



ESP CASE DETECTION ALGORITHM

Pregnancy

Document Version 2.2

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Modification History

Version	Date	Modification	By
2.2	10/11/2017	Added ESP Logo and MDPH branding	DPM
2.1	7/5/2016	Transferred to new algorithm template	DPM
2.0	11/3/2016	Added appropriated ICD-10-CM diagnosis codes. Separated Pregnancy algorithm from Gestational Diabetes algorithm.	DPM
1.0	6/22/2012	Original circulated version (Gestational Diabetes Criteria and Pregnancy).	DPM



1. Overview

The purpose of this document is to describe the criteria used to identify Pregnancy in MDPHnet data.

2. Criteria used to identify cases using ESP data

I. CASE CRITERIA

- Encounter date within the 280 days preceding EDD
 1. Period of pregnancy onset defined as (EDD-280 days)
 2. Period of pregnancy end defined as appearance of one of the following ≤ 280 days prior to EDD or ≤ 30 days following EDD:
 - a. ICD9 for delivery: V27.x
 - b. ICD9 for postpartum care: V24.x
 - i. If followed by preg ICD9 V22.x or V23.x or ICD10 on Pregnancy list (see [Table 1](#)) within 30 days then ignore
 - c. Ectopic & molar pregnancy, abortion: 630.x – 637.x and 639
 - i. If followed by preg ICD9 V22.x or V23.x or ICD10 on Pregnancy list (see [Table 1](#)) within 30 days then ignore
 - d. Complications of preg with delivery: 640.xx-649.xx with 5th digit = 1, 2 or 4
 - e. Normal delivery 650.xx-659.xx with 5th digit = 1, 2 or 4
 - f. Complications of labour: 660 – 669
 - g. ICD10 on the End Pregnancy list (see [Table 3](#))
 3. If no end of pregnancy event from the above list than use EDD
- If no EDD available then patient is pregnant if ICD9 = V22.x or V23.x or ICD10 on Pregnancy List (see [Table 1](#)) or Complication of Pregnancy list (see [Table 2](#))
 1. Pregnancy start:
 - a. If an ICD10 code on Gestational Age list (see [Table 4](#)) is available:
 - i. For every date on which there is an ICD10 code for gestational age, calculate a pregnancy onset date as date of ICD10 code assignment minus the ICD10 code's gestational age. Take the minimum value of all calculated possible pregnancy start dates.
 - b. If an ICD10 code on Gestational Age list is not available, then use the date of first ICD9 for pregnancy (V22.x or V23.x) or ICD10 on Pregnancy List (see [Table 1](#)) or Complication of Pregnancy list (see [Table 2](#)) minus 30 days
 2. Pregnancy end:
 - a. ICD9 for delivery: V27.x
 - b. ICD9 for postpartum care: V24.x
 - i. If followed by preg ICD9 V22.x or V23.x or ICD10 on Pregnancy list (see [Table 1](#)) within 30 days then ignore
 - c. Ectopic & molar pregnancy, abortion: 630.x – 637.x and 639
 - i. If followed by preg ICD9 V22.x or V23.x or ICD10 on Pregnancy list (see [Table 1](#)) within 30 days then ignore



- d. Complications of preg with delivery: 640.xx-649.xx with 5th digit = 1, 2 or 4
- e. Normal delivery 650.xx-659.xx with 5th digit = 1, 2 or 4
- f. Complications of labour: 660 – 669
- g. Date of last ICD9 for pregnancy (V22.x or V23.x) or ICD10 on Pregnancy list (see [Table 1](#)) or Complication of Pregnancy list (see [Table 2](#)) plus 14 days
- h. ICD10 on the End Pregnancy List (see [Table 3](#), below)
- If Actual date of delivery is available
 1. Pregnancy start:
 - a. If Gestational age at delivery is available:
 - i. Actual date of delivery minus Gestational age at delivery
 - b. If gestational age at date of delivery is not available but ICD10 on Gestational Age list (see Table 4) is available
 - i. For every date on which there is an ICD10 code for gestational age, calculate a pregnancy onset date as date of ICD10 code assignment minus the ICD10 code’s gestational age. Take the minimum value of all calculated possible pregnancy start dates.
 - c. If Gestational age at delivery is not available
 - i. Actual date of delivery minus 280 days
 2. Pregnancy end:
 - a. Actual date of delivery
- If patient has multiple qualifying events for preg_start and preg_end that generate overlapping periods of pregnancy, and actual date of delivery is available
 1. Pregnancy start:
 - a. If Gestational age at delivery is available:
 - i. Actual date of delivery minus Gestational age at delivery
 - b. If Gestational age at delivery is not available
 - i. minimum of preg_start for pregnancy onset
 2. Pregnancy end:
 - a. Actual date of delivery
- If patient has multiple qualifying events for preg_start and preg_end that generate overlapping periods of pregnancy, and actual date of delivery is not available use the minimum of preg_start for pregnancy onset and min of (end of pregnancy event or EDD) as preg_end
- Patient can have multiple episodes of pregnancy – define minimum interval between pregnancy end and start of new pregnancy as 1 month.

3. Codes, laboratory tests, and medications used to identify criteria listed in Sections 2 and 3.

I. DIAGNOSIS CODES USED TO IDENTIFY PREGNANCY

- Normal or High-Risk Pregnancy

Table 1. Normal or High-Risk Pregnancy Diagnosis Codes	
ICD-9-CM	ICD-10-CM



V22.x V23.x	O09.x O26.2x O30.x O31, O31.1x, O31.2x, O31.3x O32.x – O33.x O36.7x Z33.x – Z34.x (except Z33.2)
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- Complication of Pregnancy

Table 2. Complications of Pregnancy Diagnosis Codes	
ICD-9-CM	ICD-10-CM
	O10 and O10.xx with 5 th digit = 1 O11.x, except 4 th digit = 4 or 5 O12.xx, except 5 th digit = 4 or 5 O13.x, except 4 th digit = 4 or 5 O14.xx, except 5 th digit = 4 or 5 O15, O15.0x, O15.9 O16.x, except 4 th digit = 4 or 5 O20.x – O23.x O24.xx with 5 th digit = 1 O25.xx with 4 th digit = 1 O26.x (except O26.2x , O26.62, O26.63, O26.72, O26.73) O28.x – O29.x O31.8x O34.x – O36.6x (except, O36.4x) O36.8x – O41.x (except O36.80x) O43.x – O48.x O60.0x O99.01x O99.11x O99.0x – O99.1x where 5 th digit = 1 O99.2xx – O99.3xx, except 6 th digit = 4 or 5 O99.4x – O99.7x where 5 th digit = 1 O99.8xx – O99.9xx, except 6 th digit = 4 or 5 O9A.1x – O9A.5x where 5 th digit = 1

- End of Pregnancy

Table 3. End of Pregnancy Diagnosis Codes	
ICD-9-CM	ICD-10-CM
V24.x* V27.x 630.x – 637.x* 639* 640.xx-649.xx with 5 th digit = 1, 2 or 4 650	O00.x – O04.x* O08.x* O10.xx with 5 th digit = 2 or 3 O11.x with 4 th digit = 4 or 5 O12.xx with 5 th digit = 4 or 5 O13.x with 4 th digit = 4 or 5 O14.xx with 5 th digit = 4 or 5



651.xx-659.xx with 5 th digit = 1, 2 or 4 660 – 669	O15.1 – O15.2 O16.x with 4 th digit = 4 or 5 O24.xx with 5 th digit = 2 or 3 O25.xx with 4 th digit = 2 or 3 O26.62, O26.63, O26.72, O26.73 O42.x O60.1x – O60.2x O67.x – O90.x O99.0x – O99.1x where 5 th digit = 2 or 3 O99.2xx – O99.3xx where 6 th digit = 4 or 5 O99.4x – O99.7x where 5 th digit = 2 or 3 O99.8xx – O99.9xx where 6 th digit = 4 or 5 O9A.1x – O9A.5x where 5 th digit = 2 or 3 Z37.x Z39.x*
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* If followed by pregnancy diagnosis code (see Table 1) within 30 days, then ignore.

- Gestational Age

Table 4. Gestational Age Diagnosis Codes	
ICD-9-CM	ICD-10-CM
N/A	Z3A.08, Z3A.09 Z3A.1x – Z3A.4x