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### The use of Procalcitonin as a sepsis marker in a community hospital: Preliminary analysis

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**BAPTIST HEALTH SOUTH FLORIDA** An academic affiliate of the **FIU** Herbert Wertheim College of Medicine

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# Background

Procalcitonin (PCT) is a relatively new biomark that aids in the diagnosing and monitoring of sepsis. Its levels begin to rise as soon as 3-6hours after an infection is detected by the immune system. In academic and research centers, it has shown to be an early and highly specific marker in response to sepsis and severe systemic bacterial infections.

## Purpose

Explore and describe the use of PCT in a community hospital setting to include:

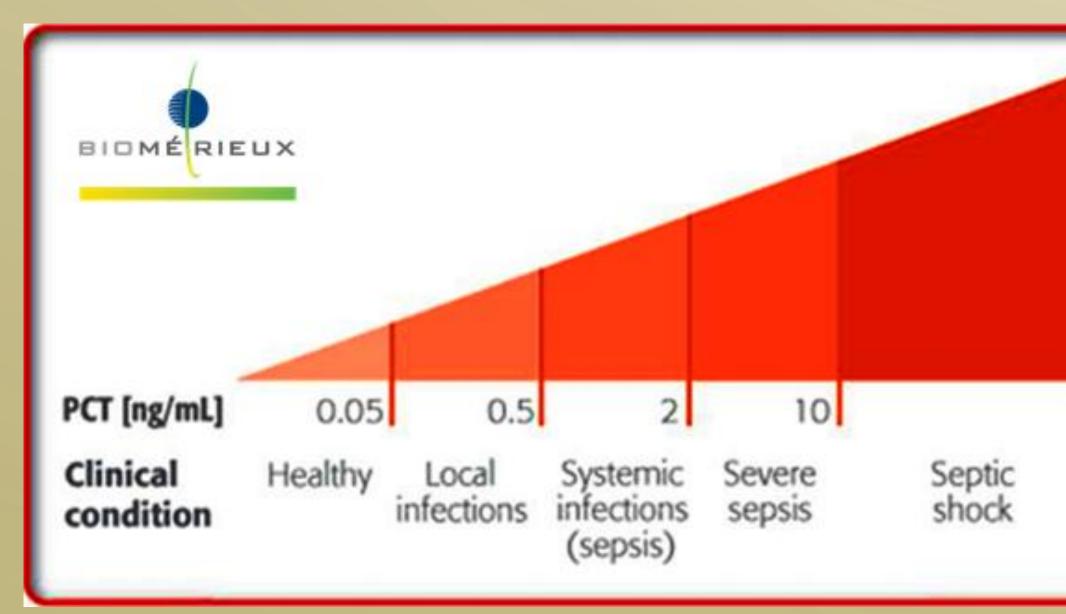
- A review of its diagnostic accuracy in predicting sepsis and if it is useful as an ea marker.
- A review of PCT's utilization on direct cost and length of stay (LOS) for sepsis patients

# Methods

Two methods are being utilized:

Method 1: Exploratory descriptive casecontrol study using a secondary analysis of retrospective data over an 8-month period after implementation of PCT.

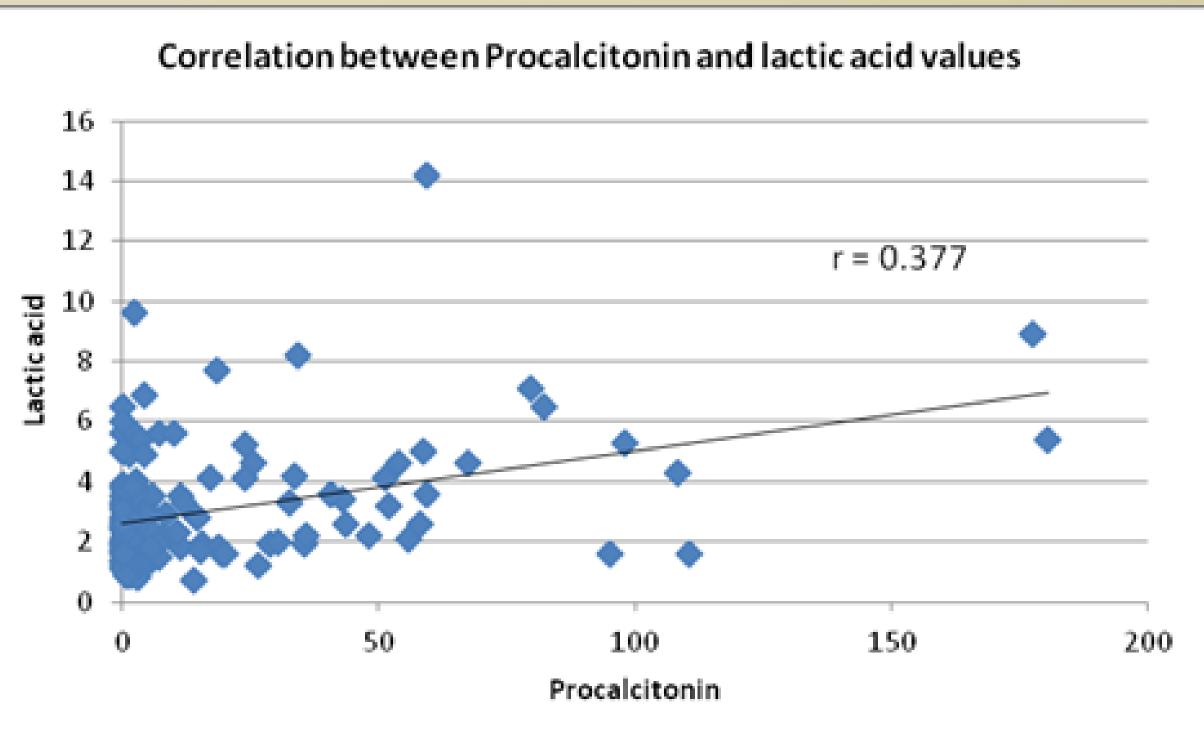
Method 2: Retrospective quasi-experimental study using a historical control group of an 8-month period before implementation of PCT.



