



دائرة الصحة
DEPARTMENT OF HEALTH

Adult Organ Transplant Service Jawda Guidance

Version 1

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Executive Summary

The Department of Health– Abu Dhabi (DOH) is the regulatory body of the healthcare sector in the Emirate of Abu Dhabi and ensures excellence in healthcare for the community by monitoring the health status of its population.

The Emirate of Abu Dhabi is experiencing a substantial growth in the number of hospitals, centers and clinics. This is ranging from school clinics and mobile units to internationally renowned specialist and tertiary academic centers. Although, access and quality of care has improved dramatically over the last couple of decades, mirroring the economic upturn and population boom of Emirate of Abu Dhabi, however challenges remain in addressing further improvements.

The main challenges that are presented with increasingly dynamic population include an aging population with increased expectation for treatment, utilization of technology and diverse workforce leading to increased complexity of healthcare provision in Abu Dhabi. All of this results in an increased and inherent risk to quality and patient safety.

DOH has developed dynamic and comprehensive quality framework in order to bring about improvements across the health sector. This guidance relates to the quality indicators that DOH is mandating the quarterly reporting against by the operating general and specialist hospitals in Abu Dhabi.

The guidance sets out the full definition and method of calculation for patient safety and clinical effectiveness indicators. For enquiries about this guidance, please contact jawda@DoH.gov.ae

This document is subject for review and therefore it is advisable to utilize online versions available on the DOH at all times.

Issued: December 2024, Version 1
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About this Guidance

The guidance sets out the definitions and reporting frequency of JAWDA Adult Organ Transplantation (AOT) performance indicators. The Department of Health (DoH), with consultation from local and international experts, has developed Adult Organ Transplantation Performance Indicators that are aimed for assessing the degree to which a provider competently and safely delivers the appropriate clinical services to the patient within the optimal period of time.

This Jawda KPI guidance includes measures to monitor morbidity and mortality in patients undergoing Adult Organ Transplantation procedures. Healthcare providers are the most qualified professionals to develop and evaluate quality of care for Adult Organ Transplantation patients; therefore, it is crucial that clinicians retain a leadership position in defining performance among Adult Organ Transplantation healthcare providers.

Who is this guidance for?

All DoH licensed healthcare facilities providing adult Organ Transplant services in the Emirate of Abu Dhabi.

**The patient's age at the time of registration on the waiting list is used to classify pediatric (listed before their 18th birthday) and adult patients.*

How do I follow this guidance?

Each provider will nominate one member of staff to coordinate, collect, monitor and report Organ Transplant quality indicators data as per communicated dates. The nominated healthcare facility lead must in the first instance e-mail their contact details (if different from previous submission) to JAWDA@doh.gov.ae and submit the required quarterly quality performance indicators through Jawda online portal.

What are the Regulation related to this guidance?

- Legislation establishing the Health Sector
- As per DoH [Policy for Quality and Patient Safety](#) issued January 15th 2017, this guidance applies to all DOH Licensed Healthcare Facilities in the Emirate of Abu Dhabi in accordance with the requirements set out in this Standard
- [DOH Standard for Centers of Excellence in the Emirate of Abu Dhabi issued March 2019](#)

