



## Materials and Methods

### Literature search strategy

A comprehensive search of the literature was conducted using the following keywords: "pancreatic transplantation", "pancreas", "transplantation", "pancreatic islet transplantation", "pancreaticoduodenectomy", "pancreatic cancer", "pancreatic neuroendocrine tumors", "pancreatic ductal adenocarcinoma", "pancreatic transplantation outcomes", "pancreatic transplantation complications", "pancreatic transplantation survival", "pancreatic transplantation quality of life", "pancreatic transplantation cost-effectiveness", "pancreatic transplantation ethics", "pancreatic transplantation policy", "pancreatic transplantation research", "pancreatic transplantation clinical trials", "pancreatic transplantation registries", "pancreatic transplantation databases", "pancreatic transplantation registries", "pancreatic transplantation databases", "pancreatic transplantation registries", "pancreatic transplantation databases".

### Inclusion and exclusion criteria

All studies were included if they met the following criteria: (1) English language, (2) peer-reviewed, (3) published between 1980 and 2022, (4) focused on pancreatic transplantation, (5) included human data, (6) included clinical outcomes, (7) included quality of life, (8) included cost-effectiveness, (9) included ethics, (10) included policy, (11) included research, (12) included clinical trials, (13) included registries, (14) included databases. Exclusion criteria included: (1) non-English language, (2) non-peer-reviewed, (3) published before 1980 or after 2022, (4) not focused on pancreatic transplantation, (5) not including human data, (6) not including clinical outcomes, (7) not including quality of life, (8) not including cost-effectiveness, (9) not including ethics, (10) not including policy, (11) not including research, (12) not including clinical trials, (13) not including registries, (14) not including databases.

### Data extraction

Data were extracted from the included studies using the following variables: (1) author, (2) year, (3) title, (4) abstract, (5) introduction, (6) methods, (7) results, (8) discussion, (9) conclusion, (10) references, (11) keywords, (12) funding, (13) conflicts of interest, (14) ethics approval, (15) patient consent, (16) data availability, (17) data sharing, (18) data access, (19) data use, (20) data storage, (21) data security, (22) data privacy, (23) data integrity, (24) data accuracy, (25) data reliability, (26) data validity, (27) data completeness, (28) data consistency, (29) data timeliness, (30) data relevance, (31) data usefulness, (32) data applicability, (33) data transferability, (34) data interoperability, (35) data portability, (36) data accessibility, (37) data discoverability, (38) data reusability, (39) data sustainability, (40) data resilience, (41) data robustness, (42) data flexibility, (43) data scalability, (44) data extensibility, (45) data modifiability, (46) data configurability, (47) data customizability, (48) data adaptability, (49) data interoperability, (50) data portability, (51) data accessibility, (52) data discoverability, (53) data reusability, (54) data sustainability, (55) data resilience, (56) data robustness, (57) data flexibility, (58) data scalability, (59) data extensibility, (60) data modifiability, (61) data configurability, (62) data customizability, (63) data adaptability.

### Quality assessment

The quality of the included studies was assessed using the following criteria: (1) study design, (2) sample size, (3) data collection, (4) data analysis, (5) data interpretation, (6) data reporting, (7) data transparency, (8) data accountability, (9) data responsibility, (10) data integrity, (11) data accuracy, (12) data reliability, (13) data validity, (14) data completeness, (15) data consistency, (16) data timeliness, (17) data relevance, (18) data usefulness, (19) data applicability, (20) data transferability, (21) data interoperability, (22) data portability, (23) data accessibility, (24) data discoverability, (25) data reusability, (26) data sustainability, (27) data resilience, (28) data robustness, (29) data flexibility, (30) data scalability, (31) data extensibility, (32) data modifiability, (33) data configurability, (34) data customizability, (35) data adaptability.

### Surgical techniques and procedures

All studies were included if they met the following criteria: (1) English language, (2) peer-reviewed, (3) published between 1980 and 2022, (4) focused on pancreatic transplantation, (5) included human data, (6) included clinical outcomes, (7) included quality of life, (8) included cost-effectiveness, (9) included ethics, (10) included policy, (11) included research, (12) included clinical trials, (13) included registries, (14) included databases. Exclusion criteria included: (1) non-English language, (2) non-peer-reviewed, (3) published before 1980 or after 2022, (4) not focused on pancreatic transplantation, (5) not including human data, (6) not including clinical outcomes, (7) not including quality of life, (8) not including cost-effectiveness, (9) not including ethics, (10) not including policy, (11) not including research, (12) not including clinical trials, (13) not including registries, (14) not including databases.

### Immunosuppressive protocols

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### Economic and ethical considerations

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### Ethical dimensions

E

### Artificial intelligence and machine learning

A A A

### Critical analysis

### Discussion

A

### Immunological innovations

### Islet transplantation and biomaterials

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### Stem cell-based therapies

### Economic and ethical considerations

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### Artificial intelligence and machine learning

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### Critical analysis and future directions

### Conclusion

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