



دائرة الصحة  
DEPARTMENT OF HEALTH

**Assisted Reproductive  
Technology Treatment  
Service (ART) Jawda  
Guidance**

**Version 7**

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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 the Abu Dhabi Emirate, 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](mailto:jawda@DoH.gov.ae)

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

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## **About this Guidance**

The guidance sets out the definitions and reporting frequency of JAWDA Assisted Reproductive Technology Treatment (ART) performance indicators. Department of Health (DoH) with consultation of local and international fertility treatment quality of care expertise developed (ART) 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 time period.

The ART performance indicators in this guidance include measures to monitor clinical effectiveness, and outcomes among patients receiving ART treatment i.e., (complications resulting from fertility treatment procedure, clinical pregnancy, multiple pregnancy, and live birth rates from fresh or frozen embryo transfer). Healthcare providers are the most qualified professionals to develop and evaluate quality of care measures for assisted reproductive technology treatment. Therefore, it is crucial that clinicians retain a leadership position in defining ART quality of care.

### **Who is this guidance for?**

All DoH licensed healthcare facilities providing ART fertility treatment in the Emirate of Abu Dhabi.

### **How do I follow this guidance?**

Each provider will nominate one member of staff to coordinate, collect, monitor and report ART quality performance 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](mailto: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
- DOH Standard for Assisted Reproductive Technology Services and Treatment
- As per [DoH Policy for Quality and Patient Safety](#) issued January 15th 2017, this guidance applies to all DOH Licensed Hospital Healthcare Facilities in the Emirate of Abu Dhabi in accordance with the requirements set out in this Standard.

## Glossary

<b>ART</b>	Assisted Reproductive Technology Treatment (ART) is any assisted conception treatment involving ovarian stimulation with gonadotropins injections and other stimulating drugs such as Letrozole and Clomiphene Citrate leading to timed intercourse, intra uterine insemination (IUI) or IVF/ICSI.
<b>ART Cycle</b>	It is the start of an IUI/IVF cycle in which a woman begins taking drugs to stimulate egg production; ART cycles include any process in which: <ol style="list-style-type: none"> <li>1) a woman has undergone ovarian stimulation or monitoring with the intent of having an ART procedure, including incomplete frozen cycles where stimulating medications have been administered with no embryo warming done</li> <li>2) IUI or an IVF/ICSI procedure is performed or</li> <li>3) Frozen embryos have been thawed with the intent of Embryo transfer</li> <li>4) Ovulation induction and timed intercourse</li> </ol>
<b>Clinical Pregnancy</b>	Intra-uterine pregnancy with fetal heart activity identified using ultrasound 4-5 weeks after embryo transfer
<b>Multiple pregnancy</b>	Pregnancy with $\geq 2$ pulsating intrauterine fetal hearts identified using ultrasound 4-5 weeks after embryo transfer
<b>Cryopreservation</b>	The practice of freezing eggs, sperm or embryos from a patient cycle for potential future use in ART cycles.
<b>Embryo transfer</b>	Placement of embryos into a woman's uterus.
<b>Fresh IVF cycle</b>	An IVF cycle in which fresh embryos are transferred to the woman. The fresh embryos are created with fresh or frozen eggs, and fresh or frozen sperm
<b>Frozen embryo cycle</b>	An ART cycle in which frozen embryos are thawed and transferred to the woman.
<b>PGT-A and PGT-M</b> (preimplantation genetic diagnosis or screening) –	Techniques performed on embryos prior to transfer. <b>PGT-M</b> is for detecting specific genetic conditions to reduce the risk of passing inherited diseases to offspring. <b>PGT-A</b> screens embryos for an abnormal number of chromosomes, which is of special value for women with selected clinical indication such as advanced maternal age, recurrent miscarriages, or recurrent implantation IVF failure.
<b>Reporting period</b>	The span of time that defines the Jawda reporting period. The period will include all ART cycles that “started” in that period.

Source:

CDC (2017), Assisted reproductive technology, 2015 Fertility Clinic Success Rates Report  
HFEA (2016), Fertility treatment 2019- trends and figures