Adult Organ Transplant Service JAWDA Performance Indicators

Type: AOT Quality Indicator

Indicator Number: AOT001

KPI Description (title):	Patient Survival Rate (one year) after Primary Organ Transplantation
Domain	Effectiveness
Indicator Type	Outcome
Definition:	<p>Percentage of adult primary organ transplant recipients who survive for one year after transplantation.</p> <p>This KPI reflects the long-term outcomes and quality of care provided by the program.</p> <p><i>This is calculated on a rolling survival rate of a 2-and-a-half-year patient cohort reported every 6 months.</i></p>
Calculation:	<p><u>Numerator:</u> Number of adult primary organ transplant recipients in the cohort who survive for one year after primary organ transplantation i.e. through day 365 post-transplant.</p> <p><u>Numerator Inclusion:</u></p> <ul style="list-style-type: none"> • Patient survival includes follow-up after graft failure, retransplant, and return to maintenance dialysis in the case of kidney recipients. • Patients not reported to have died in any relevant data source are assumed to be alive. <p><u>Denominator:</u> Total number of adult primary organ transplant recipients during the accrual period.</p> <p><u>Denominator Inclusions:</u> Single primary organ transplants occur during the accrual period. <i>Day of transplantation is day "0".</i></p> <p><u>Note:</u> Report the number of deaths and patient days for each transplant separately.</p> <ol style="list-style-type: none"> a) Kidney transplant from living donors b) Kidney transplant from deceased donors c) Combined pancreas kidney transplant d) Heart Transplant e) Lung Transplant <p><u>Denominator Exclusion:</u></p> <ul style="list-style-type: none"> • Age less than 18 years at time of transplantation. • Loss to follow-up (Patients with unknown survival status who may have died outside the UAE). • Multiorgan transplantations <ul style="list-style-type: none"> ○ A multi-organ transplant is defined as receiving more than one organ from the same deceased donor. ○ A living donor kidney transplanted with a deceased donor pancreas is considered a multi-organ transplant if the two transplants took place within 3 days of each other.
Reporting Frequency:	Semiannually
Unit of Measure:	Percentage of patients surviving at one year after primary organ transplantation.
International comparison if available	<p>Scientific Registry of Transplant Recipients</p> <p>https://www.srtr.org/reports/psr-reporting-timeline/</p> <p>https://www.cedars-sinai.org/quality-measures/clinical/transplants.html</p>
Desired direction:	<p>Adult (1-year patient survival)</p> <p>Kidney transplant from living donors 98%</p>

Adult Organ Transplant Service JAWDA Performance Indicators

	Kidney transplant from deceased donors	96%
	Liver Transplant	91.7%
	Heart Transplant	91.1%
	Lung Transplant	87.8%
Data sources and guidance:	-Patient medical record -Hospital administrative data	

Type: AOT Quality Indicator

Indicator Number: AOT002

KPI Description (title):	Patient Survival Rate (three years) after Primary Organ Transplantation
Domain	Effectiveness
Indicator Type	Outcome
Definition:	<p>Percentage of adult primary organ transplant recipients who survive for three years after transplantation.</p> <p>This KPI reflects the long-term outcomes and quality of care provided by the program.</p> <p>This is calculated on a rolling survival rate of a 2-and-a-half-year patient cohort reported every 6 months.</p>
Calculation:	<p><u>Numerator:</u> Number of adult primary organ transplant recipients in the cohort who survive for three years after primary organ transplantation i.e. through day 1095 post-transplant.</p> <p><u>Numerator Inclusion:</u></p> <ul style="list-style-type: none"> • Patient survival includes follow-up after graft failure, retransplant, and return to maintenance dialysis in the case of kidney recipients. • Patients not reported to have died in any relevant data source are assumed to be alive. <p><u>Denominator:</u> Total number of adult primary organ transplant recipients during the accrual period.</p> <p><u>Denominator Inclusions:</u> Single primary organ transplants occur during the accrual period. <i>Day of transplantation is day "0".</i></p> <p><u>Note:</u> Report the number of deaths and patient days for each transplant separately.</p> <ol style="list-style-type: none"> a) Kidney transplant from living donors b) Kidney transplant from deceased donors c) Combined pancreas kidney transplant d) Heart Transplant e) Lung Transplant <p><u>Denominator Exclusion:</u></p> <ul style="list-style-type: none"> • Age less than 18 years at time of transplantation. • Loss to follow-up (Patients with unknown survival status who may have died outside the UAE). • Multiorgan transplantations <ul style="list-style-type: none"> ○ A multi-organ transplant is defined as receiving more than one organ from the same deceased donor.

