TeleNeph

Keeping Care Local

Oklahoma Rural Health Conference 2022

Rural Health Association of Oklahoma

October 26, 2022

Keeping patients local, hospitals sustainable via Tele-Nephrology

Tele-Health – Not about Technology – it is Keeping Patients Local

- A Lancet article from 1879 noted the benefit of diagnosis by telephone.
- A Dutch physician won the Nobel Prize for his work in developing an early electrocardiogram, as described in a paper from 1903.
- A magazine publisher who also invented the first home radio receiver looked at radio's potential for medical diagnosis in 1925, which predicted use of a "teledactyl" in which doctors would examine patients remotely with robotic arms.
- An RSNA paper from 1950 described the use of sending X-rays over the telephone in the Philadelphia area, predicting that it would revolutionize care in rural hospitals.
- Two Nebraska hospitals 112 miles apart established a TV link in 1948 that was used for psychiatric diagnosis, speech therapy, and seminars.
- NASA funded remote monitoring for astronauts that was later used to support a mobile health unit for Arizona's Tohono O'odham tribe.

Chronic Kidney Disease (CKD) …

- How big is CKD?
  - Over 11% of the US population has CKD – 37M
  - 2% of the CKD patients have End Stage Renal Disease (ESRD)
  - 50% of ESRD patients are 65 or older
  - Average ESRD patients goes to the hospital twice a year
  - 1/3 use a wheelchair or walker
  - ½ are transport dependent
  - Transportation cost for ESRD patients annually - over $3B
    - $1.5B is for ambulance – though it is only 5% of all transportation
  - In 2018 CMS spent $130B for CKD

- Other issues:
  - Fewer nephrology fellow graduates each year
  - Increasing patient volume – growing by 5% / year
  - Most Nephrologists reside in the urban area

It is not about the technology – it's about PEOPLE

- It is about the people who live in your community
- It is about delivering quality care … impacting the community
- ESRD / dialysis patients are high utilizers of healthcare
  - Multiple issues – diabetes, hypertension, cardio, etc.
  - Require routine primary care, prescriptions, lab work, and imaging services in addition to their dialysis treatments three times a week

Oklahoma Counties ESRD Numbers

County	ESRD #s	County	ESRD #s	County	ESRD #s
Adair County	52	Grant County	11	Nowata County	24
Alfalfa County	13	Greer County	13	Okfuskee County	28
Atoka County	32	Harmon County	6	Oklahoma County	1,873
Beaver County	13	Harper County	8	Okmulgee County	90
Beckham County	51	Haskell County	30	Osage County	110
Blaine County	22	Hughes County	31	Ottawa County	74
Bryan County	113	Jackson County	58	Pawnee County	39
Caddo County	68	Jefferson County	14	Payne County	192
Canadian County	348	Johnston County	26	Pittsburg County	102
Carter County	113	Kay County	102	Pontotoc County	90
Cherokee County	114	Kingfisher County	37	Pottawatomie County	171
Choctaw County	34	Kiowa County	20	Pushmataha County	26
Cimarron County	5	Latimer County	24	Roger Mills County	8
Cleveland County	293	Le Flore County	117	Rogers County	217
Coal County	13	Lincoln County	82	Seminole County	57
Comanche County	284	Logan County	113	Sequoyah County	97
Cotton County	13	Love County	24	Stephens County	101
Craig County	33	Major County	18	Texas County	47
Creek County	167	Marshall County	39	Tillman County	17
Custer County	68	Mayes County	96	Tulsa County	1,530
Delaware County	101	McClain County	95	Wagoner County	191
Dewey County	22	McCurtain County	77	Washington County	121
Ellis County	9	McIntosh County	46	Washita County	26
Garfield County	144	Murray County	33	Woods County	20
Garvin County	6	Muskogee County	160	Woodward County	47
Grady County	131	Noble County	26		

About 9,000 ESRD Patients

Average ESRD Patients goes to the ER twice a year

Sources:

1. 2017 Incidence of reported ESRD by state, adjusted by age, race, sex and ethnicity, per million population. US Renal Data Systems 2019 Annual Data Report
2. U.S. Census Bureau
3. Centers for Medicare & Medicaid Services as of May 2020

Review why ESRD patients are going to the Hospital …

Top 10 Common Hospitalization Diagnoses*

1. Septicemia (15.8%)
2. Acute and Unspecified Renal Failure (13.5%)
3. Congestive Heart Failure; Non-Hypertensive (6.2%)
4. Diabetes Mellitus with Complications (3.5%)
5. Pneumonia (3.0%)
6. Acute Myocardial Infarction (2.8%)
7. Complication of Device; Implant or Graft (2.4%)
8. Respiratory Failure; Insufficiency; Arrest (2.4%)
9. Urinary Tract Infections (2.1%)
10. Cardiac Dysrhythmias (2.1%)

* Statistical Brief #231. Healthcare Cost and Utilization Project (HCUP). April 2018. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb231-Acute-Renal-Failure-Hospitalizations.jsp.

It takes a TEAM

- Market Evaluation
  - List of number of ESRD patients by zip code / county
  - ESRD Patients transferred out
  - Review hospital data / reach out to dialysis centers
- Financial Impact
  - Potential Revenue
- Involve the hospital TEAM
  - Clinical
    - Hospitalist / Surgeon
    - Nurses
  - Finance – Billing & Coding
  - Operations – co-development of processes / procedures
  - IT – integration / equipment
  - Supply Chain / procurement – dialysis supplies
  - Marketing / Public Relations – evangelist … tell the community
  - HR – CME credits

- At the end - Pro-forma statement & operation plan that focuses on

KEEPING CARE LOCAL

Tele-Nephrology (Clinician to Clinician - C2C)

End to end clinical telehealth nephrology solution for hospitals / patients / care givers

- Keep patients local … within the hospital's community
- Collaboration - with the hospital's clinical team …
- Collaboration - with the patient's care givers – nephrologist / dialysis center
- For some hospitals, it is a NEW service line that impacts:
  - The economics of the community
  - Attain and retain high quality staff

The Telehealth Nephrology solution

- TeleHealth platform – Video / Security / Audit
- Nephrologist – available 24 x 7 / licensed / credentialed
- Doctor's medical notes – integration with EHR via pdf / fax / API
- Integration with Dialysis Equipment – Nephrologist receives alerts
- Face to face clinical team meetings – building trust with the team
- Training on-site
- 24 x 7 access to support
- Provide CME education to clinical staff
- Provide processes & procedures for the tele-nephrology solution
- Communication – the patient's nephrologist, dialysis center and PCP
- Medical Directorship

Fresenius Dialysis Machine in Hospitals (BEFORE)

- **2008T BlueStar Dialysis Machine FMCNA**
  - It is BIG and not very portable
  - More complex
  - More expensive
  - Learning curve is longer

NxSTAGE (NOW)

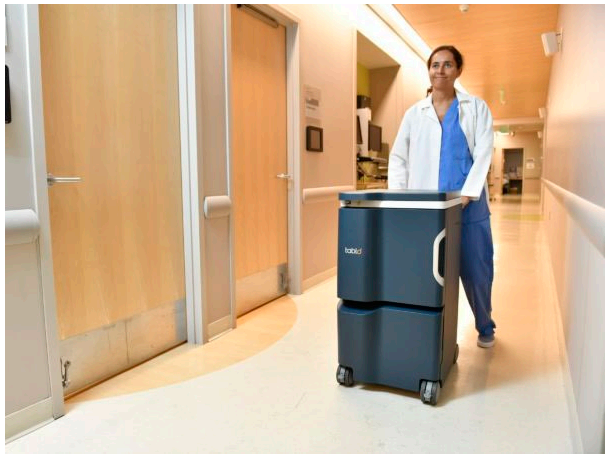
- **Founded in 1998, part of Fresenius Medical Care**
- Based in Lawrence, MA
  - Develops, manufactures and markets innovative products for the treatment of end-stage renal disease (ESRD) and acute kidney failure
  - NxStage® System One S™
    - “Cartridge” System
      - No extensive cleaning between patients
      - No calibrating equipment between patients

NxSTAGE® from FRESENIUS MEDICAL CARE

Tablo (NOW)

- **Founded in 2003**
- Based in San Jose, CA
  - The Tablo Hemodialysis System, FDA cleared for use from the hospital to the home
  - Serve as a dialysis clinic on wheels, with 2-way wireless data transmission and a proprietary data analytics platform powering a new holistic approach to dialysis care

Outset
Better begins now.