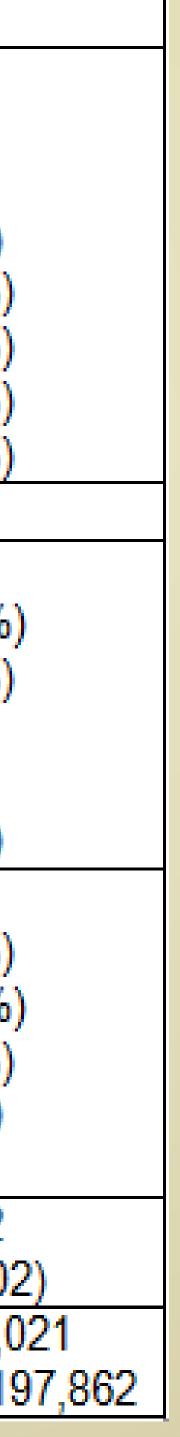
# West Kendall The use of Procalcitonin as a sepsis marker in a community hospital: Baptist Hospital Preliminary analysis Preliminary analysis

	Table 1: Septic patient characte from January 2014-July 2015 (n	
ker	Cases identified	233
	Age group	
6	20-29	5 (2.1%)
0	30-39	8 (3.4%)
	40-49	11 (4.7%)
	50-59	24 (10.3%)
У	60-69	39 (16.7%)
	70-79	58 (24.9%)
	80+	88 (37.8%)
	Gender (% male)	50.6%
	Race	
	White Hispanic	179 (76.8%)
	White non-Hispanic	26 (11.2%)
	Black Hispanic	5 (2.1%)
	Black non-Hispanic	9 (3.9%)
	Other	14 (6.0%)
arly	Discharge status	
	Home	77 (33.0%)
	Discharge to specialty nursing	115 (49.4%)
S.	Expired	25 (10.7%)
3.	Discharge to other acute facility	11 (4.7%)
	Other	5 (2.1%)
	Average LOS (±SD)	8.5 ± 11.2
		Range (1-102
	Average costs (±SD)	\$14,203 ± 23,0
		Range \$1,306-\$19

### Figure 1: Method 1 – Data collected from January 2014 – July 2015



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# **Preliminary Findings**

The preliminary results in Table 1 show 233 cases of which:

The majority of patients were 70 years or older (62.7%) and White Hispanic (76.8%). Nearly half (49.4%) required discharge to 

a specialty nursing facility.

Both LOS (1-102 days) and direct hospital cost (\$1,306 to \$197, 862) vary widely between patients.

There is a significant correlation between PCT and lactic acid levels (Figure 1: r = 0.377, p < 0.001).

## Discussion

A diagnosis of sepsis has profound implications for our older patient population and the hospital including extended LOS, extended recovery after discharge, and high cost. Lactic acid have been considered the gold-standard marker for sepsis. We have demonstrated good correlation, in a community hospital setting, between PCT and lactic acid levels, suggesting that the earlier rise of PCT may be advantageous for diagnosing and treating sepsis. These preliminary results will drive the second portion of the study which will review direct cost and LOS pre- and post-implementation of PCT use.

## **Implications for Practice**

If PCT implementation results in improved outcomes, LOS and / or cost, consideration should be given to expanding its use throughout the Baptist Health South Florida system.