Adult Organ Transplant Service JAWDA Performance Indicators

	<ul style="list-style-type: none"> ○ A living donor kidney transplanted with a deceased donor pancreas is considered a multi-organ transplant if the two transplants took place within 3 days of each other. 								
Reporting Frequency:	Semiannually								
Unit of Measure:	Percentage of patients surviving at three years after primary organ transplantation								
International comparison if available	Scientific Registry of Transplant Recipients https://www.srtr.org/reports/psr-reporting-timeline/ https://www.cedars-sinai.org/quality-measures/clinical/transplants.html								
Desired direction:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Kidney transplant from living donors</td> <td style="text-align: right;">94%</td> </tr> <tr> <td>Kidney transplant from deceased donors</td> <td style="text-align: right;">87%</td> </tr> <tr> <td>Heart Transplant</td> <td style="text-align: right;">81%</td> </tr> <tr> <td>Lung Transplant</td> <td style="text-align: right;">60.5%</td> </tr> </table>	Kidney transplant from living donors	94%	Kidney transplant from deceased donors	87%	Heart Transplant	81%	Lung Transplant	60.5%
Kidney transplant from living donors	94%								
Kidney transplant from deceased donors	87%								
Heart Transplant	81%								
Lung Transplant	60.5%								
Data sources and guidance:	-Patient medical record -Hospital administrative data								

Type: AOT Quality Indicator

Indicator Number: AOT003

KPI Description (title):	Graft Survival Rate (one year)
Domain	Effectiveness
Indicator Type	Outcome
Definition:	<p>Percentage of adult primary organ transplant recipients who have a functioning transplanted organ one year after transplantation.</p> <p>This KPI reflects the long-term outcomes and quality of care provided by the program.</p> <p>This is calculated on a rolling survival rate of a 2-and-a-half-year patient cohort reported every 6 months.</p>
Calculation:	<p><u>Numerator:</u> Number of adult primary organ transplant recipients in the cohort who have a functioning transplanted organ one year after primary organ transplantation i.e. through day 365 post-transplant.</p> <p>Numerator Inclusion: A graft is counted as failed if there has been graft failure, a retransplant, or death.</p> <p><u>Denominator:</u> Total number of adult primary organ transplant recipients during the accrual period.</p> <p><u>Denominator Inclusions:</u> Single primary organ transplants occur during the accrual period. <i>Day of transplantation is day "0".</i></p> <p>Note: Report the number of deaths and patient days for each transplant separately.</p> <ol style="list-style-type: none"> a) Kidney transplant from living donors b) Kidney transplant from deceased donors c) Combined pancreas kidney transplant d) Heart Transplant e) Lung Transplant

Adult Organ Transplant Service JAWDA Performance Indicators

	<p>Denominator Exclusion:</p> <ul style="list-style-type: none"> • Age less than 18 years at time of transplantation. • Loss to follow-up (Patients with unknown survival status who may have died outside the UAE). • Multiorgan transplantations <ul style="list-style-type: none"> ○ A multi-organ transplant is defined as receiving more than one organ from the same deceased donor. ○ A living donor kidney transplanted with a deceased donor pancreas is considered a multi-organ transplant if the two transplants took place within 3 days of each other 				
Reporting Frequency:	Semiannually				
Unit of Measure:	Percentage				
International comparison if available	<ul style="list-style-type: none"> • Scientific Registry of Transplant Recipients • https://www.srtr.org/reports/psr-reporting-timeline/ • https://www.cedars-sinai.org/quality-measures/clinical/transplants.html • https://www.kidney-international.org/action/showPdf?pii=S0085-2538%2820%2930906-6 • https://optn.transplant.hrsa.gov/media/r5lmmgcl/mpsc_performancemetrics_3242022b.pdf 				
Desired direction:	<p>Adult (1-year graft survival)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">1 year graft survival for living donor kidney transplantation.</td> <td style="text-align: right; width: 20%;">93%</td> </tr> <tr> <td>1 year graft survival for deceased donor kidney transplantation</td> <td style="text-align: right;">92%</td> </tr> </table>	1 year graft survival for living donor kidney transplantation.	93%	1 year graft survival for deceased donor kidney transplantation	92%
1 year graft survival for living donor kidney transplantation.	93%				
1 year graft survival for deceased donor kidney transplantation	92%				
Data sources and guidance:	<ul style="list-style-type: none"> -Patient medical record -Hospital administrative data 				

