

Opportunities and Challenges in Perinatal Health Research using the Discharge Abstract Database

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Objectives

- Highlight strengths and limitations of using the Discharge Abstract Database (DAD) for perinatal health research
- Highlight key considerations when linking mothers and newborns abstracts
- Demonstrate the differences in key perinatal indicators between ALL babies vs. LINKED babies using 2 different linkage approaches



The Discharge Abstract Database

- Captures administrative, clinical and demographic information on inpatient discharges from acute care hospitals in Canada
- Provincial/territorial coverage has expanded over the years
 - National coverage (excluding QC) since 2004-05
 - Over 3 million abstracts submitted per fiscal year
- Availability of certain data elements has also increased over the years



Availability of information (1)

	Number of Submitting P/Ts per FY				
	2002-03	2003-04	2004-05	2005-06	2006-07
Number of Submitting P/Ts to the DAD	10	11	12	12	12



Availability of information (2)

	Number of Submitting P/Ts per FY				
	2002-03	2003-04	2004-05	2005-06	2006-07
Number of Submitting P/Ts to the DAD	10	11	12	12	12
Data Element					
Demographics (age, sex, geography)					
Birth Weight					
Gestational Age (Mom)					
Gestational Age (Baby)					
Parity/Previous Preterm Deliveries					
Diagnosis & Intervention Information (ICD-10/CCI)					
MNCC*					

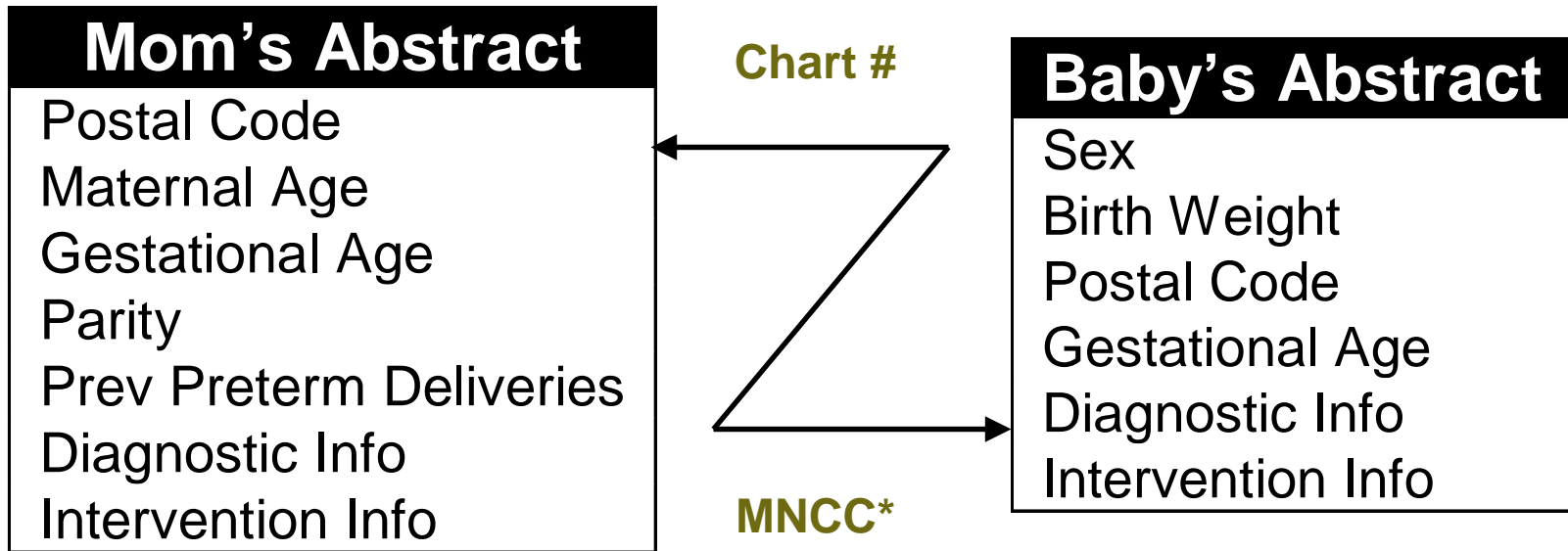
* MNCC = Maternal Newborn Chart Code

Availability of information (3)

	Number of Submitting P/Ts per FY				
	2002-03	2003-04	2004-05	2005-06	2006-07
Number of Submitting P/Ts to the DAD	10	11	12	12	12
Data Element					
Demographics (age, sex, geography)	10	11	12	12	12
Birth Weight	10	11	12	12	12
Gestational Age (Mom)	7	7	10	11	12
Gestational Age (Baby)	3	3	5	6	12
Parity/Previous Preterm Deliveries	4	4	6	7	7
Diagnosis & Intervention Information (ICD-10/CCI)	9	11	12	12	12
MNCC*	8	10	11	11	12

Risk factors we examined: Maternal age, parity, previous preterm deliveries, multiple births, maternal diabetes & hypertension, inductions, c-sections, socioeconomic status, urban/rural residence

Availability of Information (4)



* MNCC = Maternal Newborn Chart Code



Linking Moms and Babies (1)

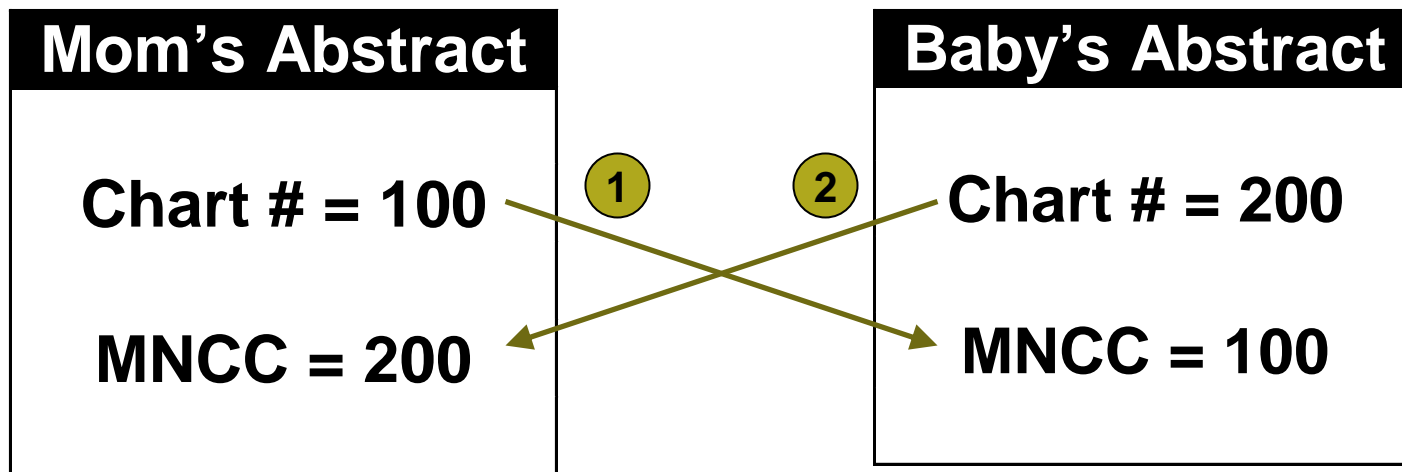
- Moms
 - ❖ Females with an obstetrical delivery code
 - ❖ Excluded medical abortions (termination of pregnancy)
- Babies
 - ❖ Newborns born in hospital



Linking Moms and Babies (2)

Example

For Province A, Facility #1:



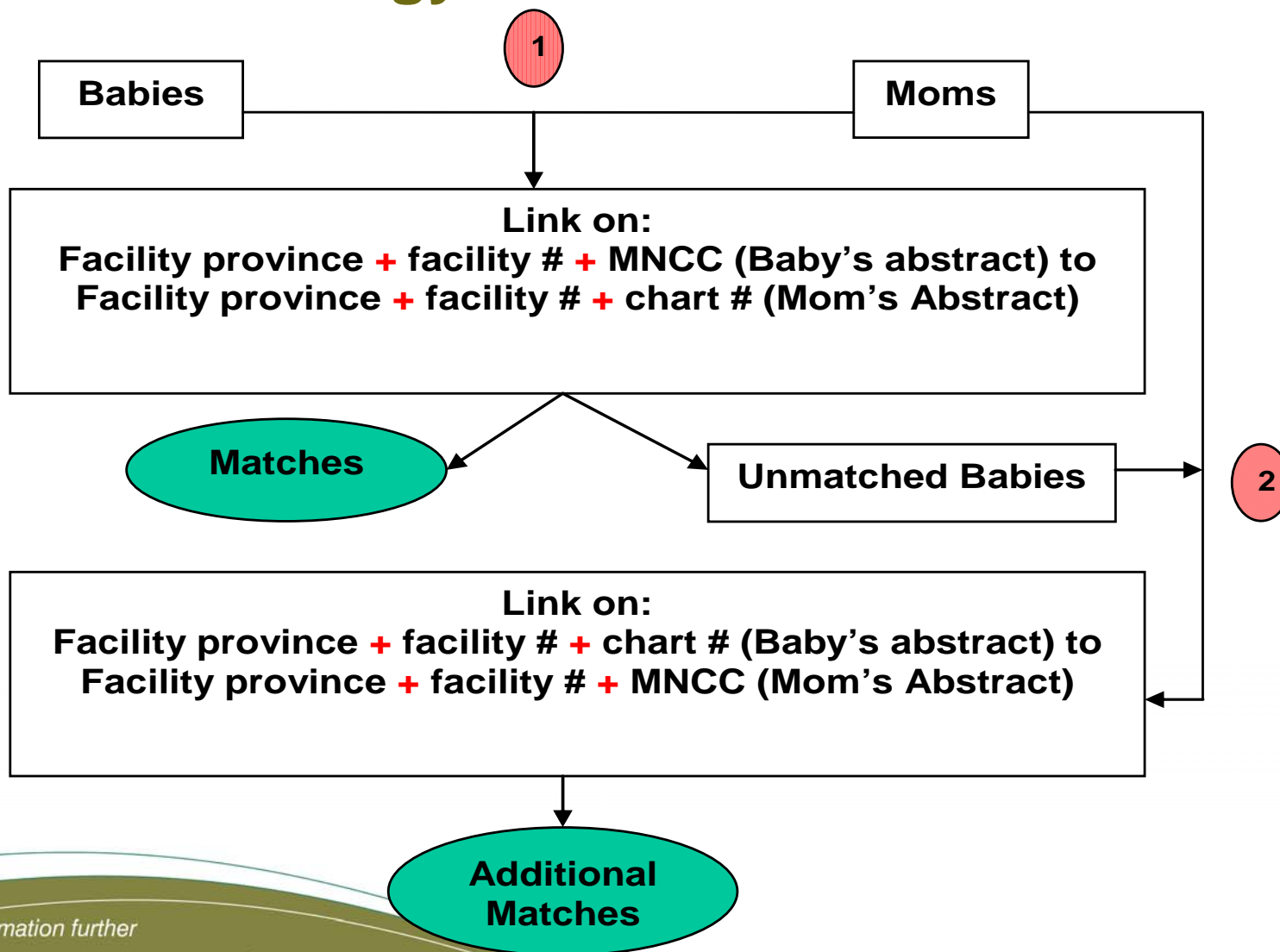
For multiple births: only 1st born's chart # is recorded on mom's abstract

Keys:

- Facility province + facility number + chart #
- Facility province + facility number + MNCC



Linking Moms and Babies (3): Basic Methodology



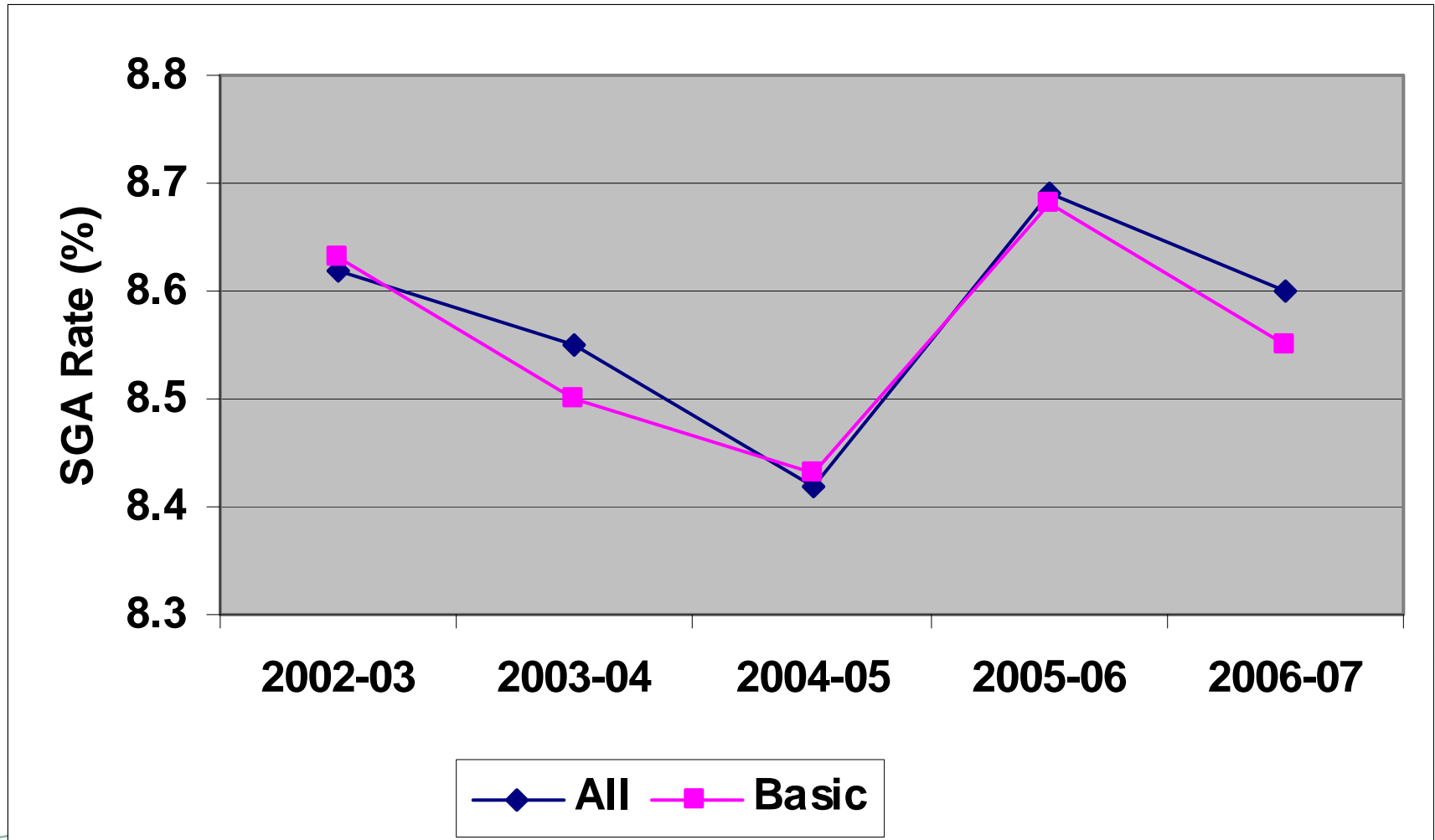
Results using Basic Methodology

Fiscal Year	Linkage Rate (%)*	
	Basic	Modified
2002-03	82.7	
2003-04	88.0	
2004-05	95.3	
2005-06	98.3	
2006-07	97.4	

* Includes additional P/Ts over time

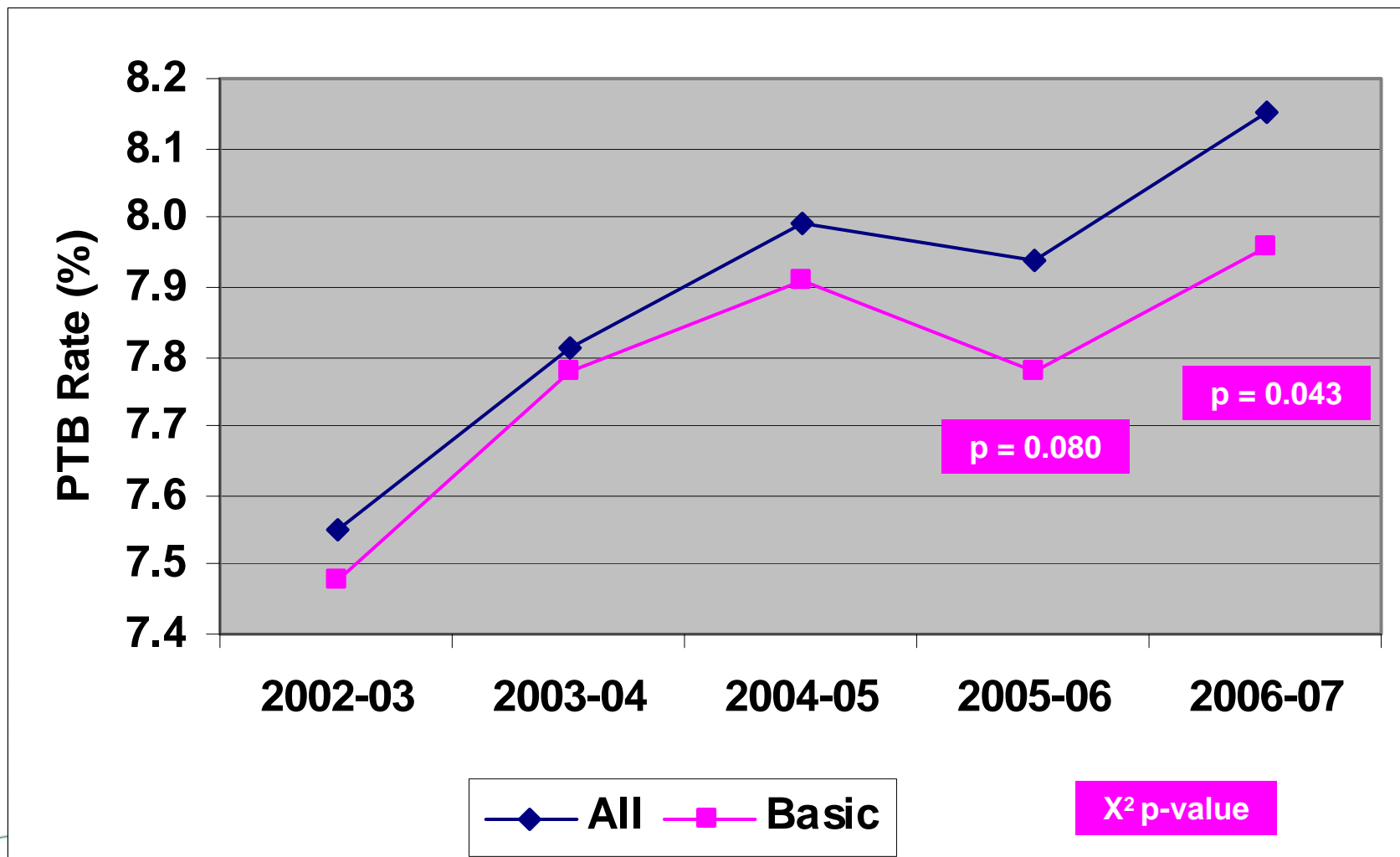


Small-for-Gestational-Age (SGA) Rates of All Babies vs. Linked Babies (Basic Methodology), 2002-03 to 2006-07*

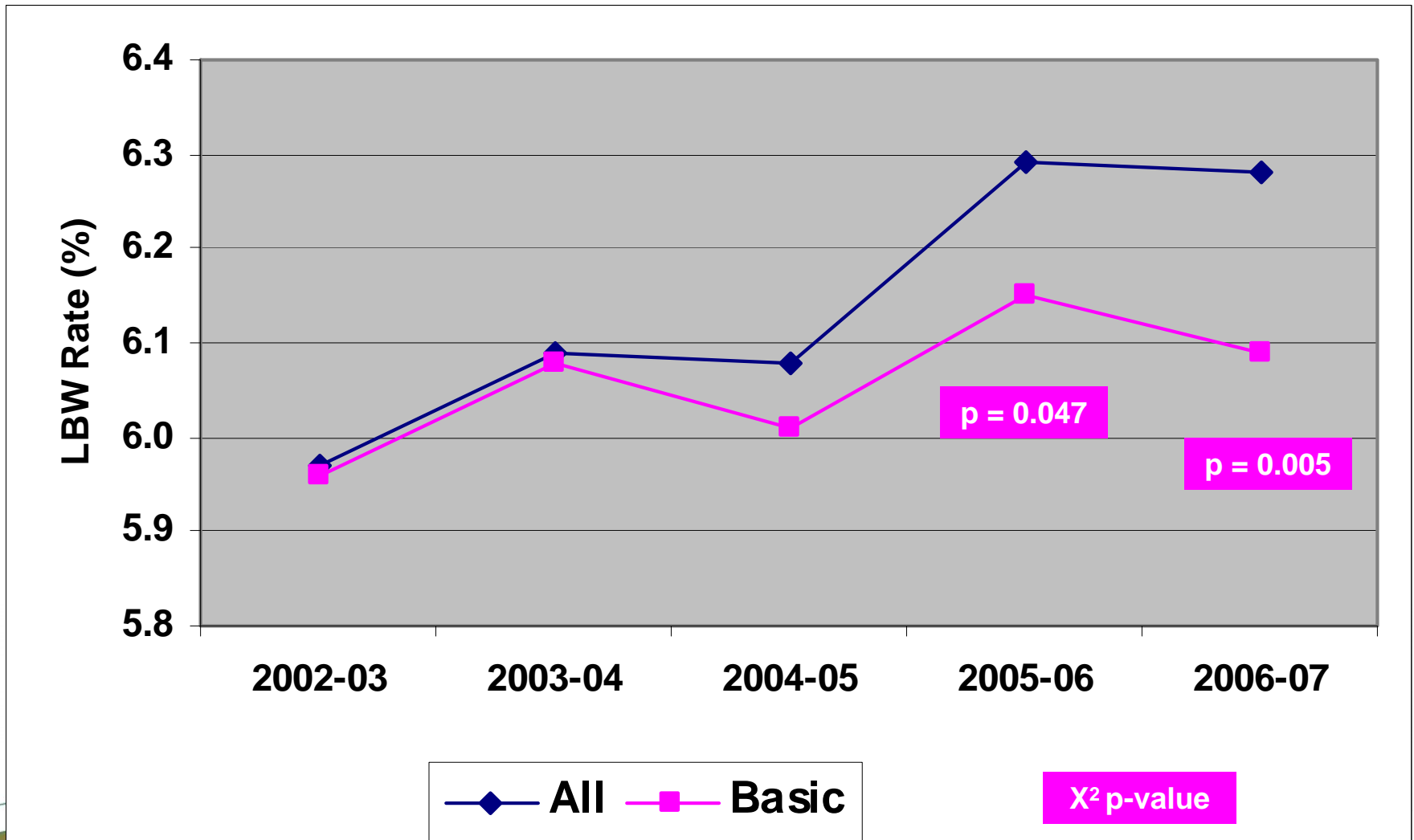


* Includes BC + ON facilities

Preterm Birth (PTB) Rates of All Babies vs. Linked Babies (Basic Methodology), 2002-03 to 2006-07*



Low Birth Weight (LBW) Rates of All Babies vs. Linked Babies (Basic Methodology), 2002-03 to 2006-07*



Other key considerations

- Mothers may deliver more than once per fiscal year
 - Additional rounds of matching were done to account for this

- Admit and discharge dates
 - Babies must be born during mothers hospitalization

- Mothers may be discharged in one fiscal year, while their baby may be discharged in the next
 - Babies discharged in 2006-07 were linked to mothers discharged in both 2006-07 & 2005-06

- Further data quality checks



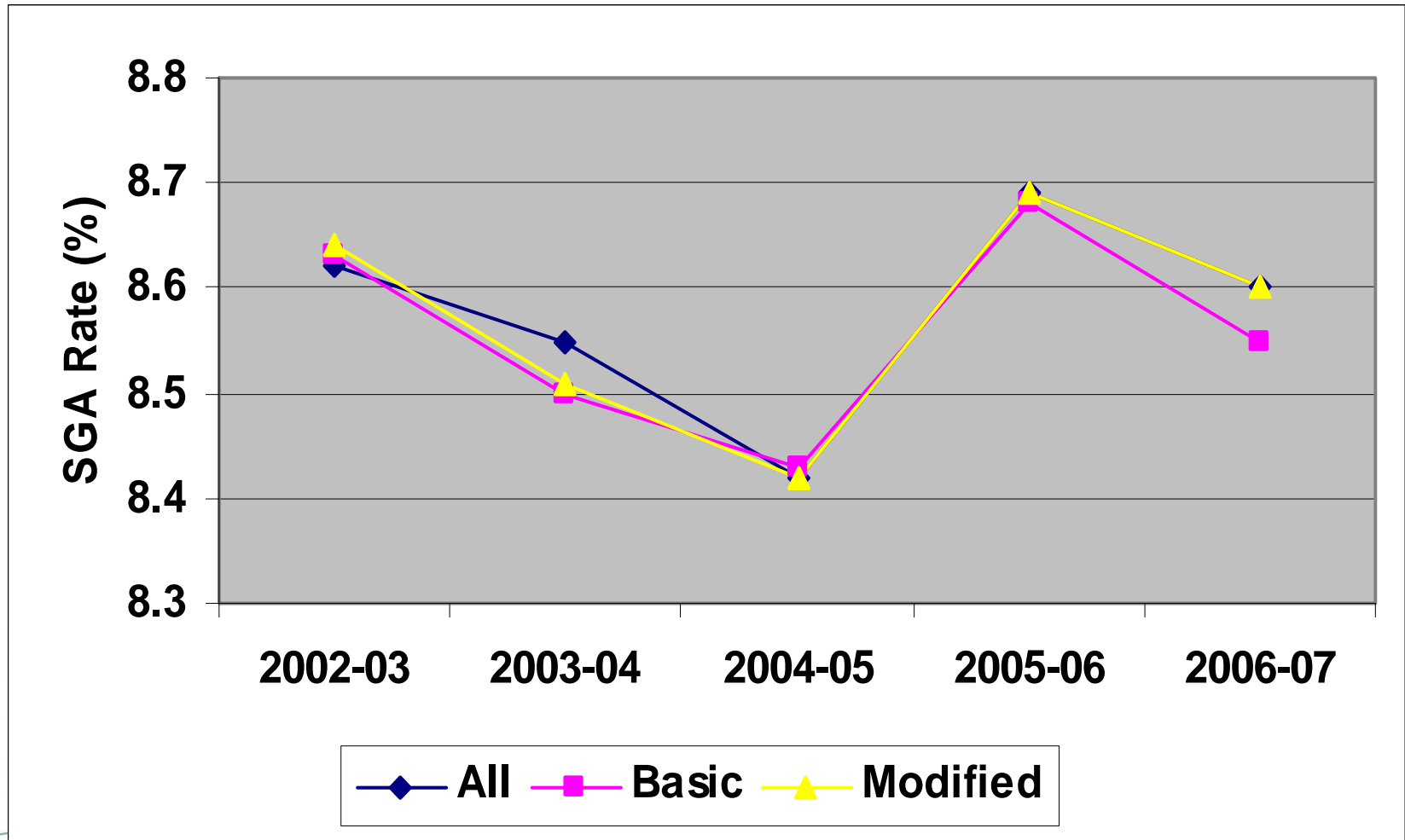
Results using Basic Methodology vs. Modified Methodology

Fiscal Year	Linkage Rate (%)*	
	Basic	Modified
2002-03	82.7	83.1
2003-04	88.0	88.7
2004-05	95.3	97.2
2005-06	98.3	99.1
2006-07	97.4	99.2

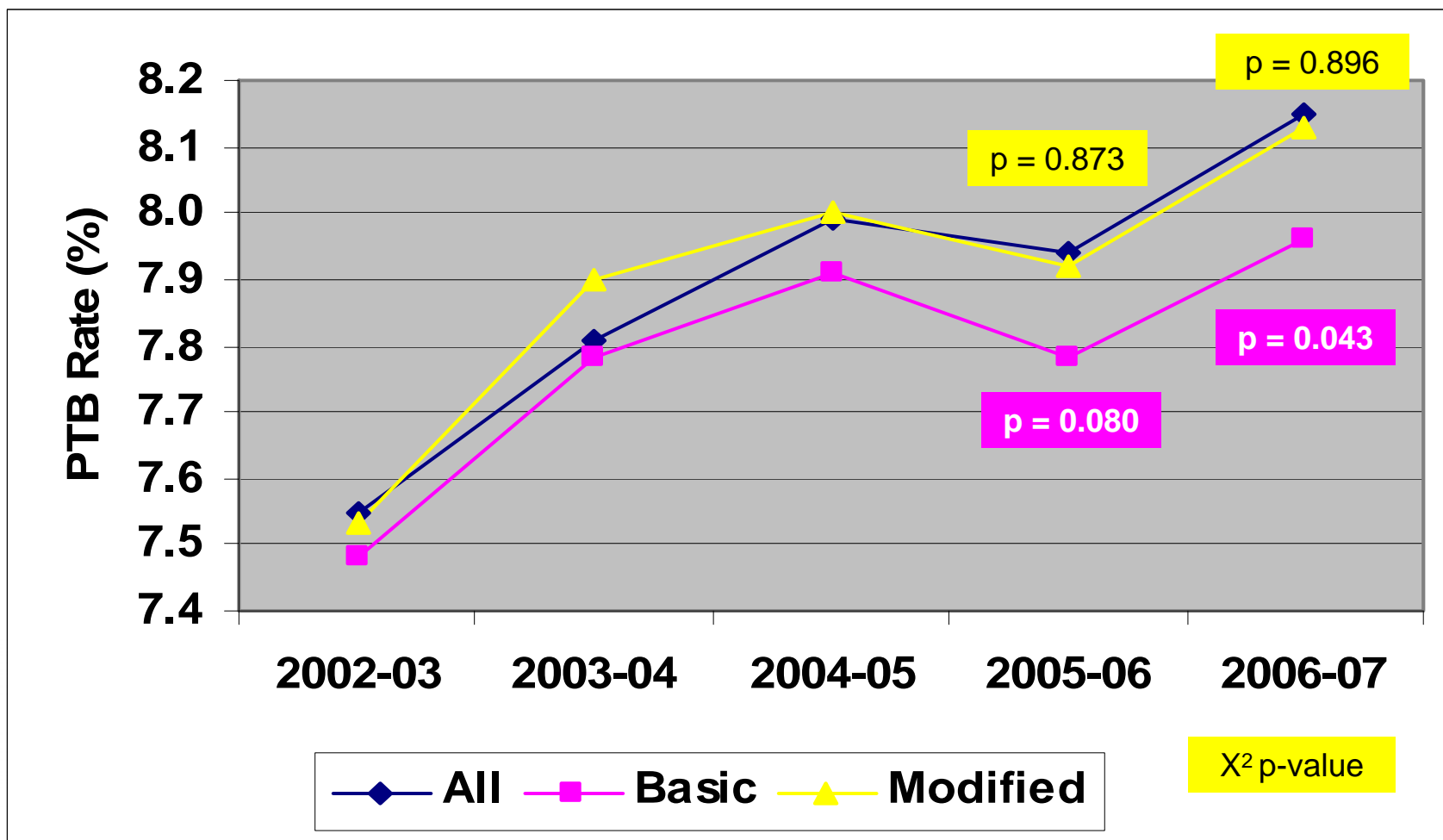
* Includes additional P/Ts over time



Small-for-Gestational-Age (SGA) Rates of All Babies vs. Linked Babies (Basic and Modified Methodology), 2002-03 to 2006-07*

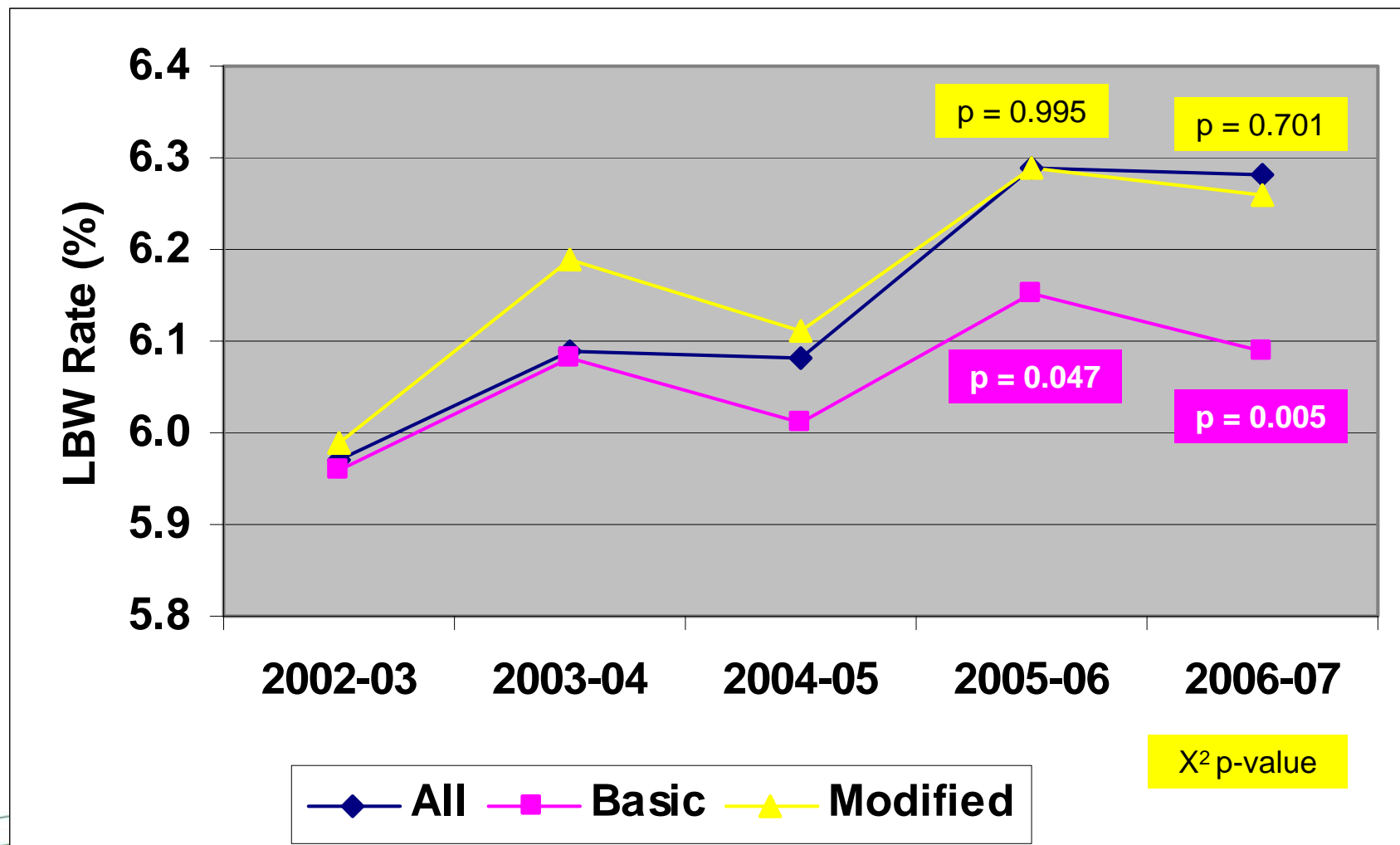


Preterm Birth (PTB) Rates of All Babies vs. Linked Babies (Basic and Modified Methodology), 2002-03 to 2006-07*



* Includes BC + ON facilities

Low Birth Weight (LBW) Rates of All Babies vs. Linked Babies (Basic and Modified Methodology), 2002-03 to 2006-07*



Summary

- Strengths

- Wealth of information contained in the DAD
- Ability to link mothers and babies
- Timely availability of information
- Rigorous data quality checks

- Limitations

- Historically, trending is difficult due to staggered availability of data elements
- Difficulty in obtaining national picture, esp. early years
- Complexity of linkage methodology



Conclusion

- DAD can be an abundant source of perinatal health information, once key considerations are taken into account for linking moms and babies
- Look for the upcoming report
 - Examined risk factors for preterm and small-for-gestational-age babies



Thank you!

