

# Screening of congenital hypothyroidism using umbilical cord blood in a maternity hospital

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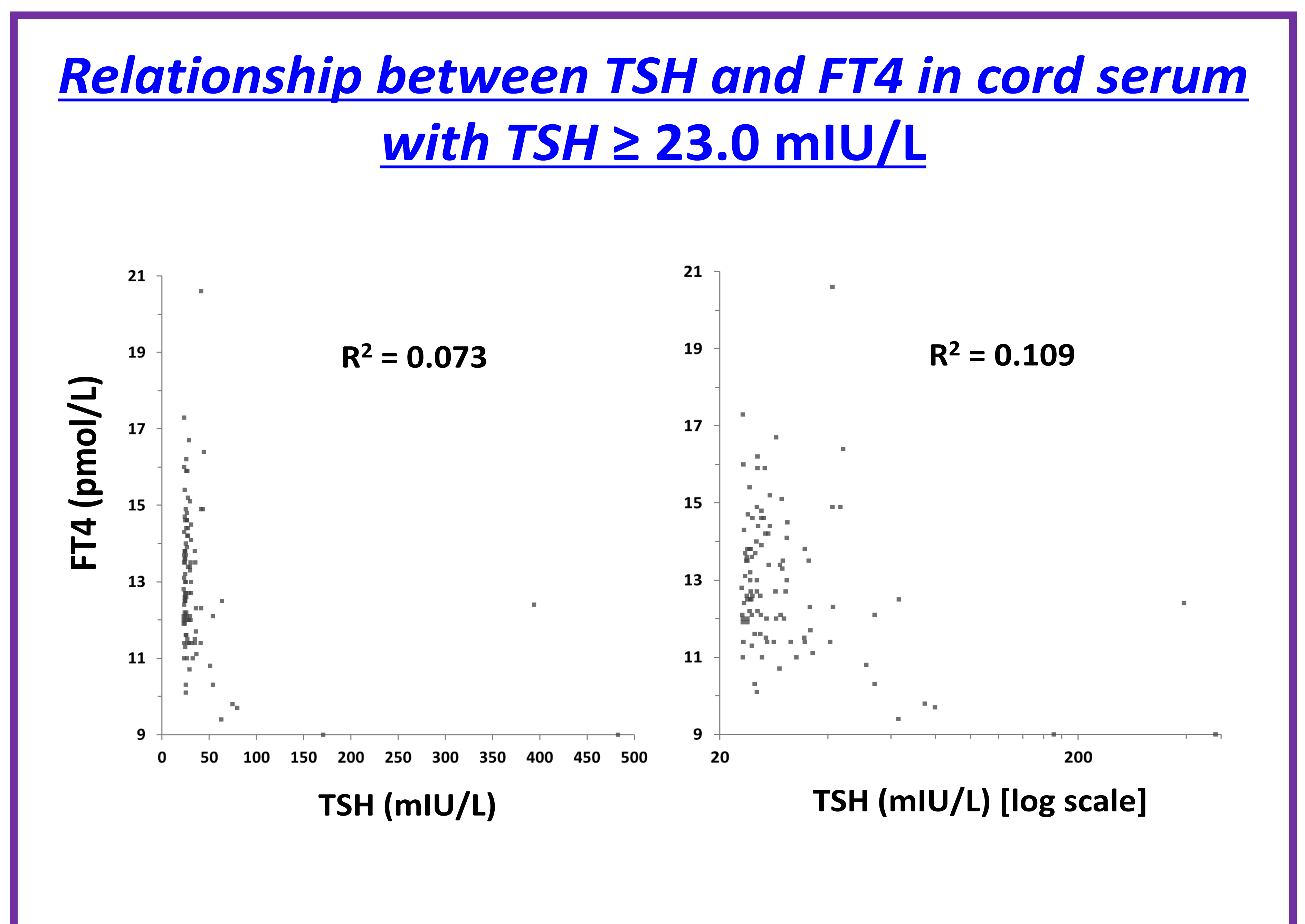
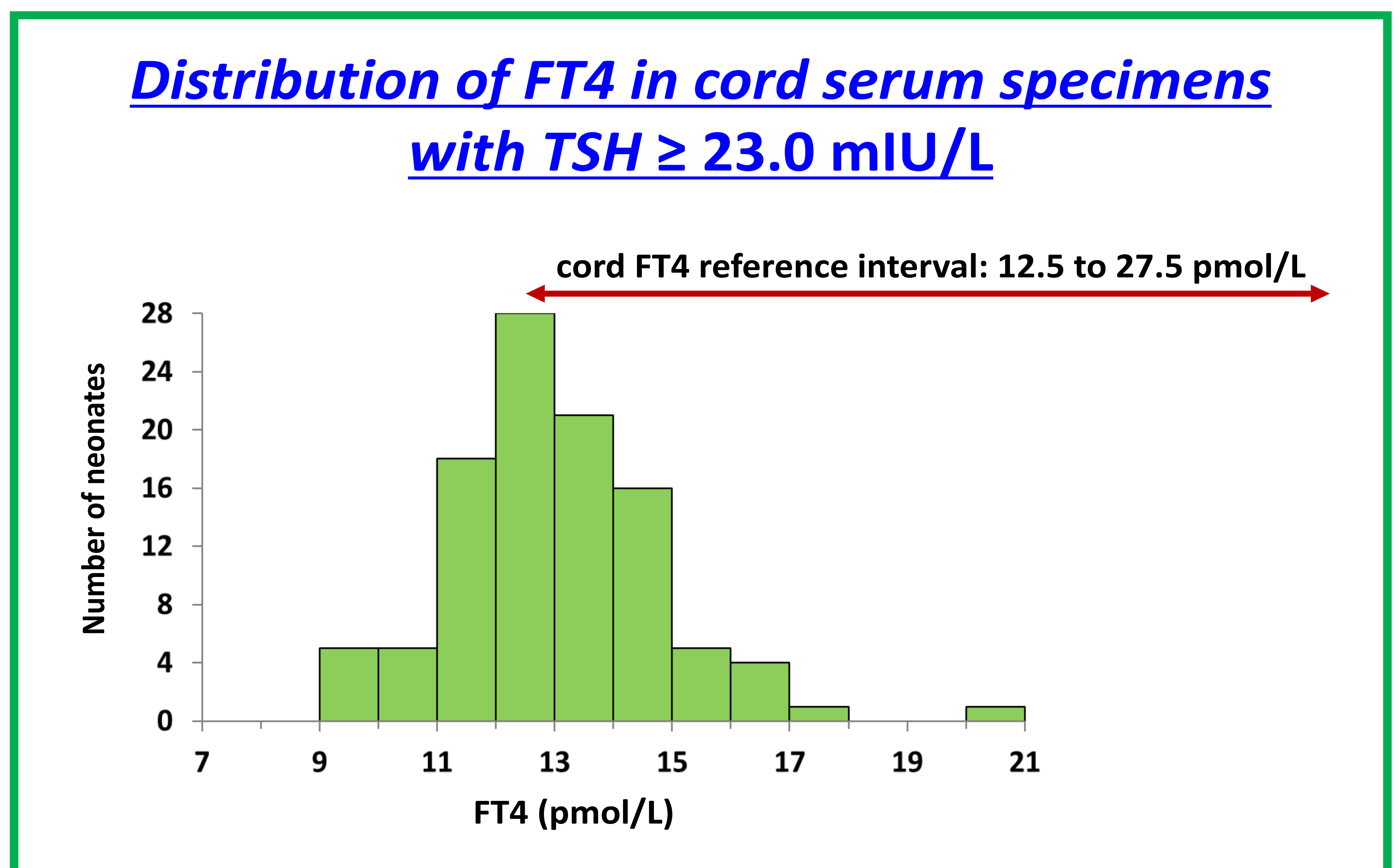
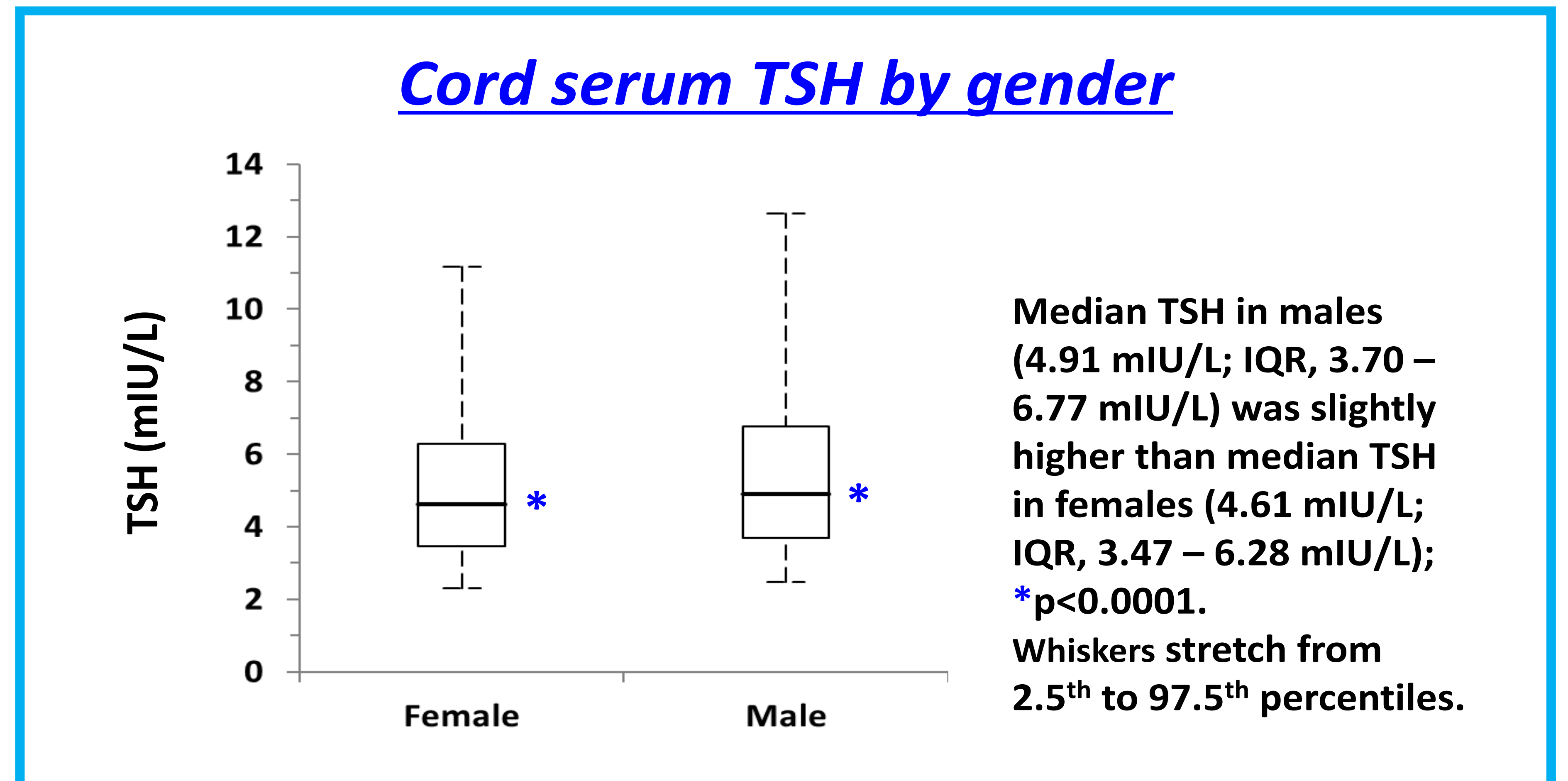
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## BACKGROUND

- Approximately one baby in 2000-3000 is born with congenital hypothyroidism (CHT).
- To screen for CHT, most Western countries use a blood spot collected on day 3 to 5 of life, whereas screening programmes in some countries measure umbilical cord serum thyroid stimulating hormone (TSH) and/or free thyroxine (FT4).
- In our maternity hospital in Singapore, umbilical cord serum TSH concentration is routinely measured for all newborn babies.

## METHODOLOGY

- Umbilical cord serum TSH and FT4 concentrations were measured using automated immunoassays (Abbott Architect). Cord TSH (with or without FT4 results) generated from this screening programme between January 2016 and December 2017 (24 months) were retrospectively reviewed.
  - FT4 was reflex-tested in the same cord serum specimen if TSH concentration was  $\geq 23.0$  or  $\leq 1.0$  mIU/L.
- ## RESULTS
- 11130 females (47.9%) and 12127 males (52.1%) were screened for CHT.
  - Cord TSH concentrations ranged from  $<0.01$  to 482 mIU/L in this cohort.
  - Approx. 0.5% of specimens underwent reflex measurement of FT4 (when cord TSH was either  $\geq 23.0$  mIU/L or  $\leq 1.0$  mIU/L).



### Distribution of cord serum TSH

Cord TSH (mIU/L)	N	%
<0.01	1	0.00
0.01 to 0.99	12	0.05
1.00 to 2.19	729	3.13
2.20 to 9.99	20602	88.58
10.00 to 14.99	1317	5.66
15.00 to 19.99	389	1.67
20.00 to 24.99	140	0.60
25.00 to 29.99	37	0.16
30.00 to 39.99	14	0.06
40.00 to 49.99	6	0.03
50.00 to 99.99	7	0.03
>100.00	3	0.01
Total	23257	100.00