Type: AOT Quality Indicator

Indicator Number: AOT004

KPI Description (title):	Graft Survival Rate (five years)
Domain	Effectiveness
Indicator Type	Outcome
Definition:	<p>Percentage of adult primary organ transplant recipients who have a functioning transplanted organ five years after transplantation.</p> <p>This KPI reflects the long-term outcomes and quality of care provided by the program.</p> <p>This is calculated on a rolling survival rate of a 2-and-a-half-year patient cohort reported every 6 months.</p>
Calculation:	<p>Numerator: Number of adult primary organ transplant recipients in the cohort who have a functioning transplanted organ five years after primary organ transplantation i.e. through day 1825 post-transplant.</p> <p>Numerator Inclusion: A graft is counted as failed if there has been graft failure, a retransplant, or death.</p> <p>Denominator: Total number of adult primary organ transplant recipients during the accrual period.</p> <p>Denominator Inclusions: Single primary organ transplants occur during the accrual period. <i>Day of transplantation is day "0".</i></p>

Adult Organ Transplant Service JAWDA Performance Indicators

	<p>Note: Report the number of deaths and patient days for each transplant separately.</p> <ol style="list-style-type: none"> a) Kidney transplant from living donors b) Kidney transplant from deceased donors c) Combined pancreas kidney transplant d) Heart Transplant e) Lung Transplant <p><u>Denominator Exclusion:</u></p> <ul style="list-style-type: none"> • Age less than 18 years at time of transplantation. • Loss to follow-up (Patients with unknown survival status who may have died outside the UAE). • Multiorgan transplantations <ul style="list-style-type: none"> ○ A multi-organ transplant is defined as receiving more than one organ from the same deceased donor. ○ A living donor kidney transplanted with a deceased donor pancreas is considered a multi-organ transplant if the two transplants took place within 3 days of each other
Reporting Frequency:	Semiannually
Unit of Measure:	Percentage
International comparison if available	Scientific Registry of Transplant Recipients https://www.srtr.org/reports/psr-reporting-timeline/ https://www.cedars-sinai.org/quality-measures/clinical/transplants.html https://www.kidney-international.org/action/showPdf?pii=S0085-2538%2820%2930906-6 https://optn.transplant.hrsa.gov/media/r5lmmgcl/mpsc_performancemetrics_3242022b.pdf
Desired direction:	Adult (5-year graft survival) 5 year graft survival for living donor kidney transplant 80% 5 year graft survival for deceased donor kidney transplant 70%
Data sources and guidance:	-Patient medical record -Hospital administrative data