## ART Performance Indicators

**Type: ART Quality Indicator**

**Number: ART001**

KPI Description (title):	<b>Rate of severe and critical complications resulting from fertility treatment</b>
Domain	<b>Patient Safety</b>
Sub-domain	<b>Complication</b>
Definition:	Percentage of all started ART cycles with severe and critical complications within two weeks from the start of fertility treatment, which requires hospitalization through emergencies, during the reporting period.
Calculation:	<p><b><u>Numerator:</u></b> Number of ART cycles with severe and critical complications resulting from the fertility treatment, which requires unplanned hospitalization.</p> <p><b>Complications to be considered:</b> (N98.1) Ovarian hyper-stimulation syndrome (OHSS) requiring hospital admission. Women demonstrating any feature of severe or critical OHSS should be classified in that category.</p> <p>Severe OHSS</p> <ul style="list-style-type: none"> <li>• Clinical ascites (± hydrothorax)</li> <li>• Oliguria (&lt; 300 ml/day or &lt; 30 ml/hour)</li> <li>• Haematocrit &gt; 0.45</li> <li>• Hyponatraemia (sodium &lt; 135 mmol/l)</li> <li>• Hypo-osmolality (osmolality &lt; 282 mOsm/kg)</li> <li>• Hyperkalaemia (potassium &gt; 5 mmol/l)</li> <li>• Hypoproteinaemia (serum albumin &lt; 35 g/l)</li> <li>• Ovarian size usually &gt; 12 cma</li> </ul> <p>Critical OHSS</p> <ul style="list-style-type: none"> <li>• Tense ascites/large hydrothorax</li> <li>• Haematocrit &gt; 0.55</li> <li>• White cell count &gt; 25 000/ml</li> <li>• Oliguria/anuria</li> <li>• Thromboembolism</li> <li>• Acute respiratory distress syndrome</li> </ul> <p><b>Bleeding:</b></p> <ul style="list-style-type: none"> <li>• N83.6 Haematosalpinx, N85.7 Hematomata,</li> <li>• N93.8 Other specified abnormal uterine and vaginal bleeding</li> <li>• N93.9 Abnormal uterine and vaginal bleeding, unspecified</li> <li>• K66.1 Haemoperitoneum, T81.0 Haemorrhage and hematoma complicating a procedure, not elsewhere classified)/</li> </ul> <p><b>Infections</b></p> <ul style="list-style-type: none"> <li>• (N70) Salpingitis and oophoritis, (N71) Inflammatory disease of uterus, except cervix, (N73) other female pelvic inflammatory diseases, (N74.8) Female pelvic inflammatory disorders in other diseases classified elsewhere, (N98.0) Infection associated with artificial insemination, Pelvic infection /PID after egg collection).</li> </ul> <p><b><u>Denominator:</u></b> Total number of all started cycles, (even if they were canceled) before retrieval during the reporting time period.</p>

Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	<p><i>-Developed by DoH- Abu Dhabi</i></p> <p><i>-SA El Shawarby et al A review of complications following Transvaginal oocyte retrieval for in-vitro fertilisation, Human Fertility June 2004, 7(2), 127-133 (Document attached)</i></p> <p><i>-E.A.F. Dancet, T.M. D'Hooghe, C. Spiessens, W. Sermeus, D. De Neubourg, N. Karel, J.A.M. Kremer, W.L.D.M. Nelen; Quality indicators for all dimensions of infertility care quality: consensus between professionals and patients, Human Reproduction, Volume 28, Issue 6, 1 June 2013, Pages 1584–1597, <a href="https://doi.org/10.1093/humrep/det056">https://doi.org/10.1093/humrep/det056</a></i></p> <p><i>The Management of Ovarian Hyperstimulation Syndrome Green-top Guideline No. 5, February 2016</i></p>
Desired direction:	Lower is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> </ul>

KPI Description (title):	<b>Live births rate from fresh ART cycle</b>
Domain	<b>Clinical outcome</b>
Sub-domain	<b>Effectiveness</b>
Definition:	<p>Percentage of live births (the complete expulsion or extraction of a product of fertilization that shows evidence of life of any product of conception, regardless how many weeks of pregnancy) after a fresh ART cycle with embryo transfers relative to the total number of embryos transfer procedures for women of:</p> <p><u>Age Group:</u></p> <ul style="list-style-type: none"> <li>○ Less than 35 years old</li> <li>○ Between 35-37</li> <li>○ Between 38-39</li> <li>○ Between 40-42</li> <li>○ Between 43-45</li> <li>○ Above 45 years old</li> </ul> <p>Note: (Each age group must be reported separately)</p>
Calculation:	<p><b><u>Numerator:</u></b> Total number of women with live births (the complete expulsion or extraction of a product of fertilization that shows evidence of life) after <b>fresh</b> ART cycle with embryo transfers for women (see age group above). A cycle resulting in live birth may include single or multiple infants born live.</p> <p><b>Inclusion:</b> All live births including singleton and multiple irrespective of gestational age and birth weight.</p> <p><b>Exclusion:</b> Women where all reasonable attempts have been made to follow up on status of live birth.</p> <p><b><u>Denominator:</u></b> Total number of <b>fresh</b> Embryo transfer procedures performed in the reporting period for women (see age group above).</p> <p><b>Inclusion:</b> Include all embryos that were transferred i.e. including those with and without PGD and PGS testing.</p>
Reporting Frequency:	Annually ( <b><i>Live birth rate from all fresh Embryo transfer procedures in women</i></b> (see age group above). <b><i>that started from January to December of a target year should be reported with the Q4 submissions of subsequent year.</i></b> )
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH- Abu Dhabi standard, HFEA, and CDC
Desired direction:	Higher is better
<b>Notes for all facilities</b>	