Rural Hospital (59 beds) – Year 1

Quarter	1	2	3	4	Year
Inpatients	18	21	21	32	93
Net Patient Revenue	$124,827.88	$149,793.46	$149,793.46	$224,690.19	$649,104.98
Dialysis Supplies	($11,156.24)	($13,387.49)	($13,387.49)	($20,081.24)	($58,012.47)
Cost for Tele-Nephrology	($36,330.77)	($37,246.15)	($37,246.15)	($41,806.73)	($152,629.81)
Net Revenue to the Hospital	$77,340.87	$99,159.81	$99,159.81	$162,802.22	$438,462.70

Based on assumptions listed in this presentation. Actual numbers may vary.

CAH – Dialysis Program Impact

	Total Dialysis Treatments	Initial Service Date	Total Charges	Acute Patient Days	Observation Days	Total Patient Days
Patient #1	1	07/06/19	37,574		3.1	3.1
Patient #2	1	07/17/19	10,501		2.3	2.3
Patient #3	3	07/23/19	74,184	5.0		5.0
Patient #4	1	07/23/19	19,932	6.0		6.0
Patient #5	3	07/25/19	38,851	6.0		6.0
Patient #124	3	04/10/20	60,445	7.0		7.0
Patient #125	1	04/14/20	7,361	2.0		2.0
Patient #126	1	11/11/19	38,928	5.0		5.0
	225		**3,703,318**	**335**	**65**	**400**

Est. Net Revenue (7/6/2019 - 5/13/2020) **1,351,711**

Annualized Gross (Est.)	**4,304,812**
Net Revenue (Est.)	**1,571,256**

Avg Dialysis Treatments Per Patient

1.8

Dialysis ADC

0.7

CAH Business Case - background

- Location: Arizona – 1.5 hours away from Phoenix
- Population:
  - City: 7,000+ ESRD: 17
  - County: 54,000+ ESRD: 126
- Hospital:
  - CAH with 25 beds
- Joint Analysis (CAH / TeleNeph)
  - CFO / CEO – reviewed financials
  - Clinical Team – met with them (face to face)
  - Training / Support
  - Dry run
- Today
  - Last 12 months they had 100 ESRD patients via their ER

Per the Hospital TEAM …

"All those patients now stay here," said the **CEO of CAH in AZ**. "All that business stays in the local community, which is very positive for the hospital. Overall, it's been nothing but a positive."

Today, patients needing dialysis at CAH consult with Dr. Sahani via telemedicine and, if necessary, are administered dialysis at the hospital from trained nurses. This system has been a win-win—for patients, their families, and the hospital per the **Chief Nursing Officer.**

For dialysis patients, traveling back and forth to Phoenix was "really very burdensome on them and their families," said the **Chief Nursing Officer**. "To be able to provide [dialysis] here, where their families are close and they can come in, I really think it's made a huge difference."

"They may need surgical intervention, they may need cardiac intervention...and so those service lines are doing better because we're more efficient and more able to care," **CEO** said. "It makes a lot of sense," **CEO** said. "It's actually far more successful than we ever dreamed of."

Keeping Care Local

Emergency Room

Hospital

Consultation/
Care Management

An end-to-end clinical Nephrology solution

- TeleHealth platform – Video / Security / Audit
- Nephrologist – available 24 x 7 / licensed / credentialed
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- Training on-site
- 24 x 7 call center support
- Provide processes & procedures for the tele-nephrology solution
- Communication – the patient's nephrologist, dialysis center and PCP

Other Services

- Medical Directorship
- Provide Hospital Staff with CME education

Open for Discussion

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