Adult Organ Transplant Service JAWDA Performance Indicators

Type: AOT Quality Indicator

Indicator Number: AOT005

KPI Description (title):	Biliary Complication after Primary Liver Transplantation
Domain	Safety
Indicator Type	Outcome
Definition:	Rate of biliary complications that occur within 90 days after primary liver transplantation that requires procedural interventions and not associated with procedural interventions.
Calculation:	<p><u>Numerator:</u> Number of adult liver transplant recipients who develop any of the following biliary complications within 90 days of the transplant surgery and which require procedural interventions.</p> <p><i>(Refer to Appendix)</i></p> <ul style="list-style-type: none"> • Ischemic biliary complications due to hepatic artery thrombosis or stenosis • Stricture • Technical biliary complications • Ischemic-type biliary lesions • Infectious biliary complications/cholangitis <p>Numerator guidance: Complications will be reported separately for: AOT005a) Whole organ transplantation AOT005b) Partial liver transplantation</p> <p><u>Denominator:</u> Total number of adult patients who had undergone primary orthotopic liver transplant surgery during the reporting period.</p> <p><u>Denominator Inclusion:</u></p> <ul style="list-style-type: none"> • Partial and whole-organ liver transplantation • Single organ transplants occurring during the measurement period. <p><u>Denominator exclusion:</u></p> <ul style="list-style-type: none"> • Age less than 18 years at time of transplantation. • Living related liver transplant • Strictures associated with acute cellular rejection • Patients discharged against medical advice
Reporting Frequency:	Semi-annually
Unit of Measure:	Percentage
International comparison if available	https://karger.com/dsu/article-pdf/25/4/245/2673358/000144653.pdf https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7856868/ https://hbsn.amegroups.org/article/view/29779/html
Desired direction:	< 28%
Data sources and guidance:	-Patient medical record -Hospital administrative data

Adult Organ Transplant Service JAWDA Performance Indicators

Type: AOT Quality Indicator

Indicator Number: AOT006

KPI Description (title):	Severe Primary Graft Dysfunction after Primary Heart Transplantation
Domain	Safety
Indicator Type	Outcome
Definition:	Rate of severe primary graft dysfunction (PGD) that occurs within 24 hours after primary heart transplantation.
Calculation:	<p><u>Numerator:</u> Number of adult patients who developed severe primary graft dysfunction (PGD) within 24 hours after primary heart transplantation:</p> <p><u>Numerator Inclusion:</u> <i>(Refer to Appendix)</i> Either of the two categories:</p> <ul style="list-style-type: none"> • PGD-LV, for PGD affecting the left ventricle or biventricular failure with extracorporeal short-term mechanical circulatory support • PGD-RV for isolated right ventricular involvement with right-sided short-term VAD (RVAD) or right heart catheter measured haemodynamics in keeping with isolated right-sided dysfunction (RAP > 15 mmHg, PCWP < 15 mmHg, CI < 2.0 L/min/m², TPG < 15 mmHg and/or pulmonary artery systolic pressure < 50 mmHg) <p><u>Denominator:</u> Total number of adult patients who had undergone primary heart transplant surgery during the reporting period.</p> <p><u>Denominator Inclusion:</u></p> <ul style="list-style-type: none"> • Heart donation after circulatory death • Heart donation after brain death • Single organ transplants occurring during the measurement period. <p><u>Denominator exclusion:</u></p> <ul style="list-style-type: none"> • Age less than 18 years at time of transplantation. • Patients discharged against medical advice
Reporting Frequency:	Semi-annually
Unit of Measure:	Percentage
International comparison if available	https://cardiothoracicsurgery.biomedcentral.com/articles/10.1186/s13019-024-02816-6 https://www.ahajournals.org/doi/10.1161/circ.146.suppl_1.11945 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6697758/
Desired direction:	< 16%
Data sources and guidance:	-Patient medical record -Hospital administrative data