Data Source/ Report Name:	<ul style="list-style-type: none"><li>- Administrative and medical records.</li><li>- Claims.</li><li>- Medical Record Numbers (or unique patient identifier) list of all lost to follow up cases must be submitted to DOH at time of data submission</li></ul>
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KPI Description (title):	<b>Clinical Pregnancy rate from fresh IVF/ICSI cycle</b>
Domain	<b>Clinical outcome</b>
Sub-domain	<b>Effectiveness</b>
Definition:	Total number of women with positive fetal hearts as confirmed by ultrasound 2-4 weeks after positive pregnancy test following fresh IVF/ICSI cycle for women of. <u>Age Group:</u> Less than 35 years old Between 35-37 Between 38-39 Between 40-42 Between 43-45 Above 45 years old Note: (Each age group must be reported separately)
Calculation:	<b>Numerator:</b> Total number of women with positive fetal hearts as confirmed by ultrasound 2-4 weeks after positive pregnancy test following fresh IVF/ICSI cycle for women age (see age group above).  Inclusion: All pregnancies including singleton and multiple.  <b>Denominator:</b> Total number of <b>fresh</b> Embryo transfer procedures performed in the reporting period for women age (see age group above).  <b>Inclusion:</b> Include all embryos that were transferred, i.e. including those with and without PGT-A and PGT-M testing.
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, HFEA, and CDC
Desired direction:	Higher is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> </ul>

<b>KPI Description (title):</b>	<b>Multiple Clinical pregnancy rate from fresh ART cycles</b>
<b>Domain</b>	<b>Patient Safety</b>
<b>Sub-domain</b>	<b>Multiple pregnancies</b>
<b>Definition:</b>	Percentage of multiple pregnancies (2 or more) as a result of fresh ART cycle relative to the total number of fresh embryo transfer procedures during the reporting period. <b>Note:</b> (twins must be reported separately from triplets and above)
<b>Calculation:</b>	<b><u>Numerator:</u></b> Total number of women with multiple pregnancies (2 or more fetal hearts) confirmed by ultrasound at 2-4 weeks after positive pregnancy test following fresh embryo transfer procedures. <b>Note:</b> (twins must be reported separately from triplets and above) <b><u>Denominator:</u></b> Total number of fresh Embryo transfer procedures performed during the reporting period <b><i>Inclusion:</i></b> Include all embryos that were transferred, i.e. including those with and without PGT-A and PGT-M testing.
<b>Reporting Frequency:</b>	Quarterly
<b>Unit of Measure:</b>	Percentage
<b>International comparison if available</b>	Developed as per DoH standard, CDC, and HFEA
<b>Desired direction:</b>	Lower is better
<b>Notes for all facilities</b>	
<b>Data Source/ Report Name:</b>	- Administrative and medical records. - Claims

KPI Description (title):	<b>Multiple live birth rate from fresh ART cycles</b>
Domain	<b>Patient Safety</b>
Sub-domain	<b>Multiple birth</b>
Definition:	Percentage of women with multiple live births (2 or more) as a result of fresh ART cycle relative to the total number of all fresh ART cycles during the reporting period <b>Note:</b> (twins must be reported separately from triplets and above)
Calculation:	<b><i>Numerator:</i></b> Total women with multiple live births (2 or more) as a result of fresh ART cycle  <b><i>Inclusion:</i></b> All live births (2 or more) irrespective of gestational age and birth weight  <b>Note:</b> (twins must be reported separately from triplets and above)  <b><i>Exclusion:</i></b> Women where all reasonable attempts have been made to follow up on status of live birth.  <b><i>Denominator:</i></b> Total number of <b>fresh</b> Embryo transfer procedures performed during the reporting period  <b><i>Inclusion:</i></b> Include all embryos that were transferred, i.e. including those with and without <i>PGT-A and PGT-M</i> testing.
Reporting Frequency:	Annually ( <b><i>Live birth rate from all fresh Embryo transfer procedures that started from January to December of a target year should be reported with the Q4 submissions of subsequent year</i></b> )
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, and HFEA
Desired direction:	Lower is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> <li>- Medical Record Numbers (or unique patient identifier) list of all lost to follow up cases must be submitted to DOH at time of data submission</li> </ul>

KPI Description (title):	<b>Live births rate from frozen ART cycle</b>
Domain	<b>Clinical outcome</b>
Sub-domain	<b>Effectiveness</b>
Definition:	<p>Percentage of live births (the complete expulsion or extraction of a product of fertilization that shows evidence of life regardless gestational age) after a frozen ART cycle with Embryo transfers relative to the total number of embryos transfer procedures for women regardless gestational age</p> <p><u>Age Group:</u>                      Less than 35 years old                      Between 35-37                      Between 38-39                      Between 40-42                      Between 43-45                      Above 45 years old</p> <p>Note: (Each age group must be reported separately)</p>
Calculation:	<p><b><u>Numerator:</u></b> Total number of women with live births (the complete expulsion or extraction of a product of fertilization that shows evidence of life) after <b>frozen</b> ART cycle with Embryo transfers for women age (see age group above). A cycle resulting in live birth may include single or multiple infants born live.</p> <p><b>Inclusion:</b> All live births including singleton and multiple irrespective of gestational age and birth weight.</p> <p><b>Exclusion:</b> Women where all reasonable attempts have been made to follow up on status of live birth.</p> <p><b><u>Denominator:</u></b> Total number of <b>frozen</b> Embryo transfer procedures performed in the reporting period for women age (see age group above).</p> <p><b>Inclusion:</b> Include all embryos that were transferred, i.e. including those with and without PGT-A and PGT-M testing.</p>
Reporting Frequency:	Annually: <b><i>(Live birth rate from all frozen Embryo transfer procedures for women (see age group above). that started from January to December of a target year should be reported with the Q4 submissions of subsequent year)</i></b>
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH- Abu Dhabi standard, HFEA, and CDC
Desired direction:	Higher is better
<b>Notes for all facilities</b>	

