Barriers and Successes related to type 2 diabetic screening referrals in Texas school children

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Disclosure Statement

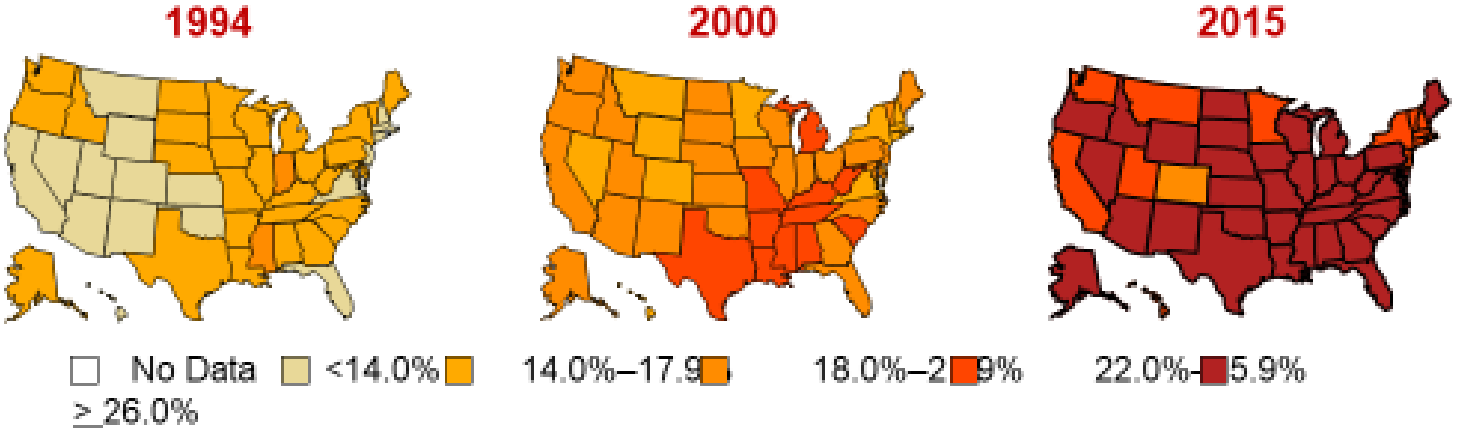
- Neither Dr. Star Mitchell or Dr. Melinda Hester have any financial or commercial interest related to this content. There is no sponsorship to report.

- This study was approved by Texas State University Institutional Review Board

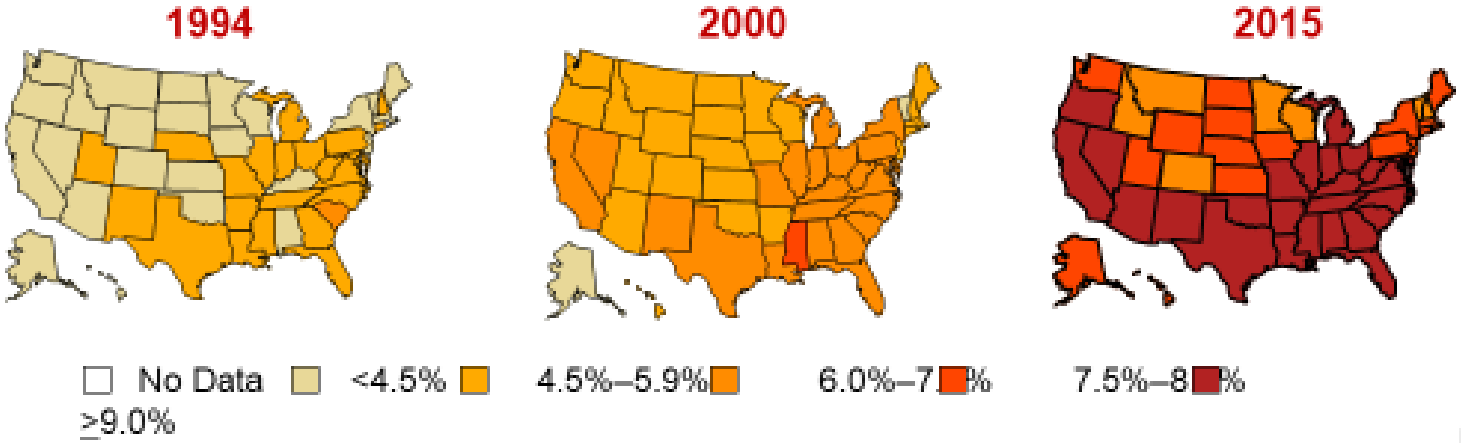
Problem: Diabetes is on the Rise

- Incidence of Diabetes (T1DM and T2DM)
  - In 2015: 9.4% or 30.3 million people in US were estimated to have diabetes
  - 2015: Global estimate is 415 million diagnosed with diabetes
  - 2050: 1 in 3 will be diagnosed
- Cost:
  - $245 billion in US, 1.31 trillion globally (2012)
  - $176 direct medical cost: $69 billion to reduced productivity

Obesity (BMI ≥30 kg/



Diabetes

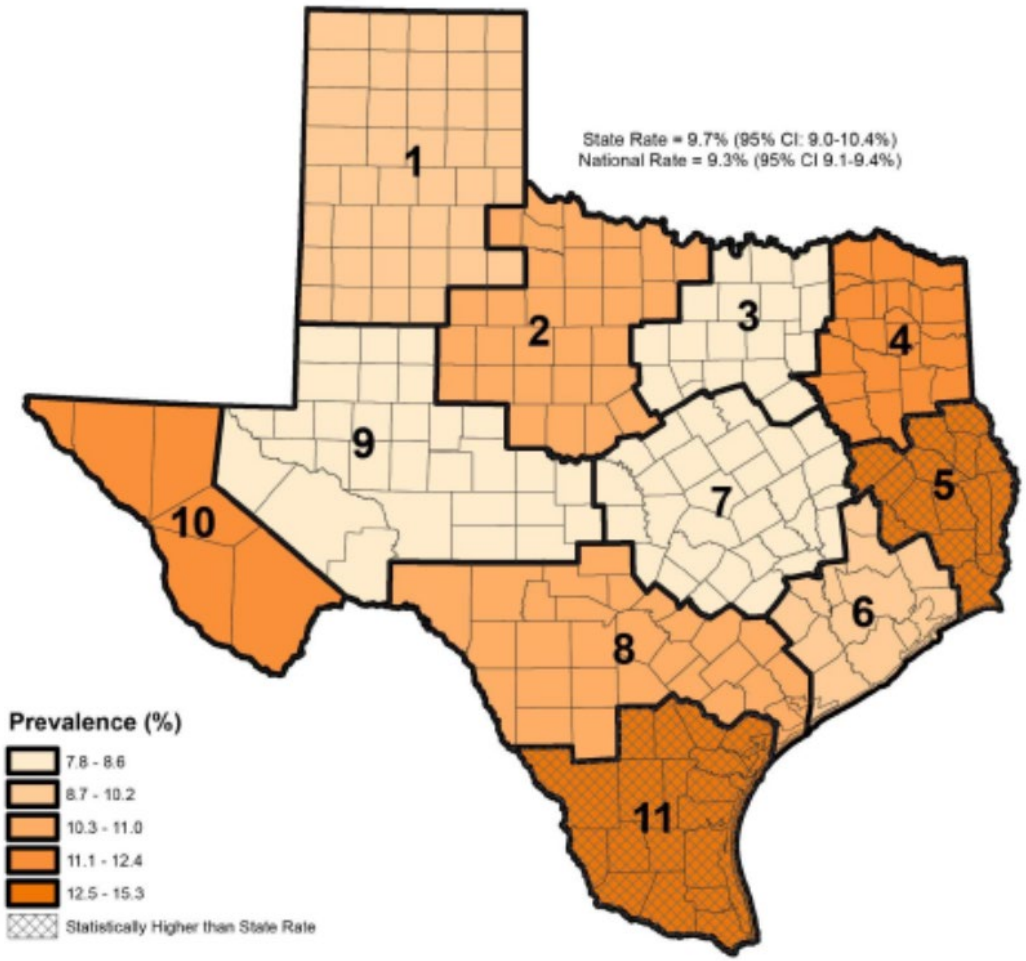


Division of Diabetes Translation. United States Surveillance System available at http://www.cdc.gov/diabetes/data

Type 2 Diabetes in Youth

- Prior to 1990 rarely diagnosed
- Projected fourfold increase
  - 2010: 22,820 cases reported
  - 2050: 84,131 cases projected
- Increased prevalence in racial/ethnic minorities
  - Non-Hispanic white youth 5.5%
  - Hispanic youth 35.2%
  - Non-Hispanic back youth 37.6%
- Incidence of T2DM peaks at age 14
  - Increased diabetic complications
  - Quality of life & health care burden

Texas Diabetes Prevalence by Health Service Region



Data Source: Texas BRFSS, 2010. Center for Health Statistics, DSHS

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Diabetes in Texas Children

- Texas Pediatric Diabetes Research Advisory Committee (2004)
  - 17,700 children < 20 years of age will be diagnosed by 2025

- Racial, ethnic, and social associated disparities and "at-risk" children
  - 20 Educational Regions in Texas
  - Lower educational & socio-economic status
  - Hispanic and African American populations

What is the TRAT2DC?

Texas Risk Assessment for Type 2 Diabetes in Children

- A legislatively mandated program in Texas
- Assesses children in grades 1,3,5,7, and 9 for risk factors associated with type 2 diabetes
- Specific educational regions targeted
- Connects those identified to be at risk to medical follow-up in their community.

The TRAT2DC program has been developed, coordinated, and administered by *The University of Texas Rio Grande Valley*.

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Legislative History of TRAT2DC

- 1999 House Bill 1860
- 2001 House Bill 2989
- 2003 & 2005 House Bill 2721
- 2007 Senate Bill 415
  Texas Risk Assessment for Type 2 Diabetes in Children (TRAT2DC)

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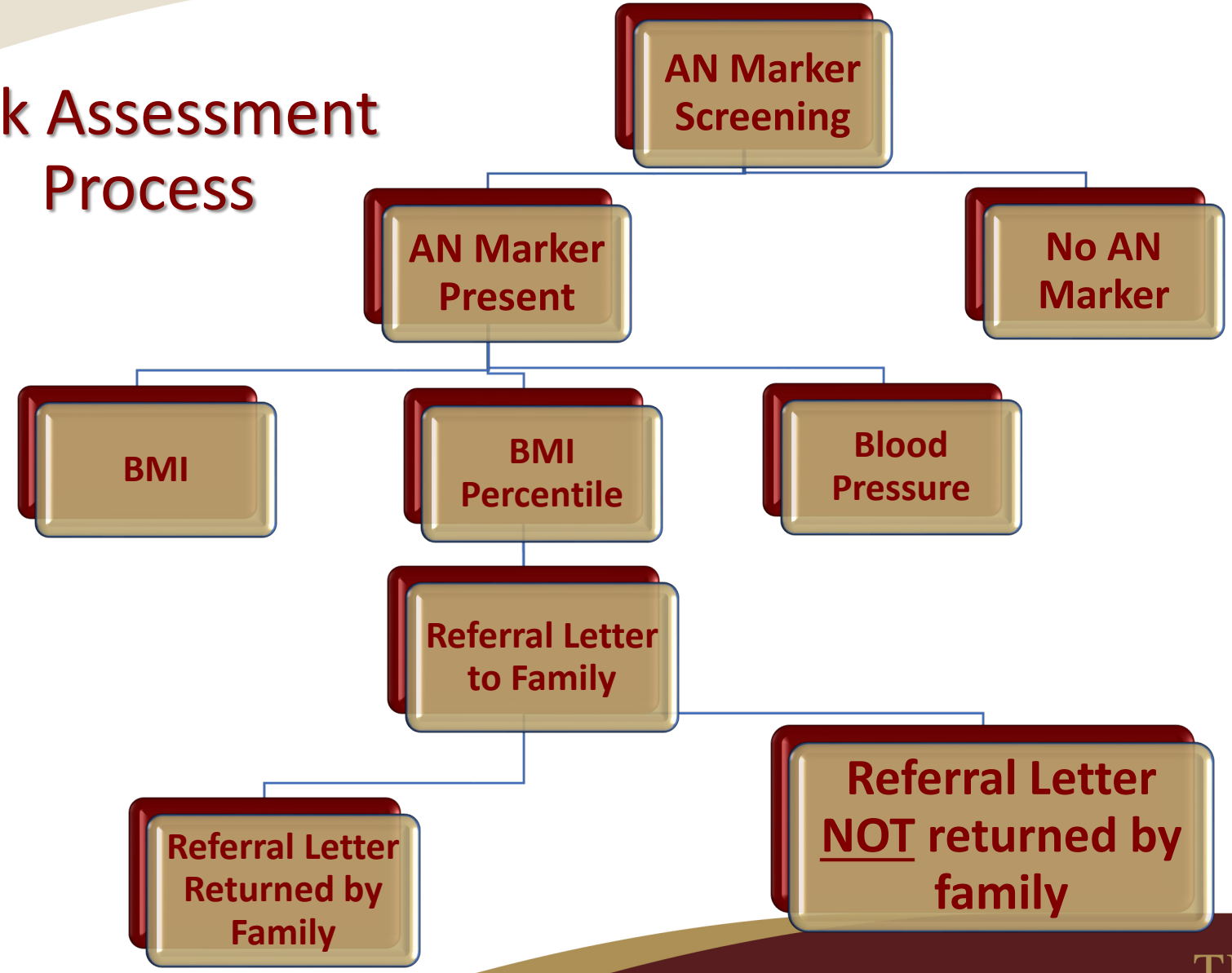
Risk Assessment Process

- Acanthosis Nigricans (AN) Marker
  - BMI
  - BMI percentile
  - Blood Pressure
- Referral Letter to Family
- Return of Letter and Follow-up

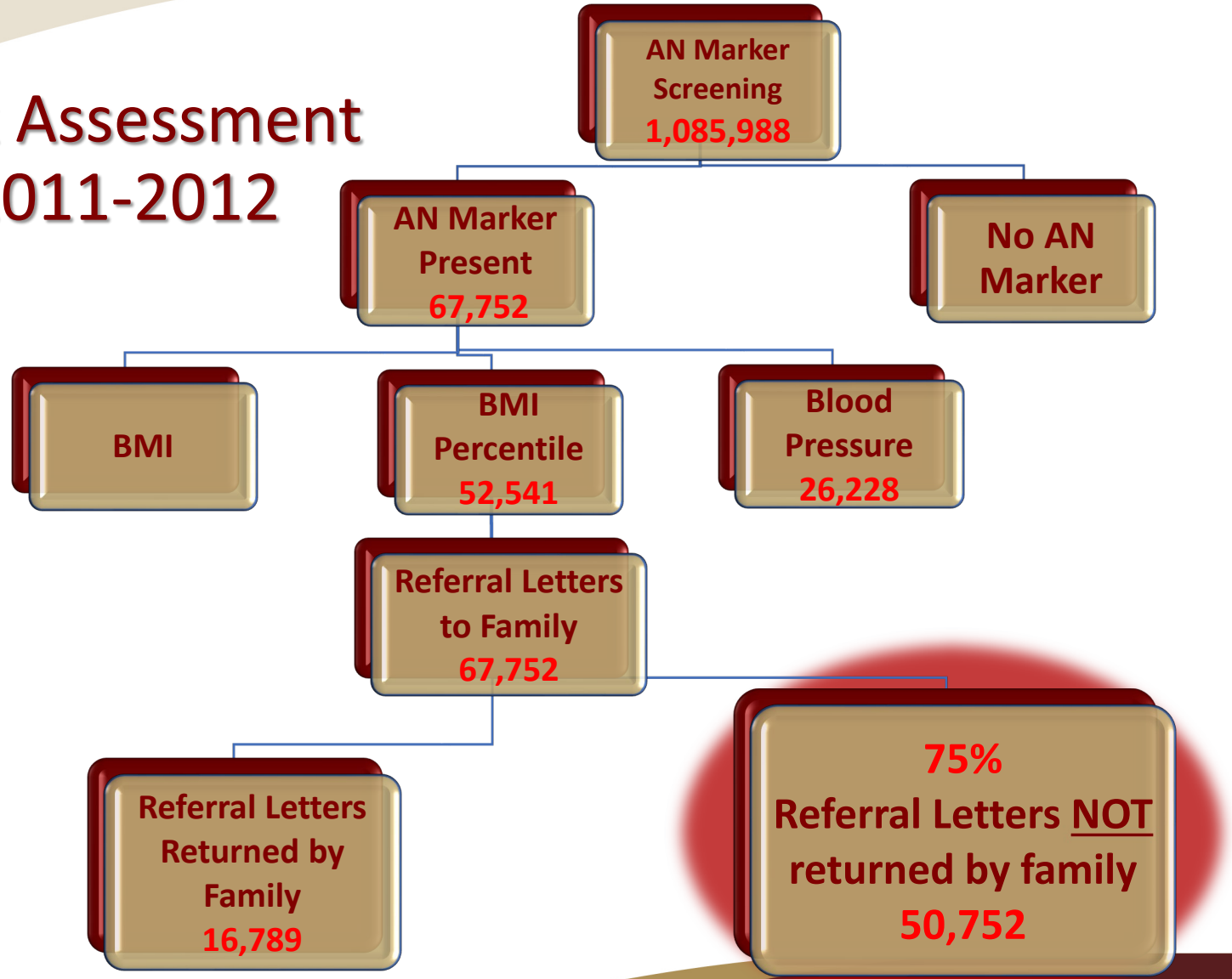
Risk Assessment Process



TRAT2DC Screening

	2011-2012	2015-2016
Number of Children Screened	1,085,988	1,114,186
AN Marker Present	67,752 (6.2%)	60,618 (5.4%)
Obesity	52,541 (78%)	51,267 (85%)
Pre HTN or HTN	26,228 (39%)	25,937 (43%)
Referrals not returned	16,789 (75%)	45,744 (75%)

Risk Assessment 2011-2012



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Purpose of the Study:

- Explore factors that influence successes or barriers surrounding the return of TRAT2DC referral letters.

Study Method

- Descriptive qualitative approach
  - Focus group
  - Semi-structured telephone interviews

- Sample
  - Snowball Sampling
  - Texas School Nurses
    - Focus Group with regional school nurse leaders
    - Telephone interviews with Texas School Nurses throughout Texas (12 participants)

Demographics of Interviewed School Nurses

ID	AGE	SEX	RACE	YEARS RN	YEARS SCHOOL NURSE	YEARS WORKING TRAT2DC	RESIDE IN SAME COUNTY AS SCHOOL
1	52	F	AA	29	25	25	Y
2	60	F	C	38	22	17.5	Y
3	37	F	C	14	7	7	Y
4	58	F	H	37.5	26	18.5	Y
5	57	F	Multi (C&AI)	37	17	10	Y
6	47	F	H	25	18	9.5	Y
7	50	F	H	27	10	9.5	Y
8	58	F	AA	35	22	10	Y
9	39	F	C	14	7.5	8	Y
10	58	F	C	38	22	10	Y
11	51	F	C	22	18	8	y
12	36	F	C	11	10	0	y
	50.25 Avg Age	**100%**	C=6 H=3 AA=2 Multi=1	**27.29** Avg Years RN	**17.04** Avg Years School Nurse	**11.08** Avg Years with TRAT2DC	**100%** Live in same county as schools served

Data Collected and Analysis

Focus Group

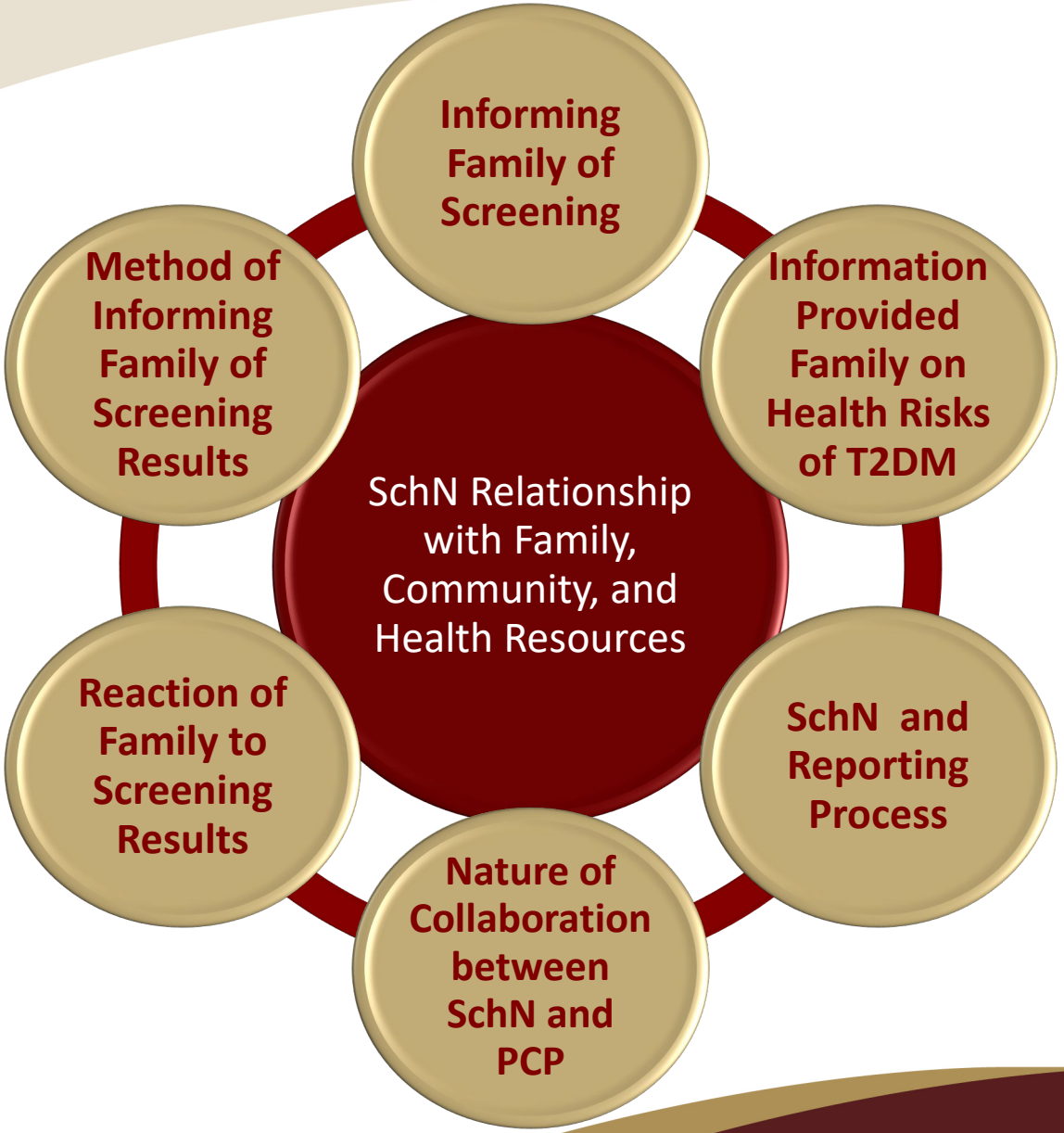
- Field notes

Semi-structured Interviews

- Audio recorded
- Verbatim Transcription
- Interviewer notes

Analysis

- Two coders
- Initial review of all data for common patterns and themes
- Comparative review of common themes/investigator consensus when differences



Results

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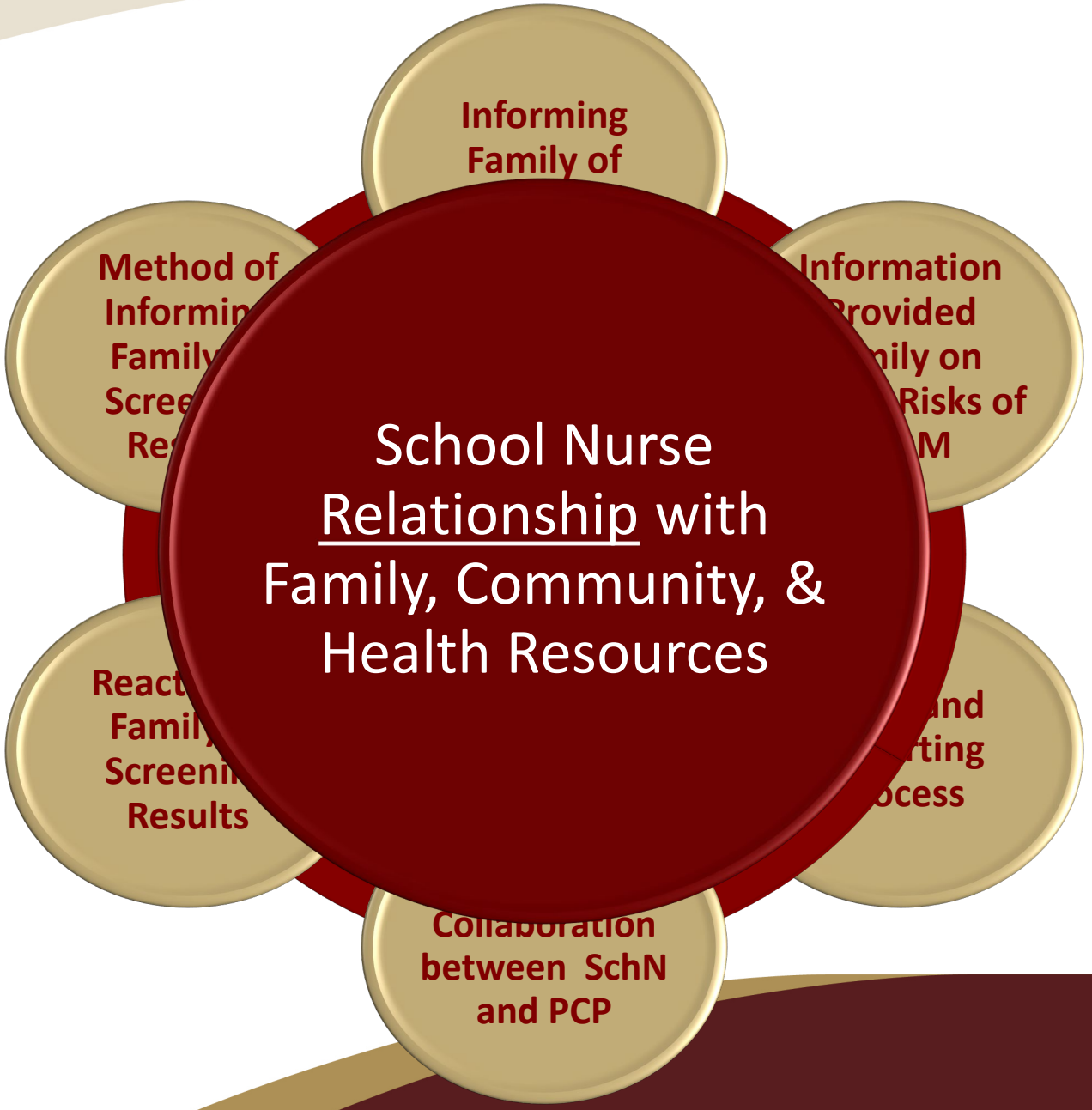

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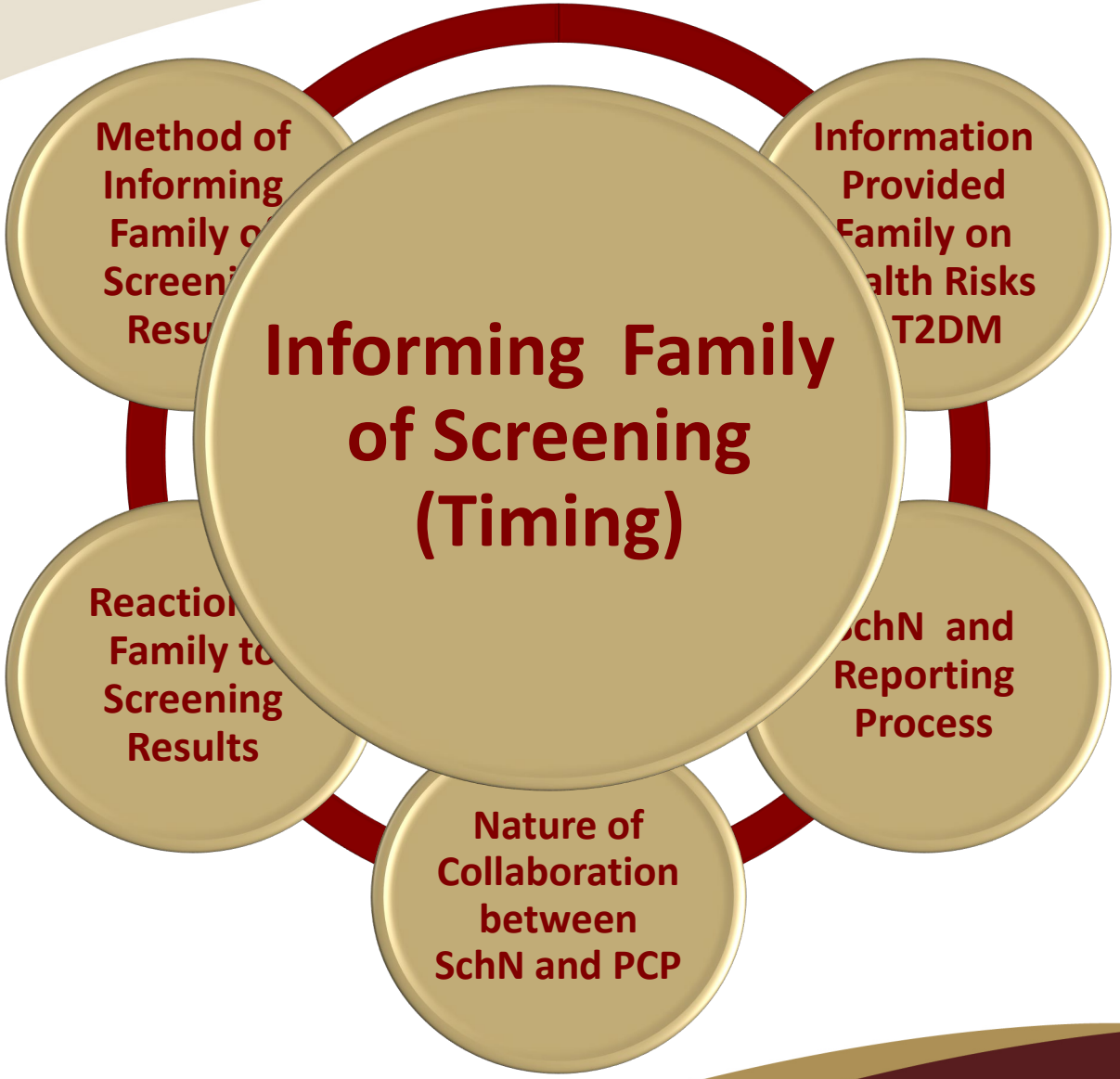
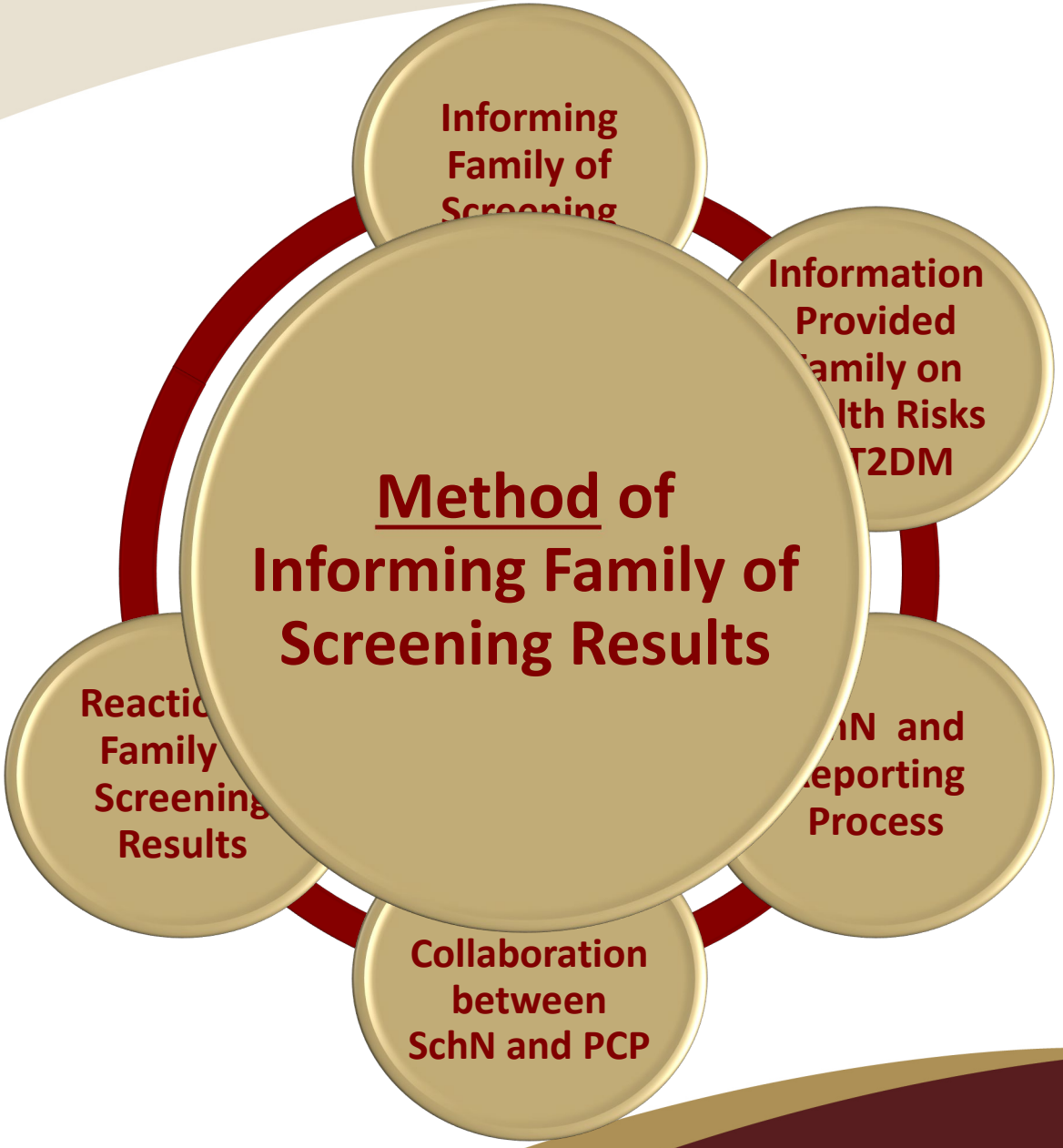


- Family notification of screening
- Timing of notification
- Method of Notification



- What is included in notification
  - *TRAT2DC Documents*
  - *School developed documents*
- Alerting family that results are coming to them
- Method of delivering screening results

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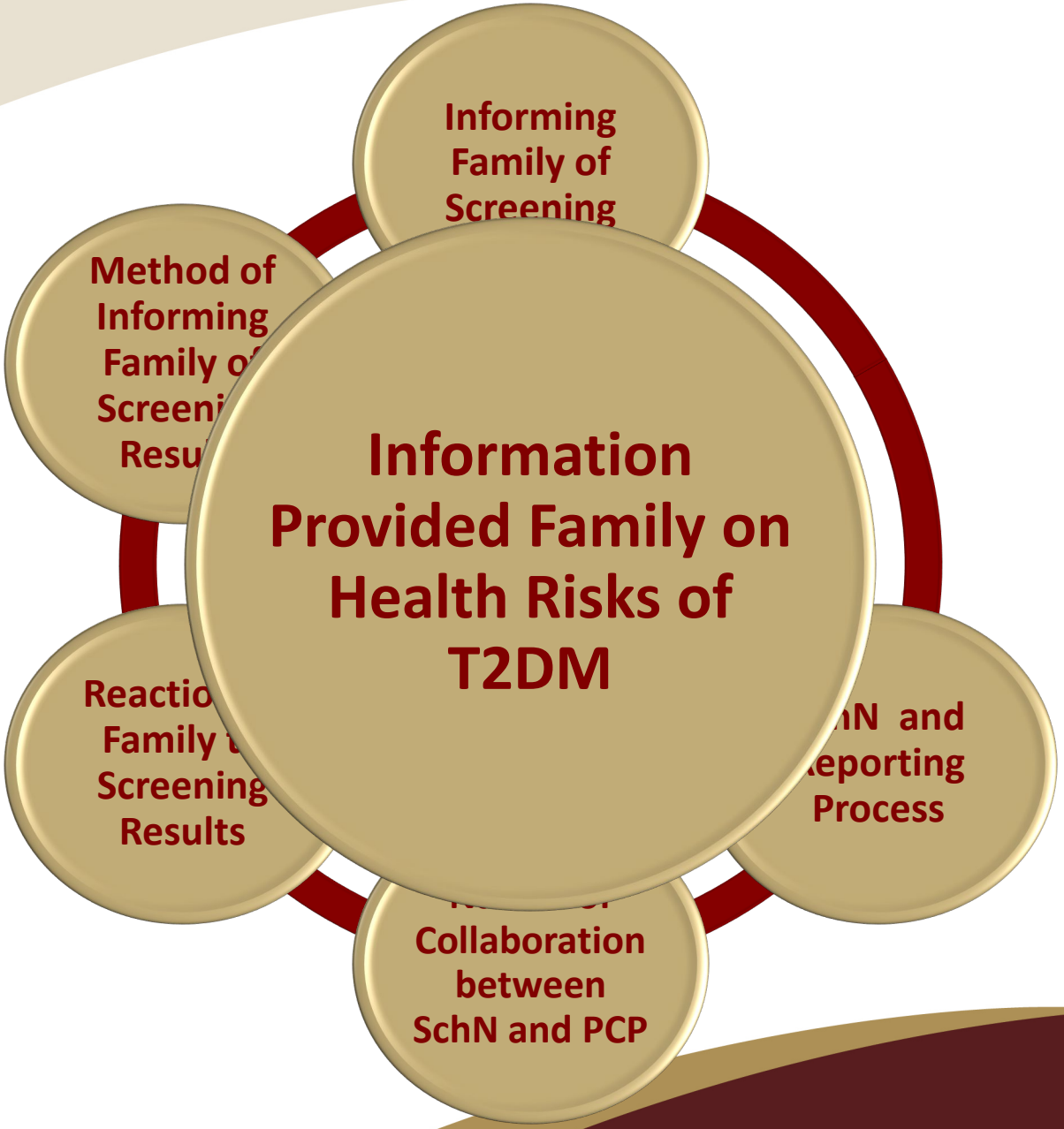

- Information within TRAT2DC documents
- School based interventions focusing on T2DM
- Wish list

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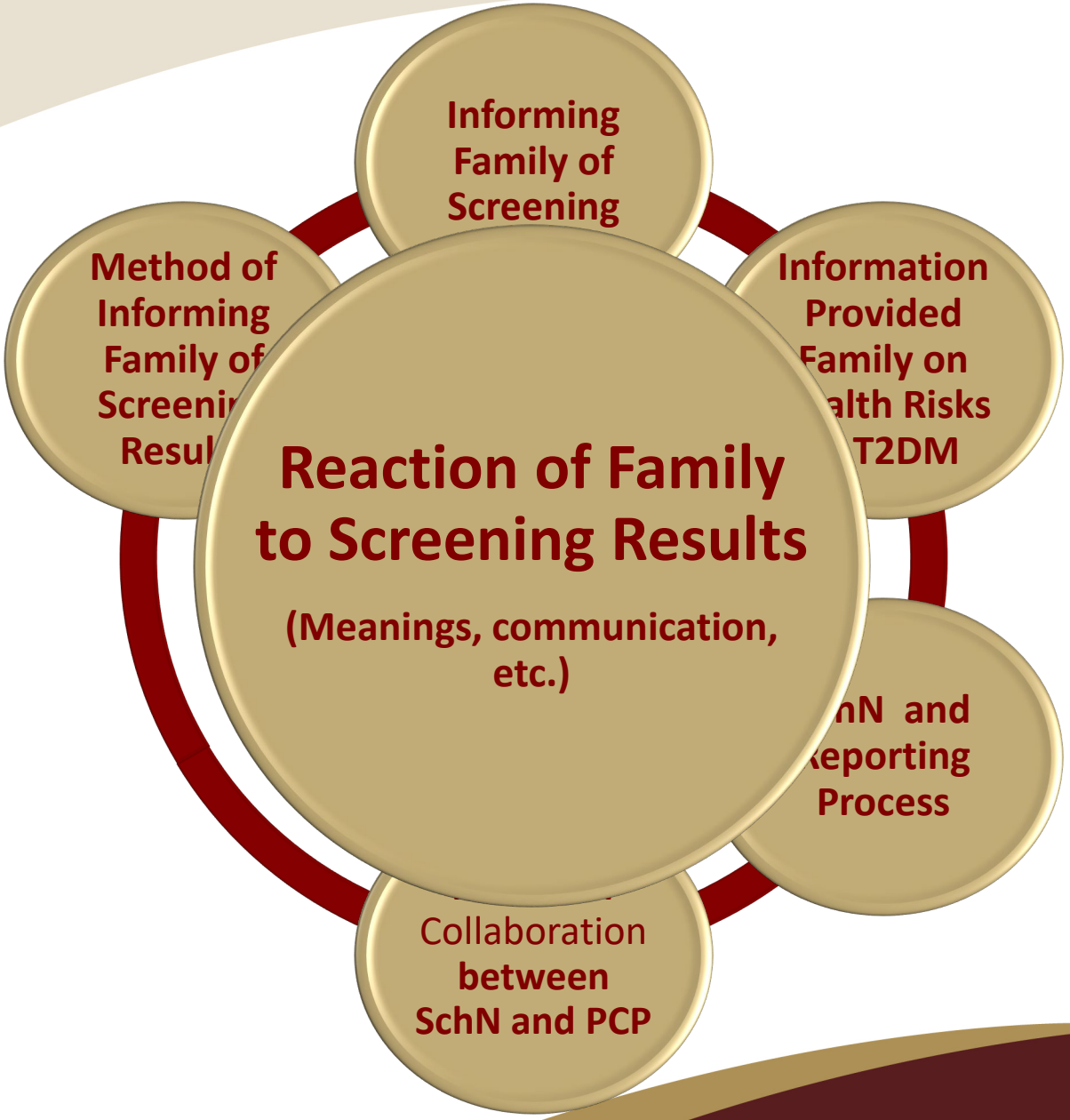

- Emotional reactions
- TRAT2DC document critique
- Change in student risk factors

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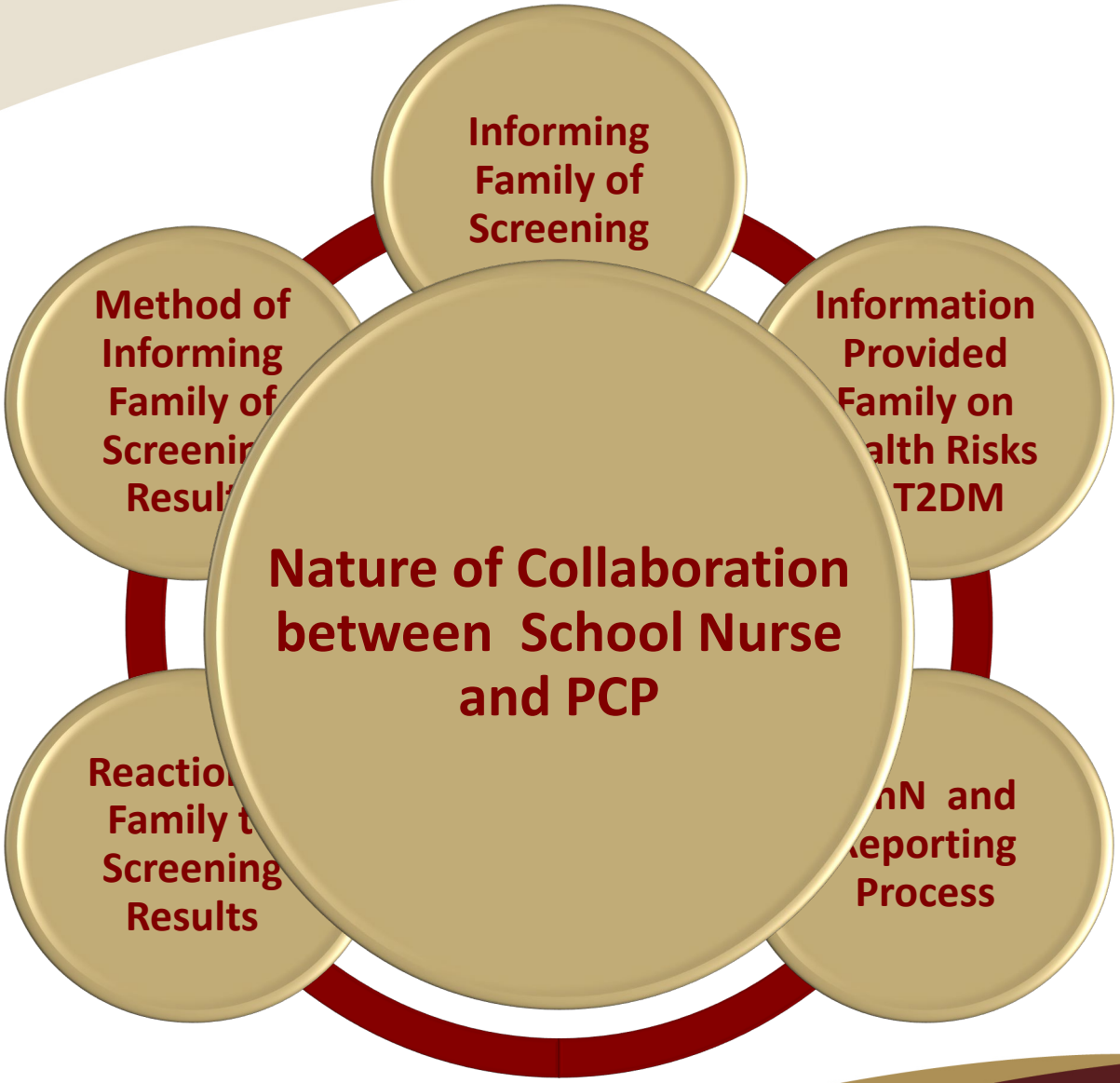
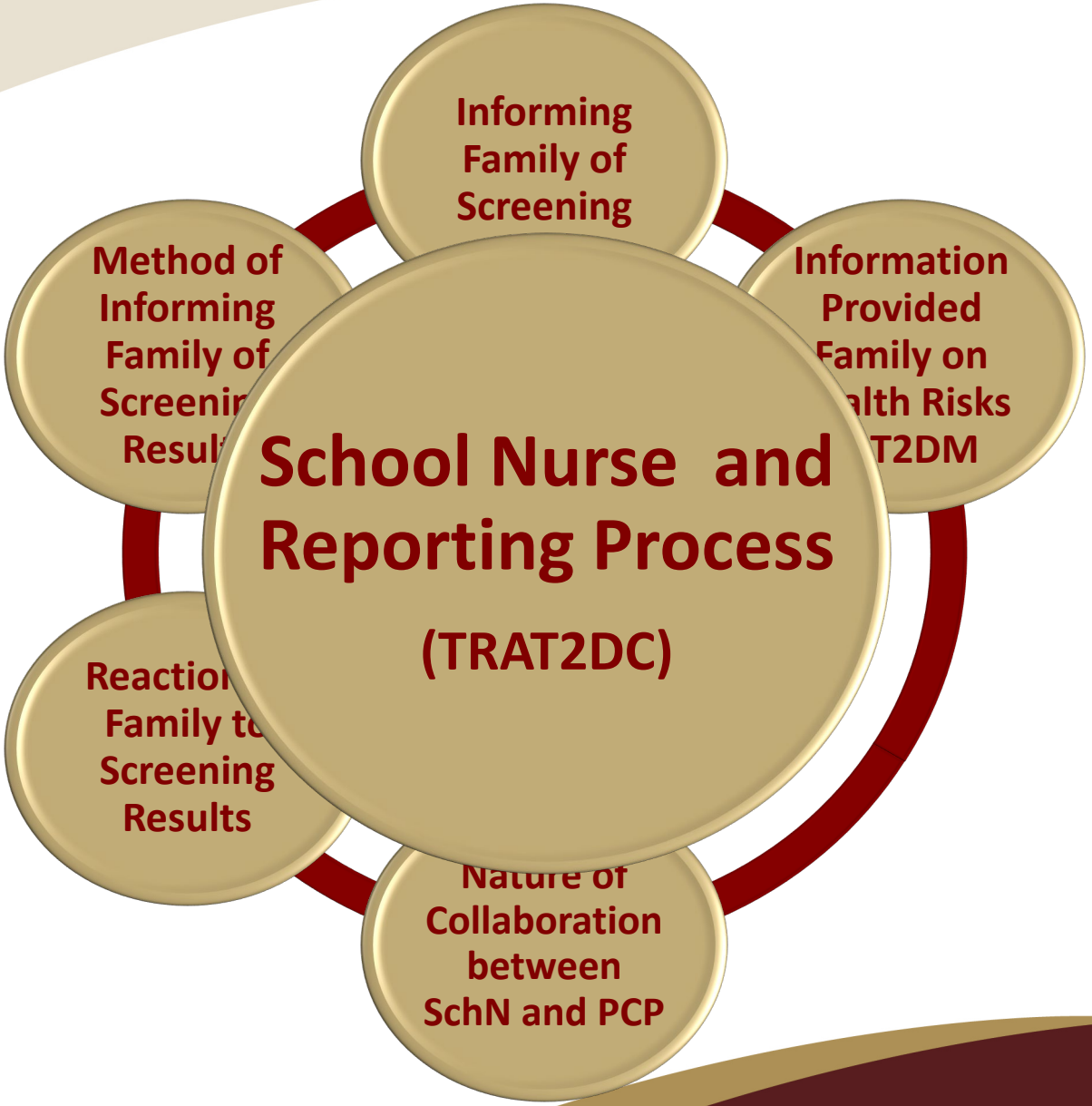


- Rating the relationship between School Nurse and PCP
- Type of feedback School Nurse receives from PCP
- Type of follow-up care from PCP



- Workload on School Nurse
  - *Cost /benefit of program to student population*
- Redundancy of reporting
- Partnership in data sharing

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Limitations

- Sample size limited
- Geographic representation of participant sample limited
- TRAT2DC data access limitations

Implications

- Increase T2DM education within Texas schools.
- Develop a more efficient mechanism of identifying, tracking, and following-up at risk children as they mature within the school system.
- Using findings of this study, expand T2DM research across a larger population of Texas school nurses.
- Identify targeted interventions aimed at reducing T2DM in children.
- What about physician extenders in school systems?
- So much more……

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