Patients in whom bariatric surgery was performed independently of any transplant intention ("remote" or "incidental" bariatric surgery)
(2) Patients who underwent bariatric surgery after kidney transplantation (post-transplant bariatric surgery)
(3) Paediatric patients (<18 years), or studies of mixed adult/paediatric populations where adult outcomes cannot be separately extracted
(4) Narrative reviews, editorials, commentaries, single-patient case reports, conference abstracts without full publication, animal/in-vitro studies, and modelling/economic studies without primary clinical outcomes
(5) Cohort-overlapping reports from the same institution and overlapping enrolment window — where overlap is confirmed, the larger or more methodologically robust report is retained for the primary synthesis and the overlapping report is cited narratively
Handling of mixed-population studies: For studies that report both planned and remote/incidental bariatric surgery within the same cohort, only the prospectively-defined planned-bariatric subgroup is extracted for the primary synthesis; the remote-bariatric cohort is cited narratively in the Discussion only.

Information sources Electronic databases:
(1) PubMed / MEDLINE (US National Library of Medicine) — searched from database inception to May 2026
(2) Cochrane Central Register of Controlled Trials (CENTRAL), via the Cochrane Library — searched from database inception to May 2026
Update search: A focused PubMed update was performed in May 2026 to capture publications appearing after the initial protocol search.
Hand-searching: Reference lists of all included studies and of recent narrative reviews on bariatric surgery and renal disease were screened for additional eligible records.
Citation tracking: Forward citation tracking via Google Scholar was performed for the most influential included studies (the earlier systematic review by Lee 2021 and the recent large cohort by Matar 2026) to identify recent papers citing this work.
Author and reference contact: No formal contact with original-study authors was undertaken; no unpublished data were sought.
Protocol deviation: The working protocol had specified four databases (PubMed, EMBASE, Cochrane CENTRAL, Web of Science) and grey-literature sources. The search was conducted in PubMed and Cochrane CENTRAL only — a pragmatic deviation acknowledged transparently in the manuscript Limitations. The two databases retained provide complementary coverage: PubMed for the broad biomedical literature in which the relevant observational studies are published, and Cochrane CENTRAL for trial registry records and systematic-review references.

Main outcome(s) Primary outcome:
Proportion of patients formally listed or approved for kidney transplantation after bariatric surgery, expressed as a per-study proportion (k/n) with a Wilson 95% confidence interval.
Operational definition: "Listing" is operationalised at the study level as reported by the original authors. Where studies use heterogeneous definitions of this outcome (formal transplant-committee approval versus achievement of an institutional BMI threshold as a listing surrogate), the heterogeneity is made explicit in the synthesis. Sensitivity analyses are performed (a) excluding studies that use a BMI-target surrogate, and (b) excluding prospectively-selected subgroups in whom transplantation occurred by definition.
Rationale for choice of primary outcome: Formal listing is the outcome most directly dependent on the bariatric intervention. Completed transplantation, by contrast, is influenced by organ availability, waitlist dynamics, and donor type — factors unrelated to the bariatric procedure itself. The primary outcome was selected to isolate the effect of bariatric surgery on access to transplantation, rather than transplantation itself.
Measurement timepoint: As reported by the original study authors, typically at the latest available follow-up (ranging from approximately 12 months to several years across included studies).
Synthesis method: Descriptive synthesis with per-study Wilson 95% confidence intervals presented in a forest-style display. A simple sum of numerators over denominators is reported as a descriptive aggregate only and is explicitly NOT a meta-analytic pooled estimate.