Data Source/ Report Name:	<ul style="list-style-type: none"><li>- Administrative and medical records.</li><li>- Claims</li><li>- Medical Record Numbers (or unique patient identifier) list of all lost to follow up cases must be submitted to DOH at time of data submission</li></ul>
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KPI Description (title):	<b>Clinical Pregnancy rate from frozen ART cycle</b>
Domain	<b>Clinical outcome</b>
Sub-domain	<b>Effectiveness</b>
Definition:	<p>Percentage of women with positive fetal hearts resulting from frozen embryo transfer relative to the total number of frozen embryo transfer procedures performed during the reporting period for women for.</p> <p><u>Age Group:</u></p> <ul style="list-style-type: none"> <li>○ Less than 35 years old</li> <li>○ Between 35-37</li> <li>○ Between 38-39</li> <li>○ Between 40-42</li> <li>○ Between 43-45</li> <li>○ Above 45 years old</li> </ul> <p>Note: (Each age group must be reported separately)</p>
Calculation:	<p><b><u>Numerator:</u></b> Total number of women with positive fetal hearts as confirmed by ultrasound 2-4 weeks after positive pregnancy test following frozen embryo transfer procedure for women of (see age group above)</p> <p><b><u>Inclusion:</u></b> All pregnancies including singleton and multiple.</p> <p><b><u>Denominator:</u></b> Total number of <b>frozen</b> Embryo transfer procedures performed in the reporting period for women of (see age group above).</p> <p><b><u>Inclusion:</u></b> Include all embryos that were transferred, i.e. including those with and without PGT-A and PGT-M testing.</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, HFEA, and CDC
Desired direction:	Higher is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> </ul>

KPI Description (title):	<b>Multiple clinical pregnancy rate from frozen ART cycles</b>
Domain	<b>Patient Safety</b>
Sub-domain	<b>Multiple pregnancies</b>
Definition:	Percentage of women with multiple pregnancies (2 or more) resulting from frozen embryo transfers relative to the total number of frozen ART cycles during the reporting period <b>Note:</b> (twins must be reported separately from triplets and above)
Calculation:	<b><u>Numerator:</u></b> Total number of women with positive fetal hearts (2 or more) as confirmed by ultrasound 2-4 weeks after positive pregnancy test following frozen embryo transfer procedure <b>Note:</b> (twins must be reported separately from triplets and above) <b><u>Denominator:</u></b> Total number of frozen embryo transfer procedures performed in the reporting period <b><u>Inclusion:</u></b> Include all embryos that were transferred, i.e. including those with and without PGT-A and PGT-M testing.
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, CDC, and HFEA
Desired direction:	Lower is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> </ul>

KPI Description (title):	<b>Multiple live birth rate from frozen ART cycles</b>
Domain	<b>Patient Safety</b>
Sub-domain	<b>Multiple birth</b>
Definition:	Percentage of women with multiple live multiple births (2 or more) resulting from frozen embryo transfer relative to the total number of frozen ART cycles during the reporting period.  <b>Note:</b> (twins must be reported separately from triplets and above)
Calculation:	<b><u>Numerator:</u></b> Total number of women with multiple live births (2 or more) following frozen embryo transfer procedure.  <b><u>Inclusion:</u></b> All live multiple births including (2 or more) irrespective of gestational age and birth weight.  <b>Note:</b> (twins must be reported separately from triplets and above)  <b><u>Exclusion:</u></b> Women where all reasonable attempts have been made to follow up on status of live birth.  <b><u>Denominator:</u></b> Total number of frozen embryo transfer procedures performed in the reporting period  <b><u>Inclusion:</u></b> Include all embryos that were transferred, i.e. including those with and without PGT-A and PGT-M testing.
Reporting Frequency:	Annually: <b><i>(Live birth rate from all frozen Embryo transfer procedures that started from January to December of a target year should be reported with the Q4 submissions of subsequent year)</i></b>
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, and HFEA
Desired direction:	Lower is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> <li>- Medical Record Numbers (or unique patient identifier) list of all lost to follow up cases must be submitted to DOH at time of data submission</li> </ul>

KPI Description (title):	<b>Live birth rate from fresh embryo transfers</b>
Domain	<b>Clinical outcome</b>
Sub-domain	<b>Effectiveness</b>
Definition:	<p>Percentage of live births (the complete expulsion or extraction of a product of fertilization that shows evidence of life of any product of conception, regardless how many weeks of pregnancy) after fresh embryo transfers relative to the total number of fresh embryos transferred among women of <u>age groups</u>:</p> <ul style="list-style-type: none"> <li>○ Less than 35 years old</li> <li>○ Between 35-37</li> <li>○ Between 38-39</li> <li>○ Between 40-42</li> <li>○ Between 43-45</li> <li>○ Above 45 years old</li> </ul> <p>Note: (Each age group must be reported separately)</p>
Calculation:	<p><b>Numerator:</b> Total sum of live births (the complete expulsion or extraction of a product of fertilization that shows evidence of life) after <b>fresh</b> embryo transfers for women (see age group above).</p> <p><b>Inclusion:</b> All live births including singleton and multiple irrespective of gestational age and birth weight.</p> <p><b>Exclusion:</b> Women who were lost to follow up in spite of all reasonable attempts made to follow up on status of live birth.</p> <p><b>Denominator:</b> Total sum of <b>fresh</b> embryos transferred for ART cycles performed in the reporting period for women (see age group above).</p> <p><b>Inclusion:</b> Include all embryos that were transferred i.e. including those with and without PGD and PGS testing.</p>
Reporting Frequency:	Annually ( <b><i>Live birth rate from all fresh embryos transferred in women</i></b> (see age group above) for ART cycles <b><i>that started from January to December of a target year should be reported with the Q4 submissions of subsequent year.</i></b> )
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH- Abu Dhabi Standard, HFEA, and CDC
Desired direction:	Higher is better
<b>Notes for all facilities</b>	

Data Source/ Report Name:	<ul style="list-style-type: none"><li>- Administrative and medical records.</li><li>- Claims.</li><li>- Medical Record Numbers (or unique patient identifier) list of all lost to follow up cases must be submitted to DOH at time of data submission</li></ul>
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KPI Description (title):	<b>Clinical pregnancy rate from fresh embryo transfers</b>
Domain	<b>Clinical outcome</b>
Sub-domain	<b>Effectiveness</b>
Definition:	<p>Percentage of positive fetal hearts as confirmed by ultrasound 2-4 weeks after positive pregnancy test following fresh <b>embryo transfers relative to the total number of fresh embryos transferred among women of age group:</b></p> <ul style="list-style-type: none"> <li>○ Less than 35 years old</li> <li>○ Between 35-37</li> <li>○ Between 38-39</li> <li>○ Between 40-42</li> <li>○ Between 43-45</li> <li>○ Above 45 years old</li> </ul> <p>Note: (Each age group must be reported separately)</p>
Calculation:	<p><b>Numerator:</b> Total sum of positive fetal hearts as confirmed by ultrasound 2-4 weeks after positive pregnancy test after fresh embryo transfers for women (see age group above).</p> <p>Inclusion: All pregnancies including singleton and multiple.</p> <p><b>Denominator:</b> Total sum of fresh embryos transferred for ART cycles performed in the reporting period for women (see age group above).</p> <p><b>Inclusion:</b> Include all embryos that were transferred, i.e. including those with and without PGT-A and PGT-M testing.</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, HFEA, and CDC
Desired direction:	Higher is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> </ul>

KPI Description (title):	<b>Live birth rate from frozen embryo transfers</b>
Domain	<b>Clinical outcome</b>
Sub-domain	<b>Effectiveness</b>
Definition:	<p>Percentage of live births (the complete expulsion or extraction of a product of fertilization that shows evidence of life of any product of conception, regardless how many weeks of pregnancy) after frozen embryo transfers relative to the total number of frozen embryos transferred among women of <u>age groups</u>:</p> <ul style="list-style-type: none"> <li>○ Less than 35 years old</li> <li>○ Between 35-37</li> <li>○ Between 38-39</li> <li>○ Between 40-42</li> <li>○ Between 43-45</li> <li>○ Above 45 years old</li> </ul> <p>Note: (Each age group must be reported separately)</p>
Calculation:	<p><b>Numerator:</b> Total sum of live births (the complete expulsion or extraction of a product of fertilization that shows evidence of life) after <b>frozen</b> embryo transfers for women (see age group above).</p> <p><b>Inclusion:</b> All live births including singleton and multiple irrespective of gestational age and birth weight.</p> <p><b>Exclusion:</b> Women who were lost to follow up in spite of all reasonable attempts made to follow up on status of live birth.</p> <p><b>Denominator:</b> Total sum of <b>frozen</b> embryos transferred for ART cycles performed in the reporting period for women (see age group above).</p> <p><b>Inclusion:</b> Include all embryos that were transferred i.e. including those with and without PGD and PGS testing.</p>
Reporting Frequency:	Annually ( <b><i>Live birth rate from all frozen embryos transferred in women</i></b> (see age group above) for ART cycles <b><i>that started from January to December of a target year should be reported with the Q4 submissions of subsequent year.</i></b> )
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH- Abu Dhabi Standard, HFEA, and CDC
Desired direction:	Higher is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims.</li> <li>- Medical Record Numbers (or unique patient identifier) list of all lost to follow up cases must be submitted to DOH at time of data submission</li> </ul>

KPI Description (title):	<b>Clinical pregnancy rate from frozen embryo transfers</b>
Domain	<b>Clinical outcome</b>
Sub-domain	<b>Effectiveness</b>
Definition:	<p>Percentage of positive fetal hearts as confirmed by ultrasound 2-4 weeks after positive pregnancy test following frozen <b>embryo transfers relative to the total number of frozen embryos transferred among</b> women of <u>age group</u>:</p> <ul style="list-style-type: none"> <li>○ Less than 35 years old</li> <li>○ Between 35-37</li> <li>○ Between 38-39</li> <li>○ Between 40-42</li> <li>○ Between 43-45</li> <li>○ Above 45 years old</li> </ul> <p>Note: (Each age group must be reported separately)</p>
Calculation:	<p><b><u>Numerator:</u></b> Total sum of positive fetal hearts as confirmed by ultrasound 2-4 weeks after positive pregnancy test after frozen embryo transfers for women (see age group above).</p> <p>Inclusion: All pregnancies including singleton and multiple.</p> <p><b><u>Denominator:</u></b> Total sum of frozen embryos transferred for ART cycles performed in the reporting period for women (see age group above).</p> <p><b>Inclusion:</b> Include all embryos that were transferred, i.e. including those with and without PGT-A and PGT-M testing.</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, HFEA, and CDC
Desired direction:	Higher is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> </ul>

KPI Description (title):	<b>Multiple live birth rate among ART patients</b>
Domain	<b>Patient Safety</b>
Sub-domain	<b>Multiple birth</b>
Definition:	The percentage of all live births occurrences resulting from ART treatments (inclusive of IUI/TI/Fresh cycles/Frozen cycles) started in that year which resulted in more than one live birth. <b>Note:</b> (twins must be reported separately from triplets and above)
Calculation:	<b><u>Numerator:</u></b> Total number of women with multiple live births (2 or more) resulting from ART treatments  <b><u>Inclusion:</u></b> All live multiple births including (2 or more) irrespective of gestational age and birth weight.  <b>Note:</b> (twins must be reported separately from triplets and above)  <b><u>Denominator:</u></b> Total number of women with all live births resulting from ART treatments (inclusive of IUI/TI/Fresh cycles/Frozen cycles)  <b><u>Exclusion:</u></b> Women where all reasonable attempts have been made to follow up on status of live birth.
Reporting Frequency:	Annually: <b><i>(Live birth rate from all ART treatments that started from January to December of a target year should be reported with the Q4 submissions of subsequent year)</i></b>
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, and HFEA <a href="https://www.hfea.gov.uk/about-us/publications/research-and-data/fertility-treatment-2019-trends-and-figures/fertility-treatment-2019-quality-and-methodology-report/">https://www.hfea.gov.uk/about-us/publications/research-and-data/fertility-treatment-2019-trends-and-figures/fertility-treatment-2019-quality-and-methodology-report/</a>
Desired direction:	Lower is better Annual target rate: Twin live birth rate ≤ 15% Triplets and above live birth rate = 0%
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> <li>- Medical Record Numbers (or unique patient identifier) list of all lost to follow up cases must be submitted to DOH at time of data submission</li> </ul>

KPI Description (title):	<b>Multiple clinical pregnancy rate among ART patients</b>
Domain	<b>Patient Safety</b>
Sub-domain	<b>Multiple pregnancy</b>
Definition:	The percentage of all clinical pregnancies resulting from ART treatments (inclusive of IUI/TI/Fresh cycles/Frozen cycles) started in that year which consisted of a multiple pregnancy. <b>Note:</b> (twins must be reported separately from triplets and above)
Calculation:	<b><u>Numerator:</u></b> Total number of women with multiple clinical pregnancies (2 or more positive fetal hearts) resulting from ART treatments <b>Note:</b> (twins must be reported separately from triplets and above) <b><u>Denominator:</u></b> Total number of clinical pregnancies resulting from ART treatments (inclusive of IUI/TI/Fresh cycles/Frozen cycles) (A cycle where one or more fetal hearts are seen).
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	Developed as per DoH standard, and HFEA <a href="https://www.hfea.gov.uk/about-us/publications/research-and-data/fertility-treatment-2019-trends-and-figures/fertility-treatment-2019-quality-and-methodology-report/">https://www.hfea.gov.uk/about-us/publications/research-and-data/fertility-treatment-2019-trends-and-figures/fertility-treatment-2019-quality-and-methodology-report/</a>
Desired direction:	Lower is better
<b>Notes for all facilities</b>	
Data Source/ Report Name:	<ul style="list-style-type: none"> <li>- Administrative and medical records.</li> <li>- Claims</li> <li>- Medical Record Numbers (or unique patient identifier) list of all lost to follow up cases must be submitted to DOH at time of data submission</li> </ul>

<b>KPI Description (title):</b>	<b>Oocyte degeneration After ICSI</b>
<b>Domain</b>	Efficiency
<b>Sub-Domain</b>	Process
<b>Definition:</b>	Number of oocytes damaged or degenerated out of total number of oocytes injected
<b>Calculation:</b>	<p><b>Numerator</b> Number of damaged or degenerated oocytes after ICSI</p> <p>Inclusion: Fresh and Frozen spermatozoa</p> <p><b>Denominator</b> Total Number of oocytes injected within the reporting period.</p> <p>ICSI damage rate= (No. damaged or degenerated / all oocyte injected)</p>
<b>Reporting Frequency:</b>	Quarterly
<b>Unit of Measure:</b>	Percentage
<b>International comparison if available</b>	<ul style="list-style-type: none"> <li>The Vienna consensus report of an expert meeting on the development of ART laboratory performance indicators- Human Reproduction</li> </ul>
<b>Desired direction:</b>	Lower is better
<b>Data sources and guidance:</b>	<p>-Patient medical record</p> <p>-Hospital administrative data</p>

<b>KPI Description (title):</b>	<b>ICSI Fertilization Rate</b>
<b>Domain</b>	Effectiveness
<b>Sub-Domain</b>	process
<b>Definition:</b>	Number of fertilized 2pn oocytes after ICSI of mature oocytes
<b>Calculation:</b>	<p><b>Numerator</b> Number of oocytes with 2PN</p> <p><b>Inclusion:</b> Fresh and Frozen ejaculated spermatozoa</p> <p><b>Denominator</b> Total Number of all MII injected oocytes</p>
<b>Reporting Frequency:</b>	Quarterly
<b>Unit of Measure:</b>	Percentage
<b>International comparison if available</b>	<ul style="list-style-type: none"> <li>• The Vienna consensus report of an expert meeting on the development of ART laboratory performance indicators- Human Reproduction</li> </ul>
<b>Desired direction:</b>	Higher is better
<b>Data sources and guidance:</b>	<ul style="list-style-type: none"> <li>-Patient medical record</li> <li>-Hospital administrative data</li> </ul>

<b>KPI Description (title):</b>	<b>Rate of Cycle Cancellations before OPU</b>
<b>Domain</b>	Efficiency
<b>Sub-Domain</b>	Process
<b>Definition:</b>	Percentage of ART cycles cancelled before OPU due to one or multiple factors, such as: <ol style="list-style-type: none"> <li>1. Low ovarian response or inadequate ovarian response</li> <li>2. Premature ovulation evident by an LH surge or lost follicle prior to retrieval</li> <li>3. Risk of ovarian hyperstimulation syndrome (OHSS).</li> <li>4. Abnormal uterine lining</li> </ol>
<b>Calculation:</b>	<p><b>Numerator:</b> Number of ART cycles cancelled before OPU due to medical reasons only</p> <p><b>Codes:</b> E28.8 - E28.9 Other ovarian dysfunction E28.39 Other primary ovarian failure E28.8 Other ovarian dysfunction N98.1 ovarian hyper stimulation syndrome. N85.8 Other specified non inflammatory disorders of uterus</p> <p>Note: If a patient starts her stimulation on the reporting period and cycle cancelled on next quarter due to no response, she will be counted in the same reporting period in which stimulation started</p> <p>Example: If a patient starts her stimulation on March 30 and cycle cancelled on April 5 due to no response, she will be counted in Q1</p> <p><b>Denominator:</b> Total number of stimulations started for OPU during the reporting period.</p>
<b>Reporting Frequency:</b>	Quarterly
<b>Unit of Measure:</b>	Percentage
<b>International comparison if available</b>	<a href="https://www.sart.org/patients/a-patients-guide-to-assisted-reproductive-technology/general-information/cycle-cancellation/">https://www.sart.org/patients/a-patients-guide-to-assisted-reproductive-technology/general-information/cycle-cancellation/</a>
<b>Desired direction:</b>	Lower rates are better.
<b>Data sources and guidance:</b>	-Patient medical record -Hospital administrative data

<b>KPI Description (title):</b>	<b>Successful Surgical Sperm Retrieval processes for Patients with obstructive azoospermia</b>
<b>Domain</b>	Effectiveness
<b>Sub-Domain</b>	Process
<b>Definition:</b>	Percentage of Successful Sperm Retrieval Processes intended to obtain normal sperm suitable for oocyte injection after surgery for Patients with obstructive azoospermia
<b>Calculation:</b>	<p><b>Numerator:</b> Number of procedures done where sperm was found</p> <p><b>Inclusion:</b> Patients with obstructive azoospermia</p> <p><b>Codes:</b> N46.023 Azoospermia due to obstruction of efferent ducts</p> <p><b>Exclusion:</b> Patients with non-obstructive azoospermia N46.01 Organic azoospermia, N46.021 Azoospermia due to drug therapy, N46.022 Azoospermia due to infection, N46.024 Azoospermia due to radiation, N46.025 Azoospermia due to systemic disease &amp; N46.029 Azoospermia due to other extra testicular causes.</p> <p><b>Denominator:</b> Total number of male procedures i.e. TESA, PESA, TESE, microTESE or oncoTESE during the reporting period</p> <p><b>Inclusion:</b> Patients with obstructive azoospermia</p> <p><b>Exclusion:</b> -Patients with non-obstructive azoospermia -Patients who don't require process. -Patients refuse to undergo the process.</p>
<b>Reporting Frequency:</b>	Quarterly
<b>Unit of Measure:</b>	Percentage
<b>International comparison if available</b>	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8279053/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8279053/</a>
<b>Desired direction:</b>	Higher rates are required.
<b>Data sources and guidance:</b>	-Patient medical record -Hospital administrative data

<b>KPI Description (title):</b>	<b>Successful Surgical Sperm Retrieval processes for patients with non-obstructive azoospermia</b>
<b>Domain</b>	Effectiveness
<b>Sub-Domain</b>	Process
<b>Definition:</b>	Percentage of Successful Sperm Retrieval Processes intended to obtain normal sperm suitable for oocyte injection after surgery for Patients with non-obstructive azoospermia
<b>Calculation:</b>	<p><b>Numerator:</b> Number of procedures done where sperm was found</p> <p><b>Inclusion:</b> Patients with non-obstructive azoospermia N46.01 Organic azoospermia, N46.021 Azoospermia due to drug therapy, N46.022 Azoospermia due to infection, N46.024 Azoospermia due to radiation, N46.025 Azoospermia due to systemic disease &amp; N46.029 Azoospermia due to other extra testicular causes.</p> <p><b>Exclusion:</b> Patients with obstructive azoospermia N46.023</p> <p><b>Denominator:</b> Total number of male procedures i.e. TESA, PESA, TESE, microTESE or oncoTESE during the reporting period</p> <p><b>Inclusion:</b> Patients with non-obstructive azoospermia</p> <p><b>Exclusion:</b> -Patients with obstructive azoospermia -Patients who don't require process. -Patients refuse to undergo the process.</p>
<b>Reporting Frequency:</b>	Quarterly
<b>Unit of Measure:</b>	Percentage
<b>International comparison if available</b>	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8279053/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8279053/</a>
<b>Desired direction:</b>	Higher rates are required.
<b>Data sources and guidance:</b>	-Patient medical record -Hospital administrative data

<b>KPI Description (title):</b>	<b>Cleavage rate</b>
<b>Domain</b>	Efficiency
<b>Sub-Domain</b>	Process
<b>Definition:</b>	Number of cleaved embryos out of fertilized oocytes (2pn) on day 1
<b>Calculation:</b>	<p><b>Numerator:</b> Number of cleaved embryos</p> <p><b>Denominator:</b> Total number of fertilized oocytes (2pn) on day 1</p>
<b>Reporting Frequency:</b>	Quarterly
<b>Unit of Measure:</b>	Percentage
<b>International comparison if available</b>	The Vienna consensus: report of an expert meeting on the development of ART laboratory performance indicators
<b>Desired direction:</b>	Higher rates are better
<b>Data sources and guidance:</b>	<ul style="list-style-type: none"> <li>-Patient medical record</li> <li>-Hospital administrative data</li> </ul>

<b>KPI Description (title):</b>	<b>Blastocyst Utilization</b>
<b>Domain</b>	Efficiency
<b>Sub-Domain</b>	Process
<b>Definition:</b>	the number of blastocysts suitable for transfer or cryopreservation as a function of the number of normally fertilized (2PN) oocytes observed on Day 1
<b>Calculation:</b>	<p><b>Numerator:</b> Number of blastocysts available for transfer and/or freezing</p> <p>Inclusion: o Biopsied blastocysts on days 5, 6 and 7 of development for genetic testing and frozen regardless of the genetic results.</p> <p><b>Denominator:</b> Total number of fertilized oocytes (2pn) on day 1</p> <p>Exclusion: Embryos which were transferred or frozen before blastocyst stage</p>
<b>Reporting Frequency:</b>	Quarterly
<b>Unit of Measure:</b>	Percentage
<b>International comparison if available</b>	The Vienna consensus: report of an expert meeting on the development of ART laboratory performance indicators
<b>Desired direction:</b>	Higher rates are better
<b>Data sources and guidance:</b>	-Patient medical record -Hospital administrative data

## Summary of changes

KPI number	Summary of changes - September 2022
ART 016	numerator: Edit inclusion
ART 018	Edit numerator; medical reasons only
ART021	Change KPI name to Cleavage rate
ART022	Add exclusion to the denominator

KPI number	Summary of changes - November 2022
ART 001	<p>Rate of severe <u>and critical</u> complications resulting from fertility treatment            “Critical” added to the title and the definition.            Numerator addition:            Women demonstrating any feature of severe or critical OHSS should be classified in that category.</p> <p>Severe OHSS</p> <ul style="list-style-type: none"> <li>• Clinical ascites (<math>\pm</math> hydrothorax)</li> <li>• Oliguria (&lt; 300 ml/day or &lt; 30 ml/hour)</li> <li>• Haematocrit &gt; 0.45</li> <li>• Hyponatraemia (sodium &lt; 135 mmol/l)</li> <li>• Hypo-osmolality (osmolality &lt; 282 mOsm/kg)</li> <li>• Hyperkalaemia (potassium &gt; 5 mmol/l)</li> <li>• Hypoproteinaemia (serum albumin &lt; 35 g/l)</li> <li>• Ovarian size usually &gt; 12 cma</li> </ul> <p>Critical OHSS</p> <ul style="list-style-type: none"> <li>• Tense ascites/large hydrothorax</li> <li>• Haematocrit &gt; 0.55</li> <li>• White cell count &gt; 25 000/ml</li> <li>• Oliguria/anuria</li> <li>• Thromboembolism</li> <li>• Acute respiratory distress syndrome</li> </ul>
ART022	<p>Numerator inclusion is added:            Biopsied blastocysts on days 5, 6 and 7 of development for genetic testing and frozen regardless of the genetic results.</p>