Adult Organ Transplant Service JAWDA Performance Indicators

Type: AOT Quality Indicator

Indicator Number: AOT007

KPI Description (title):	Bronchial and Vascular Complications after Primary Lung Transplantation
Domain	Safety
Indicator Type	Outcome
Definition:	Rate of all bronchial and vascular complications that occur within 1 year after primary lung transplantation (LT).
Calculation:	<p><u>Numerator:</u> Number of adult patients who developed a bronchial and vascular complications within one year after primary lung transplantation that required procedural interventions:</p> <p><u>Numerator Inclusion:</u> <i>(Refer to Appendix)</i></p> <p>Bronchial (Airway) Complications:</p> <ul style="list-style-type: none"> • Bronchial dehiscence • Bronchial anastomotic stenosis • Non-anastomotic stenosis • Tracheobronchomalacia (TBM) <p>Vascular Complications:</p> <ul style="list-style-type: none"> • Pulmonary embolism • Arterial stenosis • Venous stenosis • Venous thrombosis <p><u>Denominator:</u> Total number of adult patients who had undergone primary lung transplant surgery during the reporting period.</p> <p><u>Denominator inclusion:</u></p> <ul style="list-style-type: none"> • Single LT • Bilateral LT <p><u>Denominator exclusion:</u></p> <ul style="list-style-type: none"> • Age less than 18 years at time of transplantation. • Patients discharged against medical advice
Reporting Frequency:	Semi-annually
Unit of Measure:	Percentage
International comparison if available	https://pubs.rsna.org/doi/full/10.1148/ryct.2021190252 https://cardiothoracicsurgery.biomedcentral.com/articles/10.1186/s13019-024-02731-w/tables/1
Desired direction:	< 20%
Data sources and guidance:	-Patient medical record -Hospital administrative data

Adult Organ Transplant Service JAWDA Performance Indicators

Type: AOT Quality Indicator

Indicator Number: AOT008

KPI Description (title):	Average Primary Organ Transplantation Wait Time
Domain	Timeliness
Indicator Type	Process
Definition:	Average time an adult patient spends on the waiting list before receiving a primary organ transplant.
Calculation:	<p>Numerator: Total number of days from registering in the transplant program till day of operation for adult patients who had undergone primary transplant surgery during the reporting period.</p> <p>Denominator: Total number of adult patients who have been on the waitlist and undergone primary organ transplant surgery during the reporting period.</p> <p>Note: Report the number of each transplant separately.</p> <ol style="list-style-type: none"> a) Kidney transplant from living donors b) Kidney transplant from deceased donors c) Combined pancreas kidney transplant d) Heart Transplant e) Lung Transplant <p>Denominator exclusion:</p> <ul style="list-style-type: none"> • Candidates who underwent living donor transplant but were never added to the waiting list • Candidates listed only for pancreatic islets are excluded from pancreas reports.
Reporting Frequency:	Semiannually
Unit of Measure:	Average wait time for transplantation (days)
International comparison if available	Scientific Registry of Transplant Recipients https://www.srtr.org/about-the-data/technical-methods-for-the-program-specific-reports#tableb10 Technical Methods for the Program-Specific Reports (srtr.org)
Desired direction:	Lower is better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Adult Organ Transplant Service JAWDA Performance Indicators

Type: AOT Quality Indicator

Indicator Number: AOT009

KPI Description (title):	Primary Organ Transplantation Waitlist Mortality Rate
Domain	Timeliness
Indicator Type	Outcome
Definition:	Deaths of adult patients on the primary organ transplantation waiting list . It reflects the program's ability to prioritize and allocate organs to patients in need
Calculation:	<p>Numerator: The number of deaths that occurred during the reporting period among adult patients on the primary organ transplantation waiting list.</p> <p>Denominator: Total number of adult patient days for patients on the primary organ transplantation waiting list during the reporting period.</p> <p>Denominator Inclusion: Patients on the waitlist are to be followed up from:</p> <ul style="list-style-type: none"> • Date of entry (at any time during the reporting period) into the transplant program. • Alive at the beginning of the reporting period (if already on the wait list) <p>Patients on the waitlist are removed from the waitlist due to transplant, transfer, recovery or death.</p> <p>Denominator exclusion: None</p> <p>Note: Report the number of deaths and patient days for each transplant separately.</p> <ol style="list-style-type: none"> a) Kidney transplant from living donors b) Kidney transplant from deceased donors c) Combined pancreas kidney transplant d) Heart Transplant e) Lung Transplant
Reporting Frequency:	Annually
Unit of Measure:	Deaths per 1000 adult transplantation patient waitlist days
International comparison if available	https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2773824 https://www.srtr.org/about-the-data/technical-methods-for-the-program-specific-reports#tableb5
Desired direction:	Lower is better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Appendix: Transplantation complication codes