Additional outcome(s) Secondary outcomes:
(1) Perioperative complications graded by the Clavien-Dindo classification, with major complications defined as Clavien-Dindo grade ≥III (requiring surgical, endoscopic, or radiological intervention, or worse). Where the original authors did not explicitly apply the Clavien-Dindo classification, complications are narratively re-graded by the review team based on event descriptions; reviewer-imputed grades are clearly flagged in the extraction tables and the synthesis.
(2) 30-day perioperative mortality following bariatric surgery, reported as a per-study

proportion and as a simple aggregate across the included cohorts.
(3) Weight-loss efficacy. Reported using whichever metrics the original authors provide: absolute BMI change (kg/m²), percent excess weight loss (%EWL), percent total weight loss (%TWL), and percent excess BMI loss (MIL). Timepoints are extracted as reported (commonly 6, 12, 18, and 24 months post-bariatric surgery). Where matched non-renal-failure comparators are reported, attenuation of weight loss in the CKD/ESRD population versus controls is summarised narratively.
(4) Proportion of patients undergoing kidney transplantation during available follow-up, reported as a per-study proportion with Wilson 95% CI. This is distinct from the primary outcome (listing) and is sensitive to follow-up duration and organ availability.
(5) Time interval from bariatric surgery to kidney transplantation, reported as median (IQR) or mean (SD) months as available.
(6) Post-transplant outcomes, where reported and where matched comparisons are available: graft function (serum creatinine, eGFR at discharge and last follow-up), primary graft function rate, delayed graft function rate, 90-day post-transplant complications, length of hospital stay, and patient/graft survival at 1 year and last follow-up.
(7) Improvement or remission of obesity-related comorbidities: type 2 diabetes mellitus (proportion stopping insulin; change in HbA1c) and hypertension (proportion reducing or stopping antihypertensive medications), where reported by the original authors.
Heterogeneity in outcome reporting is anticipated across all secondary outcomes and is addressed by descriptive synthesis rather than quantitative pooling.

Data management Extraction tool: A standardised data-extraction workbook was developed in Microsoft Excel before formal extraction began. The workbook contains ten linked sheets:
(1) Cover sheet with version control and protocol decisions
(2) Screening log (eligibility decisions with rationale)
(3) Main extraction (study identification, design, setting, period, population, intervention, comparator, follow-up)
(4) Primary outcome (listing proportions with Wilson 95% CI)
(5) Perioperative complications (with Clavien-Dindo grading or reviewer-imputed grades)
(6) Weight-loss outcomes (BMI, %EWL, %TWL, MIL at reported timepoints)
(7) Transplantation outcomes (proportion transplanted, time-to-KTx, post-transplant graft function and survival)
(8) Risk-of-bias assessments (ROBINS-I and JBI domain-level judgements)
(9) Outstanding methodological decisions log
(10) Data-quality flags (study-level methodological caveats)
Extraction process: Data extraction was performed by the lead reviewer with verification of all included-study data points by a second member of the review team. Disagreements were resolved by discussion and documented in the Decisions log.
Software: Microsoft Excel (workbook), Python with the openpyxl library (verification of Wilson 95% confidence intervals and aggregate calculations), and the docx library (manuscript generation). All statistical computations are reproducible from the workbook.
Version control: The extraction workbook is maintained under explicit version numbering (current version: v3). All amendments to extracted data are dated and traceable.
Storage and access: The completed extraction workbook is held by the lead reviewer's institution and is available from the corresponding author on reasonable request.
Data security: No patient-identifiable information is held or extracted; all data are at study-level summary statistics as reported in the original publications.

Quality assessment / Risk of bias analysis Risk-of-bias assessment tools:
Two complementary tools are used, selected by study design:
(1) ROBINS-I (Risk Of Bias In Non-randomised Studies of Interventions) for cohort studies, case-control studies, matched-cohort designs, and propensity-matched analyses. Seven bias domains are assessed: (a) confounding, (b) selection of participants into the study, (c) classification of interventions, (d) deviations from intended interventions, (e) missing data, (f) measurement of outcomes, and (g) selection of the reported result. Per-domain judgements are recorded as low, moderate, serious, critical, or no information, with an overall judgement for each study.
(2) JBI Critical Appraisal Checklist for Case Series (Joanna Briggs Institute) for case series without an internal comparator. Ten items are assessed covering inclusion criteria, condition measurement, consecutive recruitment, complete inclusion, reporting of demographic and clinical information, outcomes and follow-up, site/clinical characteristics, and statistical analysis.
Assessment process:

Risk-of-bias assessments are performed by the lead reviewer with verification of all judgements by a second member of the review team. Disagreements are resolved by discussion. Per-domain rationales are recorded in the extraction workbook, supporting traceability of every judgement back to the original study text.
Use in the synthesis:
Risk-of-bias judgements are reported per study in the Risk-of-Bias section of the manuscript and in a dedicated table of the Supplementary Material. Studies judged at low to moderate overall risk (e.g., propensity-matched designs, matched case-control studies with clear inclusion criteria) and those at moderate to serious risk (e.g., small case series with referral-based selection, or those with substantial missing data) are identified explicitly. The synthesis is descriptive throughout; no quantitative weighting by risk of bias is applied (i.e., no inverse-variance pooling by ROBINS-I judgement). Where a study is judged at serious or critical risk of bias on a domain directly relevant to the primary outcome, this is flagged in the narrative interpretation.
GRADE: Formal GRADE certainty-of-evidence assessment is not performed in the current synthesis, given the descriptive nature of the analysis and the small number of studies. This is acknowledged as a limitation; future updates may incorporate GRADE if the evidence base expands sufficiently to support quantitative comparisons.

Strategy of data synthesis Synthesis approach: descriptive, not meta-analytic.
The synthesis is primarily descriptive. Quantitative pooling (random-effects meta-analysis of proportions) is NOT performed. This decision is pre-specified on the following methodological grounds:
(1) Small number of eligible studies (n=10), which limits the statistical and clinical interpretability of any pooled estimate;
(2) Heterogeneity in outcome definitions — the primary outcome (listing) is operationalised differently across studies (formal transplant-committee approval versus institutional BMI-target surrogate), making cross-study pooling methodologically weak;
(3) Potential cohort overlap between published reports from the same institutions (Freeman 2015 / Kim 2018; Hansel 2019 / Gaillard 2020), which violates the independence assumption of meta-analysis;
(4) Predominance of single-arm retrospective designs with no internal comparator, which precludes meaningful comparative effect estimation;
(5) Inclusion of one prospectively-selected planned-bariatric subgroup (Matar 2026) in which transplantation occurred by definition, producing an all-or-nothing 100% data point that would distort any pooled estimate.
Synthesis methods:
(1) Primary outcome (listing proportion):
Per-study proportions are calculated as k/n with Wilson 95% confidence intervals, presented in a forest-style display (no diamond / no pooled estimate). A simple descriptive aggregate — the sum of numerators over the sum of denominators across studies — is reported as a summary statistic ONLY. It is explicitly stated in both the Methods and Results sections that this aggregate is NOT a meta-analytic pooled estimate, ignores between-study variance, and is presented for descriptive purposes only.
(2) Safety outcomes (perioperative complications, 30-day mortality):
Per-study Clavien-Dindo ≥III proportions are presented. Author-graded and reviewer-imputed gradings are clearly distinguished. 30-day mortality is reported as a per-study count and as a simple aggregate (0 of 234 across the eligible set).
(3) Weight-loss outcomes:
Reported metrics (BMI change, %EWL, %TWL, MIL) are summarised in a structured table at the latest reported timepoint for each study. No cross-study pooling is performed given the heterogeneity of reporting metrics and timepoints.
(4) Transplantation outcomes:
Proportion of patients transplanted during follow-up and time interval from bariatric surgery to transplantation are reported per study. Post-transplant outcomes are summarised narratively where matched comparisons are available.
(5) Comparative outcomes:
For matched-cohort and propensity-matched studies, comparisons reported by the original authors are summarised narratively (Gaillard 2020 vs non-ESRD controls; Dobrzycka 2020 vs non-ESKD controls; Zahran 2025 vs age/BMI-matched transplant recipients; Matar 2026 vs 1:5 propensity-matched controls).
(6) Heterogeneity:
Heterogeneity across studies is discussed narratively. I^2 statistics and other quantitative heterogeneity measures are NOT calculated, consistent with the descriptive synthesis approach.
Software: Wilson 95% confidence intervals are calculated in Python using the standard Wilson score interval formula. The extraction workbook contains all source data and all derived confidence intervals.

Subgroup analysis Pre-specified subgroup and sensitivity analyses:

Given the small number of eligible studies and the predominance of single-arm retrospective designs, formal subgroup meta-analysis is not undertaken. The following pre-specified sensitivity analyses are performed on the primary outcome (proportion of patients listed for kidney transplantation after bariatric surgery):
(1) Listing-definition sensitivity analysis.
The primary synthesis includes all studies reporting listing as an outcome. A sensitivity analysis restricts the synthesis to studies using formal transplant-committee approval, excluding studies that use achievement of an institutional BMI target as a listing surrogate (Freeman 2015). This isolates the effect of bariatric surgery on the actual listing decision, independent of the institutional threshold used.
(2) Selection-effect sensitivity analysis.
A sensitivity analysis excludes prospectively-selected planned-bariatric subgroups in whom transplantation occurred by definition (Matar 2026 planned-MBS subgroup, in which all included patients reached the listing threshold and proceeded to KTx by selection). This removes the all-or-nothing 100% upper-bound and isolates the listing proportion in cohorts where listing is a true outcome.
(3) Combined sensitivity analysis.
Both restrictions applied simultaneously: studies using formal committee approval AND excluding prospectively-selected subgroups.
(4) Complication-grading sensitivity analysis.
For the safety outcome, a sensitivity analysis restricts the synthesis to studies that explicitly applied the Clavien-Dindo classification (Hansel 2019; Gaillard 2020), excluding studies in which complications were re-graded by the review team from event descriptions.
Subgroup analyses NOT pre-specified:
Procedure-type subgrouping (sleeve gastrectomy versus Roux-en-Y gastric bypass) is not formally pre-specified given the small per-procedure sample sizes anticipated in any individual study and the predominance of sleeve gastrectomy across the included literature. Procedure-type comparisons are described narratively in the Discussion where individual studies report them (notably the within-study VSG-versus-RYGB comparison reported by Matar 2026).
No data-driven subgroup analyses are performed.

Sensitivity analysis Synthesis approach: descriptive, not meta-analytic.
The synthesis is primarily descriptive. Quantitative pooling (random-effects meta-analysis of proportions) is NOT performed. This decision is pre-specified on the following methodological grounds:
(1) Small number of eligible studies (n=10), which limits the statistical and clinical interpretability of any pooled estimate;
(2) Heterogeneity in outcome definitions — the primary outcome (listing) is operationalised differently across studies (formal transplant-committee approval versus institutional BMI-target surrogate), making cross-study pooling methodologically weak;
(3) Potential cohort overlap between published reports from the same institutions (Freeman 2015 / Kim 2018; Hansel 2019 / Gaillard 2020), which violates the independence assumption of meta-analysis;
(4) Predominance of single-arm retrospective designs with no internal comparator, which precludes meaningful comparative effect estimation;
(5) Inclusion of one prospectively-selected planned-bariatric subgroup (Matar 2026) in which transplantation occurred by definition, producing an all-or-nothing 100% data point that would distort any pooled estimate.
Synthesis methods:
(1) Primary outcome (listing proportion):
Per-study proportions are calculated as k/n with Wilson 95% confidence intervals, presented in a forest-style display (no diamond / no pooled estimate). A simple descriptive aggregate — the sum of numerators over the sum of denominators across studies — is reported as a summary statistic ONLY. It is explicitly stated in both the Methods and Results sections that this aggregate is NOT a meta-analytic pooled estimate, ignores between-study variance, and is presented for descriptive purposes only.
(2) Safety outcomes (perioperative complications, 30-day mortality):
Per-study Clavien-Dindo ≥III proportions are presented. Author-graded and reviewer-imputed gradings are clearly distinguished. 30-day mortality is reported as a per-study count and as a simple aggregate (0 of 234 across the eligible set).
(3) Weight-loss outcomes:
Reported metrics (BMI change, %EWL, %TWL, MIL) are summarised in a structured table at the latest reported timepoint for each study. No cross-study pooling is performed given the heterogeneity of reporting metrics and timepoints.
(4) Transplantation outcomes:
Proportion of patients transplanted during follow-up and time interval from bariatric surgery to transplantation are reported per study. Post-transplant outcomes are summarised narratively where matched comparisons are available.
(5) Comparative outcomes:
For matched-cohort and propensity-matched studies, comparisons reported by the original

authors are summarised narratively (Gaillard 2020 vs non-ESRD controls; Dobrzycka 2020 vs non-ESKD controls; Zahran 2025 vs age/BMI-matched transplant recipients; Matar 2026 vs 1:5 propensity-matched controls).
(6) Heterogeneity:
Heterogeneity across studies is discussed narratively. I^2 statistics and other quantitative heterogeneity measures are NOT calculated, consistent with the descriptive synthesis approach.
Software: Wilson 95% confidence intervals are calculated in Python using the standard Wilson score interval formula. The extraction workbook contains all source data and all derived confidence intervals.

Language restriction No language restrictions were applied at the search stage. The search strategies in PubMed/MEDLINE and Cochrane CENTRAL did not filter by publication language. Records in any language identified by the search were eligible for title and abstract screening.
Where the title and abstract of a potentially eligible non-English record could be assessed, full-text translation would have been arranged via institutional translation services or via collaborator review. In practice, the eligible records identified by the search were all published in English, and no non-English full-text translation was required.
The systematic review and resulting manuscript are reported in English. Reference lists of included studies and of recent narrative reviews (in any language) were screened by hand for additional eligible records.

Country(ies) involved United Kingdom - King'c College Hospital / Greece - Alexandra Hospital.

Other relevant information Retrospective registration disclosure.
This registration is submitted retrospectively. The review's screening, data extraction, risk-of-bias assessment, and synthesis are complete, and the manuscript is in advanced draft form ahead of submission to a peer-reviewed journal (primary target: Obesity Surgery; backup: Surgery for Obesity and Related Diseases). Registration was sought late in the process when the journal submission requirements were reviewed. The search strategy, eligibility criteria, outcomes, and synthesis approach were all pre-specified in a working protocol held within the review team, and the registration content reflects that protocol faithfully.
Methodological positioning.
This review intentionally departs from a previous meta-analytic synthesis of overlapping evidence (Lee 2021) in two respects:
(1) The primary outcome is operationalised as formal transplant listing rather than completed transplantation, on the grounds that listing is the outcome most directly attributable to the bariatric intervention, whereas completed transplantation is additionally dependent on organ availability and waitlist dynamics.
(2) Descriptive synthesis with per-study Wilson 95% confidence intervals is preferred over quantitative pooling, given the small number of eligible studies (n=10), the heterogeneity of listing definitions across cohorts, potential cohort overlap between published reports from the same institutions, and the inclusion of one prospectively-selected planned-bariatric subgroup whose 100% transplantation rate reflects selection rather than intervention effect.
Mixed-population study handling.
The most recently published large cohort study (Matar 2026; n=116 over 30 years) reports both planned-bariatric patients (n=28, prospectively defined) and remote-bariatric patients (n=88, in whom bariatric surgery preceded the development of renal disease). Only the planned-bariatric subgroup matches the PICO of this review and is extracted for the primary synthesis. The remote-bariatric cohort is cited narratively for context on long-term graft outcomes and on the comparability of sleeve gastrectomy versus gastric bypass, but does not contribute to the primary or sensitivity analyses.
Available materials.
The complete extraction workbook (containing study-level data, Wilson 95% confidence intervals, complication grading with reviewer-imputed flags where relevant, and risk-of-bias assessments) and the PRISMA 2020 checklist will be made available as Supplementary Material with the published manuscript. The full search strings as run in each database, with dates and hit counts, will also be deposited as Supplementary Material.
Statement on reporting standards.
This review is conducted and reported in accordance with the PRISMA 2020 statement and the SWiM (Synthesis Without Meta-analysis) reporting guideline for the descriptive synthesis components.

Keywords bariatric surgery; sleeve gastrectomy; gastric bypass; metabolic surgery; kidney transplantation; renal transplantation; end-stage renal disease; chronic kidney disease; obesity; transplant listing; transplant eligibility; systematic review; descriptive synthesis.

Dissemination plans Peer-reviewed publication: The findings of this systematic review will be submitted for peer-reviewed publication. Primary

target journal: Obesity Surgery (the official journal of the International Federation for the Surgery of Obesity and Metabolic Disorders). Backup target journal: Surgery for Obesity and Related Diseases (the official journal of the American Society for Metabolic and Bariatric Surgery). Both journals are indexed in MEDLINE/PubMed and have an established readership of bariatric surgeons, transplant surgeons, nephrologists, and obesity-medicine specialists who represent the clinical decision-makers relevant to this review's findings.

Reporting standards: The manuscript will be prepared in accordance with the PRISMA 2020 statement, with the corresponding checklist submitted as Supplementary Material. Reporting of the descriptive synthesis components will follow the SWiM (Synthesis Without Meta-analysis) guideline.

Supplementary materials: The following will be made available as Supplementary Material with the published manuscript: (1) PRISMA 2020 checklist; (2) full search strings as run in each database, with dates and hit counts; (3) the complete extraction workbook containing study-level data, Wilson 95% confidence intervals, complication grading, and risk-of-bias assessments; (4) per-domain ROBINS-I and JBI risk-of-bias judgements with supporting rationale.

Conference presentation: Findings will be presented at relevant clinical meetings as opportunities arise — including national and international bariatric surgery congresses (e.g., IFSO Annual Congress, ASMBS Annual Meeting) and transplantation congresses where the bridging-to-transplant question is clinically relevant.

Data sharing: The completed extraction workbook is available from the corresponding author on reasonable request. No patient-identifiable data are held; all extracted data are at study-level summary statistics as reported in the original publications.

Updates: The review team will consider an update of this systematic review within 3–5 years, or sooner if substantive new evidence (a large prospective multicentre cohort, or a randomised comparison) is published in the interim. Any update will follow the same methodology and will be registered as an amendment to this INPLASY record.

Contributions of each author

Author 1 - Kyriakos Bananis - Author 1 conceived the review, developed the protocol, performed database searches in PubMed and Cochrane CENTRAL, screened records, extracted data, computed Wilson 95% confidence intervals, conducted risk-of-bias assessments using ROBINS-I and JBI, drafted the manuscript including all tables and figures, and acts as guarantor for review integrity.

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Author 2 - Rahul Mor - Author 2 performed independent screening of titles, abstracts, and full texts as second reviewer, with disagreements resolved by team discussion. Performed independent data extraction and verified all extracted data points. Contributed to data analysis and review of Wilson confidence intervals. Critically reviewed and approved the final manuscript version.

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Author 4 - Rahi Gandhi - Author 4 contributed to data extraction under the supervision of Author 1. Performed first-pass extraction of study characteristics, population data, and intervention details from a defined subset of included studies, subsequently verified by Authors 1 and 2. Assisted with text cross-checking against originals. Approved the final manuscript.

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