Diagnosis	ICD-10	Description
Liver Transplant Complications		
Ischemic biliary complications due to hepatic artery thrombosis	T86.49	Other complications of liver transplant
	I74.8	Embolism and thrombosis of other arteries
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Stenosis (hepatic artery)	T86.49	Other complications of liver transplant
	I70.8	Atherosclerosis of other arteries
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Stricture (hepatic artery)	T86.49	Other complications of liver transplant
	I70.8	Atherosclerosis of other arteries
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Bile Leak	T86.49	Other complications of liver transplant
	K83.8	Other specified diseases of biliary tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Bile collection (biloma)	T86.49	Other complications of liver transplant
	K83.8	Other specified diseases of biliary tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Biliary abscess	T86.49	Other complications of liver transplant
	K83.8	Other specified diseases of biliary tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Technical biliary complications		
Anastomotic stricture	T86.49	Other complications of liver transplant
	K83.1	Obstruction of bile duct
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Anastomotic leak	T86.49	Other complications of liver transplant
	K83.8	Other specified diseases of biliary tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Cut surface leak1	T86.49	Other complications of liver transplant
	K83.8	Other specified diseases of biliary tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure

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Missed segmental duct leak ¹	T86.49	Other complications of liver transplant
	K83.8	Other specified diseases of biliary tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Kinking	T86.49	Other complications of liver transplant
	K83.8	Other specified diseases of biliary tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Cystic duct mucocele	T86.49	Other complications of liver transplant
	K82.8	Other specified diseases of gallbladder
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Ischemic-type biliary lesions		
Ischemia-reperfusion injury related	T86.49	Other complications of liver transplant
	K83.8	Other specified diseases of biliary tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Immunological ²	K83.8	Other specified diseases of biliary tract
Idiopathic	K83.8	Other specified diseases of biliary tract
Infectious biliary complications/c holangitis	T86.43	Liver transplant infection
	K83.09	Other cholangitis
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure

Heart Transplant Complications		
PGD-LV, for PGD affecting the left ventricle with extracorporeal short-term mechanical circulatory support	T86.98	Other complications of heart transplant
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Biventricular failure with extracorporeal short-term mechanical circulatory support	T86.22	Heart transplant failure
	I50.82	Biventricular heart failure
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
PGD-RV for isolated right ventricular involvement with right-sided short-term VAD (RVAD) or right heart catheter measured haemodynamics in keeping with isolated right-sided dysfunction (RAP > 15 mmHg, PCWP < 15 mmHg, CI < 2.0 L/min/m ² , TPG < 15 mmHg and/or pulmonary artery systolic pressure < 50 mmHg)	T86.98	Other complications of heart transplant
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure

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Lung Transplant Complications		
Bronchial dehiscence	T86.818	Other complications of lung transplant
	J98.09	Other diseases of bronchus, not elsewhere classified
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Bronchial anastomotic stenosis	T86.818	Other complications of lung transplant
	J98.09	Other diseases of bronchus, not elsewhere classified
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Non-anastomotic stenosis	T86.818	Other complications of lung transplant
	J98.09	Other diseases of bronchus, not elsewhere classified
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Tracheobroncho malacia (TBM)	T86.818	Other complications of lung transplant
	J39.8	Other specified diseases of upper respiratory tract
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Vascular Complications of Lung Transplant		
Pulmonary embolism	T86.818	Other complications of lung transplant
	I26.99	Other pulmonary embolism without acute cor pulmonale
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Arterial stenosis (unspecified site)	T86.818	Other complications of lung transplant
	I77.1	Stricture of artery
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Venous stenosis (unspecified site)	T86.818	Other complications of lung transplant
	I87.1	Compression of vein
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure
Venous thrombosis (unspecified site)	T86.818	Other complications of lung transplant
	I82.90	Acute embolism and thrombosis of unspecified vein
	Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure