

The logo for HIMSS 18, featuring the word 'HIMSS' in a bold, sans-serif font, followed by '18' in a larger, blue, stylized font.

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Conference & Exhibition | March 5–9, 2018

Las Vegas | Venetian – Palazzo – Sands Expo Center

Innovative Use of Technology in the Home to Improve Diagnosis and Care: A Davies Story

Session #222, March 8, 2018

Joseph Humphry, MD, Medical Director, Lāna'i Community Health Center

Matthew Kull, Senior Vice President and CIO, Parkland

Joseph Longo, Vice President of IT Enterprise Technologies, Parkland

COMMITMENT

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DISCLAIMER: The views and opinions expressed in this presentation are those of the author and do not necessarily represent official policy or position of HIMSS.

Conflict of Interest

Joseph Humphry, MD, Medical Director, Lāna'i
Community Health Center

Matthew Kull, Senior Vice President and CIO of Parkland

Joseph Longo, Vice President of IT Enterprise
Technologies for Parkland

Has no real or apparent conflicts of interest to report

Agenda

- Lāna'i Community Health Center: an introduction
- The evidence for self-measured blood pressure
- Barriers to adopting a new standard of care for blood pressure management
- A new model of care; this is our story
- Our integrated technology
- Value equation
- Conclusion

Learning Objectives

- Understand the evidenced-based medicine that strongly supports using self-measured blood pressure to diagnosis and manage hypertension
- Describe the important role of IT in providing data integrity and effective analysis
- Comprehend the need for effective delivery system change to move a population on to self-measured blood pressure
- Explain how IT involvement in the project was a critical component for success
- Recognize the benefits this program has had on patient care
- Discuss the importance of giving patients the freedom to become more involved in their own care

About Lāna'i Community Health Center

- 501(c)3 Non-profit Organization
- Federally Qualified Health Center (FQHC)
- Provides services to approximately to 60% of the island's population
- LCHC provides holistic, INTEGRATED medical, dental, and behavioral health services
- Total number of employees is approximately 40, most are full time and hired local from the community
- Clinical professionals include 2 full-time Family Nurse Practitioners, the Medical Director .25 FTE clinical, 2 full-time psychologist and the dental team
- LCHC saw 2,010 unduplicated patients in 2017 and had 9,335 visits

The Island of Lānaʻi

- Plantation history: "The Pineapple Island"
- Population of 3,100
- Diverse mostly Asian/Hawaiian/Pacific Islander
- Over 40% of residents – Filipino
- 30 miles of paved road
- Amazing hikes, gorgeous beaches, fresh air
- Current primary economic driver is the hotel/hospitality industry



Why self-measured blood pressure (SMBP)? Its time has come!

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

SHATTUCK LECTURE

The Future of Public Health

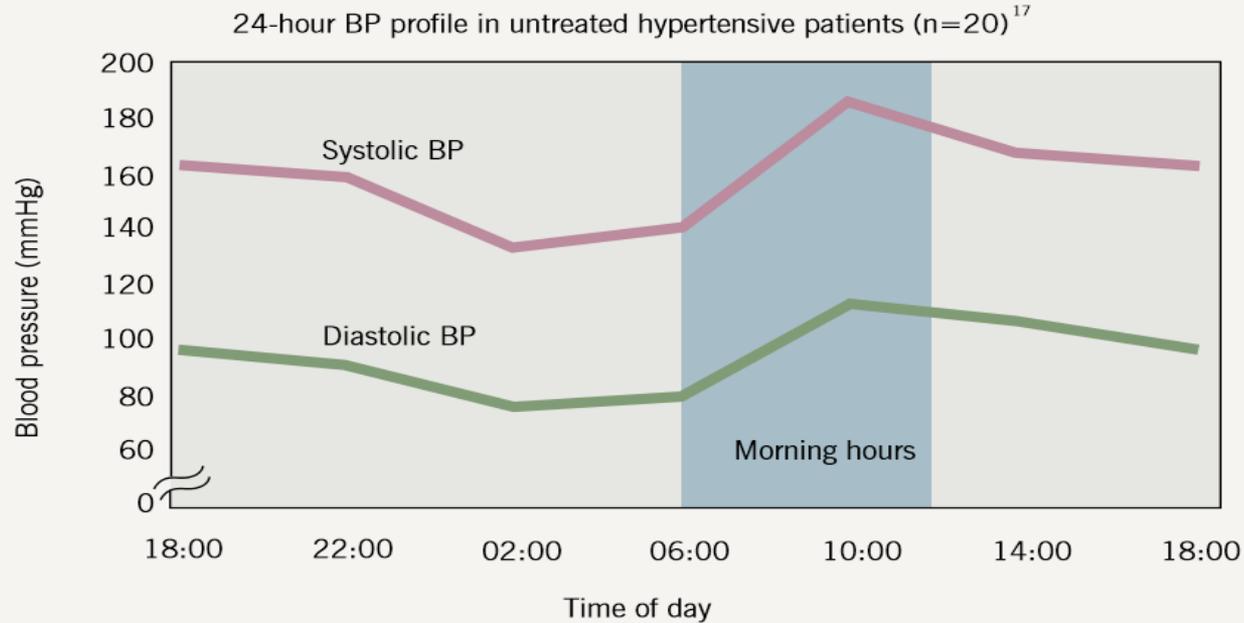
Thomas R. Frieden, M.D., M.P.H.

Blood-pressure control, which can save more lives than any other clinical intervention, is successful in only about half of Americans; nearly 90% of patients with uncontrolled hypertension have both health insurance and a regular source of care, and more than 80% have multiple contacts with the health system each year.

Blood pressure measurement and detection of hypertension.
By: Pickering, Thomas G., Lancet, 00995355, 7/2/1994, Vol.
344, Issue 8914

“Hypertension can be identified only by measurement of the blood pressure. However, conventional detection methods are unreliable for three main reasons: (a) technical inaccuracies, some of which are avoidable; (b) the inherent variability of blood pressure; and (c) the tendency for blood pressure to increase in the presence of a physician (white-coat hypertension).”

Figure 1. The circadian rhythm of blood pressure¹



Key: BP= blood pressure

4.2. Out-of-Office and Self-Monitoring of BP

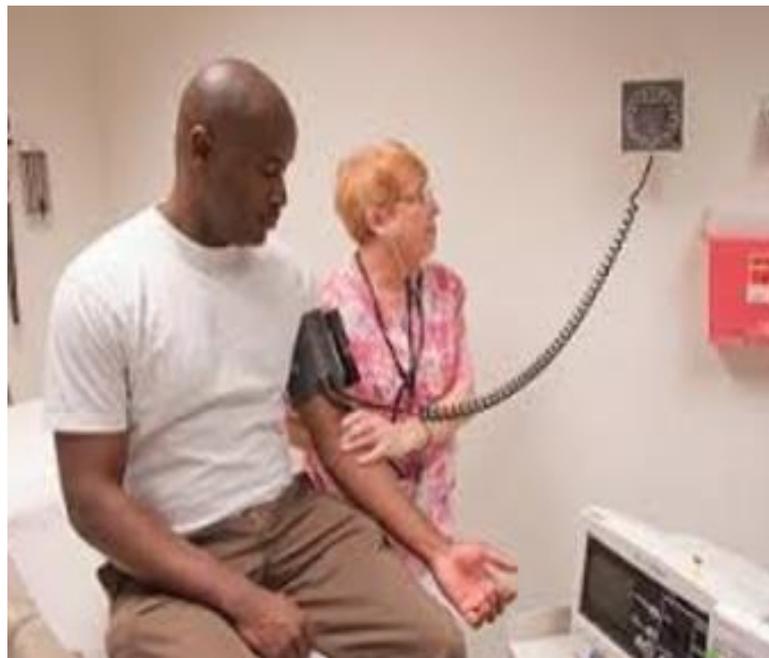
Recommendation for Out-of-Office and Self-Monitoring of BP		
References that support the recommendation are summarized in Online Data Supplement 3 and Systematic Review Report.		
COR	LOE	Recommendation
I	A ^{SR}	1. Out-of-office BP measurements are recommended to confirm the diagnosis of hypertension (Table 11) and for titration of BP-lowering medication, in conjunction with telehealth counseling or clinical interventions (1-4).

SR indicates systematic review.

AHA/ACC Guidelines Nov. 2017

Out-of-the Office Blood Pressure Measures are recommended for **Diagnosis and Treatment**

You can't get there from here!



Our Story: Translating Research into Practice

JAMA. 2013 July 3; 310(1): 46–56. doi:10.1001/jama.2013.6549.

Effect of Home Blood Pressure Telemonitoring and Pharmacist Management On Blood Pressure Control: The HyperLink Cluster Randomized Trial

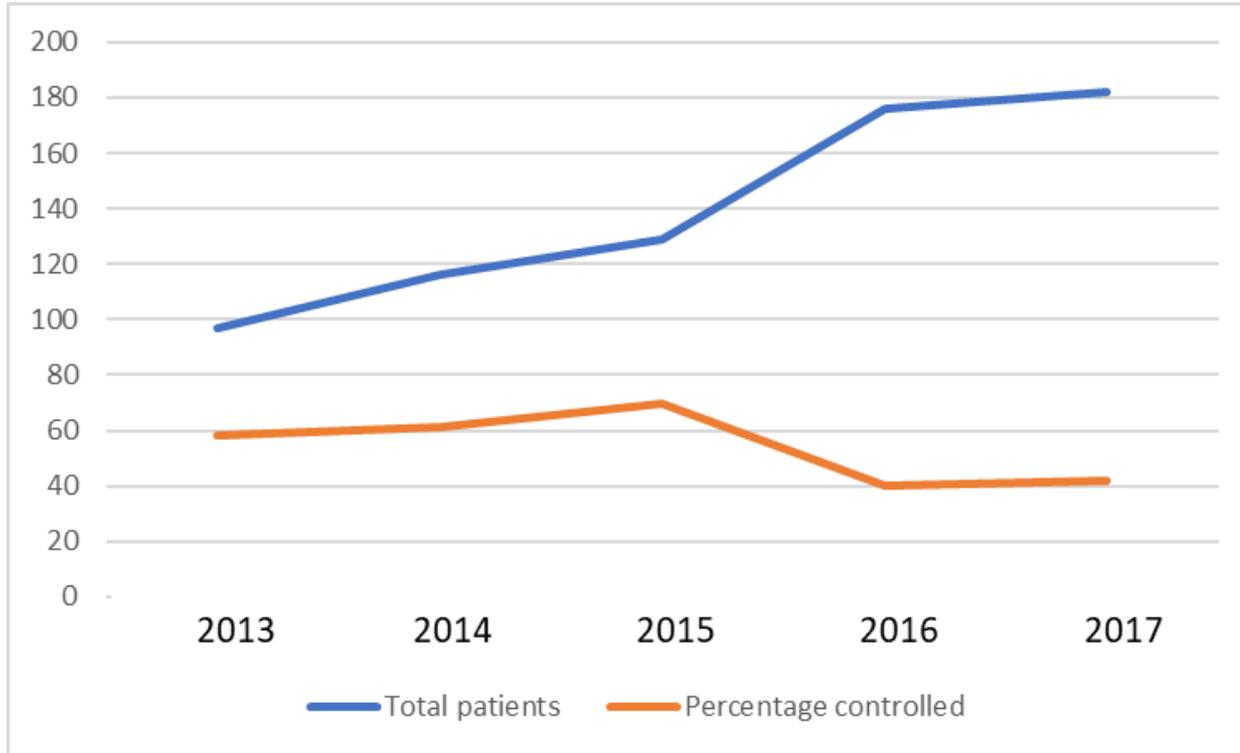
Karen L. Margolis, MD, MPH^a, Stephen E. Asche, MA^a, Anna R. Bergdall, MPH^a, Steven P. Dehmer, PhD^a, Sarah E. Groen, PharmD^c, Holly M. Kadrmas, PharmD^c, Tessa J. Kerby, MPH^b, Krissa J. Klotzle, PharmD^c, Michael V. Maciosek, PhD^a, Ryan D. Michels, PharmD^c, Patrick J. O'Connor, MD, MPH^a, Rachel A. Pritchard, BA^a, Jaime L. Sekenski, BS^a, JoAnn M. Sperl-Hillen, MD, MPH^a, and Nicole K. Trower, BA^a

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^cHealthPartners, Clinical Pharmacy, PO Box 1309, MS 21111B, Minneapolis, MN 55440-1309

Hypertension patients and control



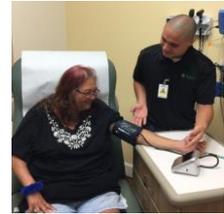
	Total Patients	Percentage
2013	97	58%
2014	116	61%
2013	129	70%
2014	176	40%
2015	182	42%

Translating Research into Practice: Self-Measured Blood Pressure

- Selected off-the-shelf BP cuffs (BHS certified) rather than costly telehealth system; the BP cuff had a standard XML structure allowing easy upload interface into our information system (cost: \$35-\$40)
- Patients with HBP purchased the BP cuffs to be part of the program
- Initial plans to start small were scrapped when almost all HBP patients purchased the BP cuff and signed up for the program
- Initiated home-based data collection and management with an MA and APRN visiting patient's home, as an option to an office visit

Team-based care

- Patient engagement: Self-management, data gathering and transmission, share decision making
- Roles of MAs and CHWs: Training and partnering with patients, BP data uploads and tracking, lifestyle coaches and communication to providers
- Pharmacy integration: Available clinical data including home BP and BG readings to assist in medication management; partners in treatment protocol and providing medication management via telehealth
- Providers: Standardized treatment protocol for uniform patient management, shared decision-making, interpretation of home readings and supervision of MAs and CHWs



Data integration

Using the right software for the right function

EHR: Replaces paper chart and practice management



Nightly data upload from EHR

Data warehouse
Population reporting, decision support
Analytic



Care Management (Cloud based)
Clinical data
Patient generated data
Integration



Pharmacy Access



Patient portal
Patient generated data,
Education
Communication

Note: Most EHRs are legacy systems structurally designed to store and retrieve individual patient records generated in the office setting. Storing patient generated data (SMBP and SMBG) is always possible, but likely very expensive to achieve. EHRs are not designed to accept or manage the patient generated data.

Current status of hypertension- LCHC

- Number of Hypertension patients: UDS 196 (12/7/2016-12/7/2017)
- Number of Hypertension patients: DX 245 (12/7/2016-12/7/2017)
- Number of BP Cuffs (Estimate): 150 (Each cuff can have 2 patients)
- Number of CVS Series 800 (Bluetooth): 40

CMS MH CVD Risk Model

ASCVD Risk Estimator: Deborah Test (05/24/1961)

* Gender: Male Female

* Race: API - Other

* Age (Years): 56

* Total Cholesterol (mg/dL): 210

* HDL - Cholesterol (mg/dL): 43

* Systolic Blood Pressure (mm Hg): 160

Treatment for Hypertension:

History of Diabetes:

Current Smoker:

Aspirin Therapy:

* =Required Field

Results

Baseline 10-Year ASCVD Risk 13.7%

This analysis provides the PROSPECTIVE 10-year ASCVD risk estimate and the EXPECTED AVERAGE risk preventive intervention based on Longitudinal ASCVD Risk Estimator

Data Integrity of SMBP

Poor Reliability and Poor Adherence to Self-Monitoring of Blood Glucose Are Common in Women With Gestational Diabetes Mellitus and May Be Associated With Poor Pregnancy Outcomes

- SMBP automated data collection is an **essential component** to avoid errors in recording and management
- Patient's BP logs should not be used

Value

Accessible, Easy, and Convenient

- Off-the-shelf BP cuffs make the essential equipment easily available and affordable
- CHWs improves e-health patient literacy in using communication technology
- CHWs increase contact time for the patient providing the home visit as an option to an office visit

Value

Cost savings

- SMBP is more accurate at establishing the diagnosis when compared to office readings
- SMBP reduces drug costs by reducing the number of medications and the required dosage
- CHWs and home- and community-based care reduces office visits and the patient's time away from work
- Reduced CVD mortality & morbidity with the associated cost savings

Value

Improved quality of care

- Patient engagement improves knowledge and adherence
- Technology provides a high level of data integrity and complex analytics
- Population medicine is supported with large data sets for research and quality improvement

Transformation of the Delivery System

- Good science
- Patient engagement
- Team-based care/Community care
- System supported by integrated health information technology: access, analysis, integrity, and outcomes

Questions



Joseph Humphry, MD FACP CPEHR

- jhumphry@Hawaii.rr.com
- <https://www.linkedin.com/in/joseph-humphry-1245117>



Innovation in Self-Care



- Matthew Kull, MBA, CHCIO
 - Senior Vice President and CIO of Parkland

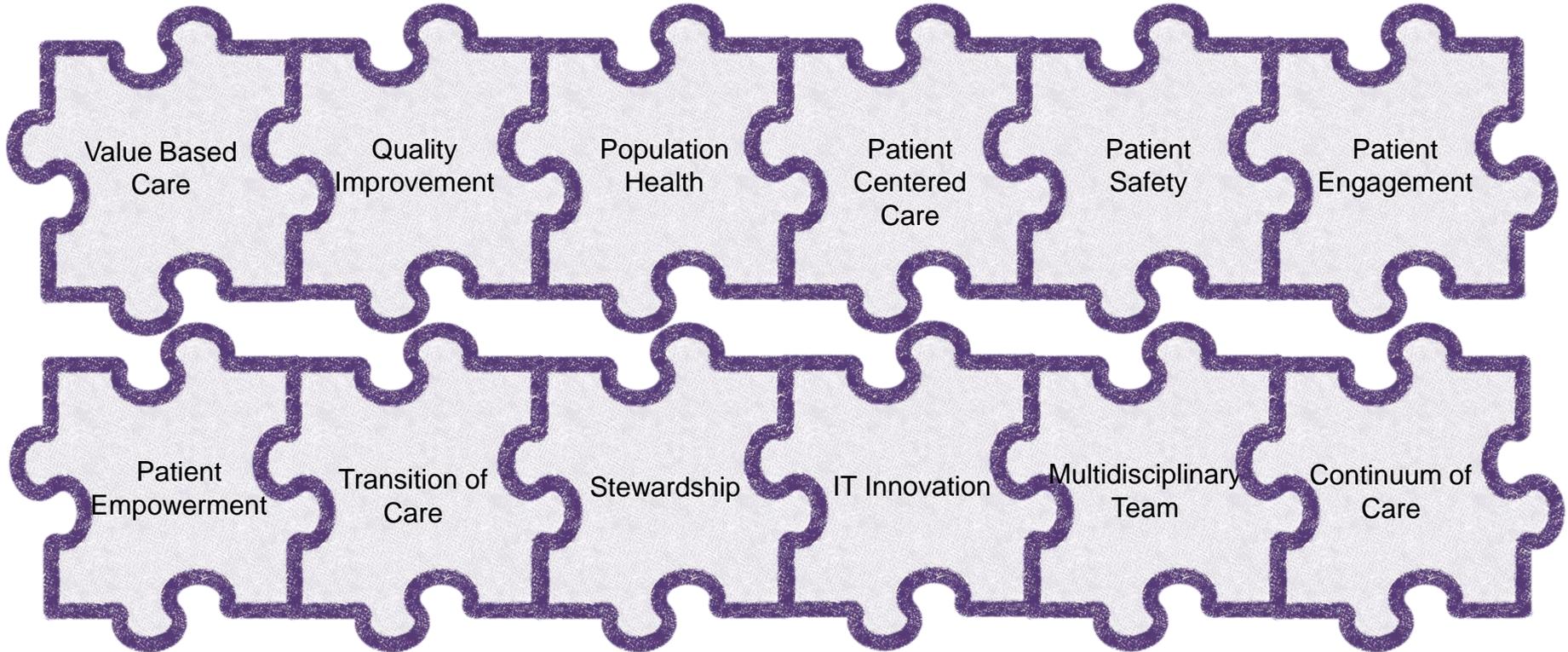


- About me
 - 20+ years in the healthcare industry
 - Senior leadership positions at AmerisourceBergen, McKesson, Oncology Therapeutics Network, Oracle, and Nippon Telephone and Telegraph
 - Master of Business Administration degree from Southern Methodist University in Dallas, Texas



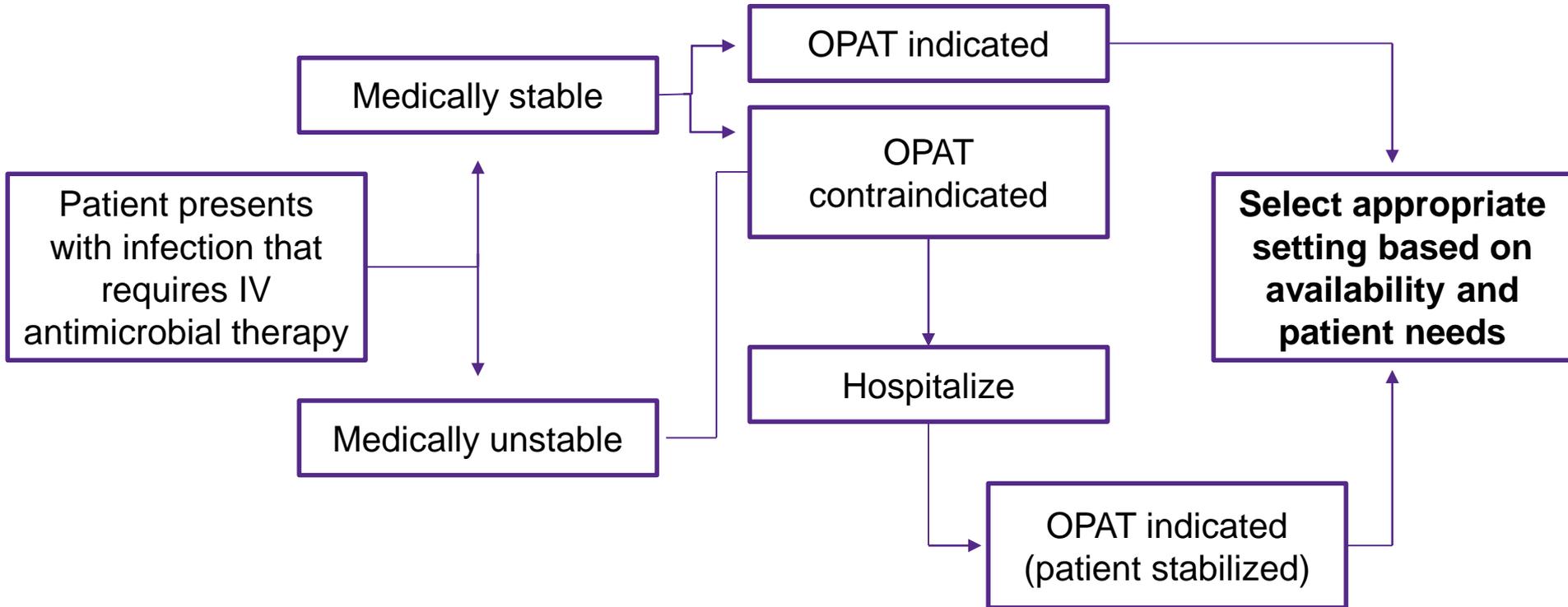
- **Joseph Longo, MBA, CHCIO**
 - Vice President of IT Enterprise Technologies for Parkland

- **About me**
 - Joe has held positions on the vendor, owner, and consulting side of the healthcare IT business. He has been the steward of IT strategic plans and technology direction for major hospital systems and IT firms
 - Obtained his Masters of Business Administration from Baylor University in Waco, Texas





- “S-OPAT” refers to the provision of IV antibiotic therapy on at least 2 consecutive days without intervening hospitalization
- Goals
 - Allow patients to complete treatment safely and effectively in the comfort of home
 - Avoid the inconveniences, complications, and expense of hospitalization







- 46 year old African American male
- Motor vehicle accident
- Post-operative infection of prosthesis
- Required 6 weeks of IV antibiotics
- No illicit drug use history
- Currently uninsured

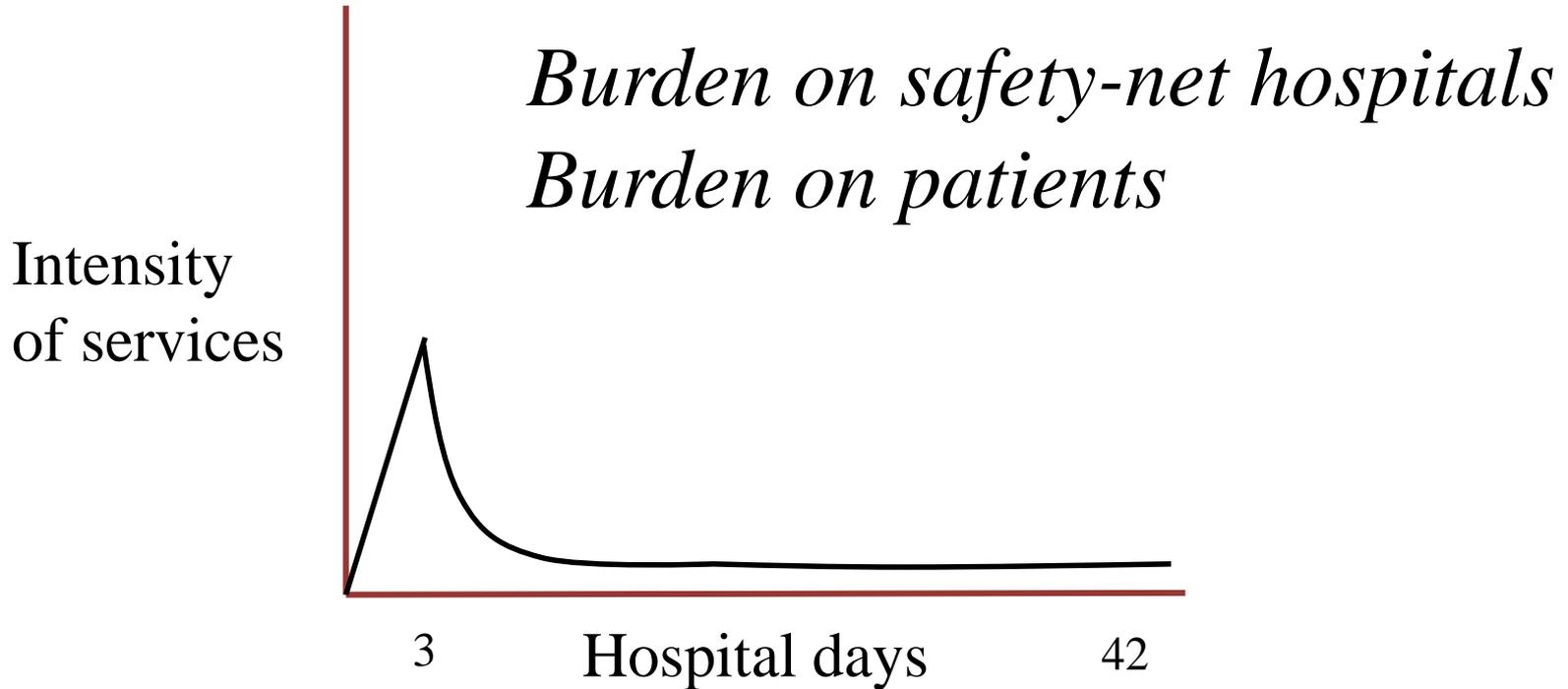




- Patients with infections requiring long term antibiotics typically receive concentrated diagnosis and prescription services in the first several days-then remain in the hospital with low intensity needs/antimicrobial infusions
- While insured patients may be discharged early to home with nursing assistance or to a lower cost nursing facility to complete treatment, unfunded patients usually remain in hospital
- This causes a burden on safety-net hospitals and decreases availability of acute beds for patients presenting with more severe needs



- What if patients cannot afford these options?







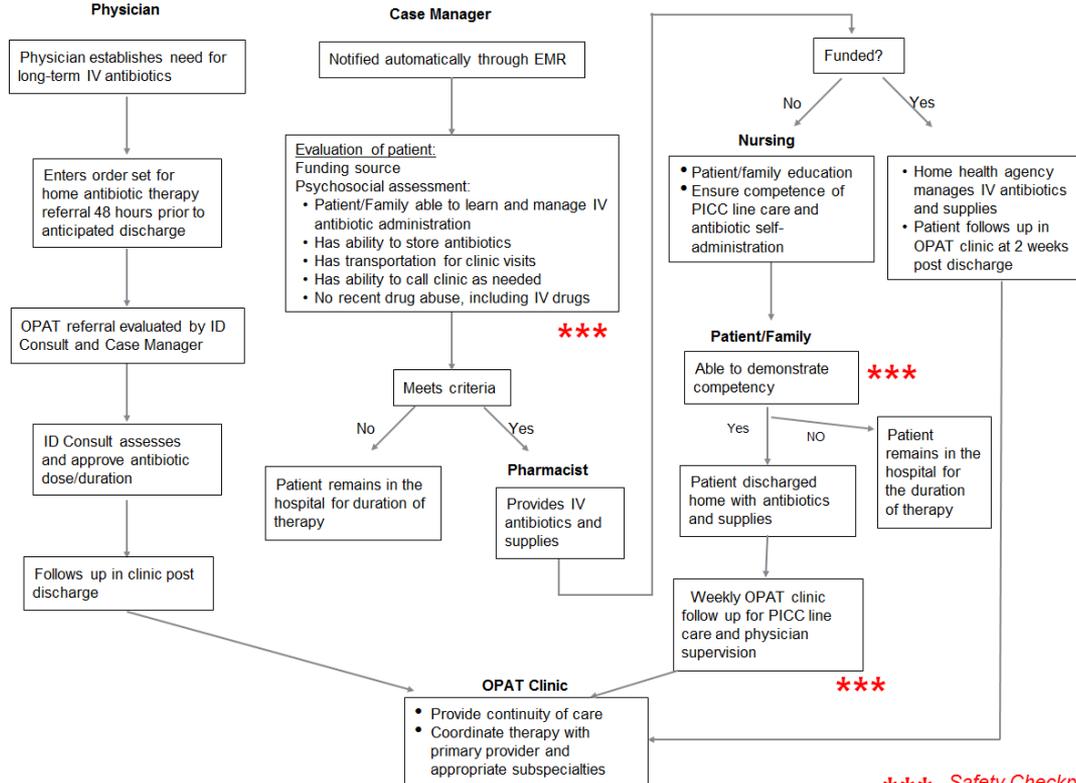
- Developed program in 2009 as an alternative for uninsured patients to complete long-term antibiotic therapy at home comparable to services received in traditional settings
- Patients undergo bedside teaching and competency assessment prior to discharge from hospital
- Transitioned from the hospital into a dedicated post-discharge OPAT clinic, and followed weekly by nurses for PICC line care and at fixed intervals by physicians to assess clinical response to therapy



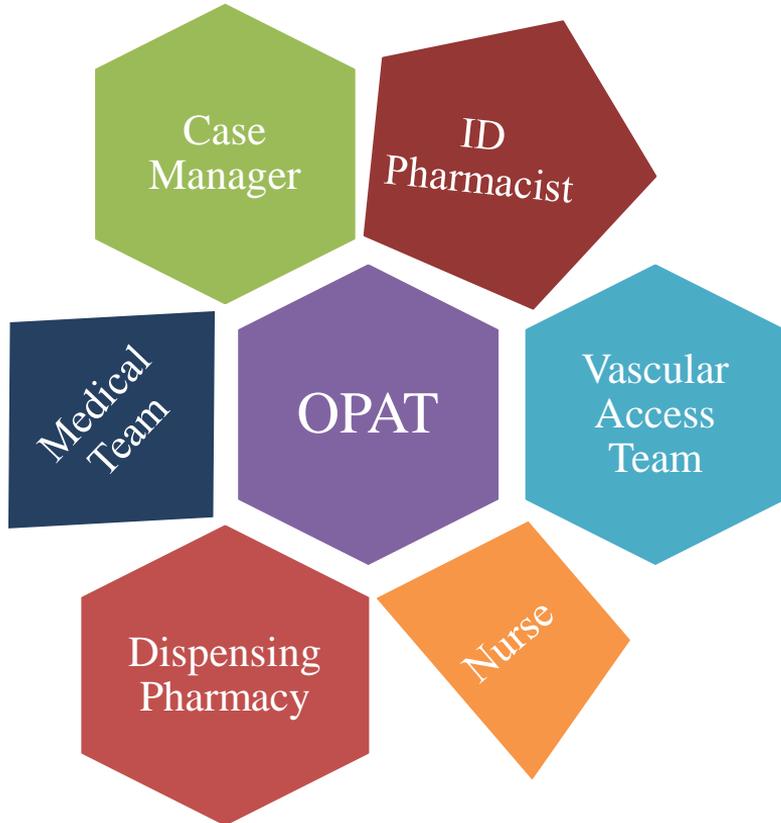
- Dedicated multidisciplinary OPAT team: Physician, Pharmacist, Nursing, Care Management
- Effective multilingual patient education material at the 4th grade health literacy level and employ the “teach back method” for bedside teaching
- Standardized core competency tools to test and record patient’s ability to self-administer IV antibiotics safely at home



2016 Gage Award Reception







Order Sets

OPAT - Inpatient OPAT Referral Activation [⌵]

▶ Physician Communication

▼ Consultations

▼ Inpatient OPAT Consult (required)

OPAT CONSULT PANEL

Consult Pharmacist Service - Home IV

Routine

Reason for Consult: Home IV Antibiotics Notification

And

Request Case Manager/Social Work Evaluation



P

Routine, On weekend, additionally page via On Call Directory if urgent. Select drop down category item(s) for discipline(s) needed. Select NONE for any discipline not needed.

And

Consult OPAT Transitional Care Nurse

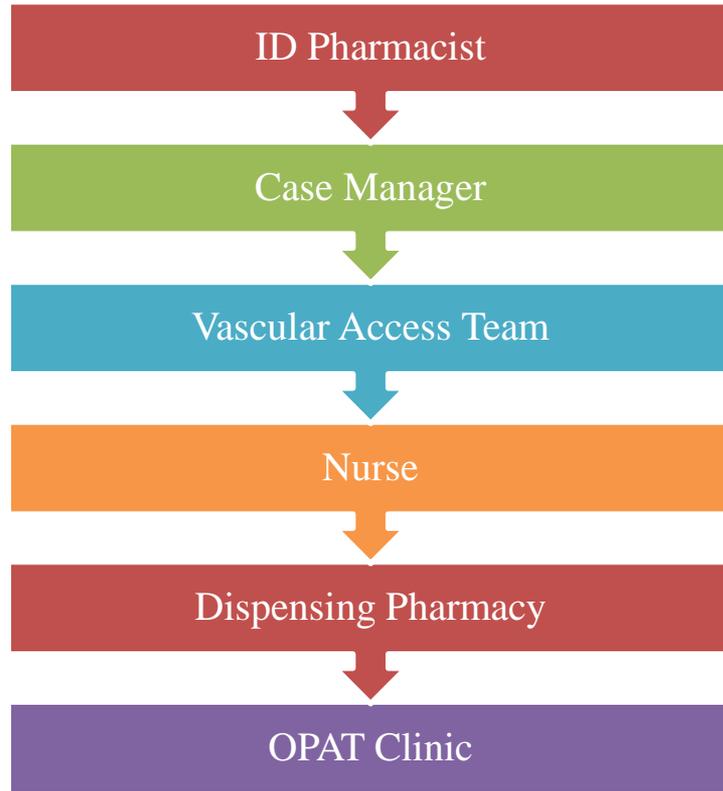
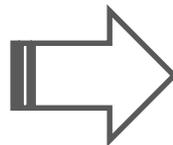
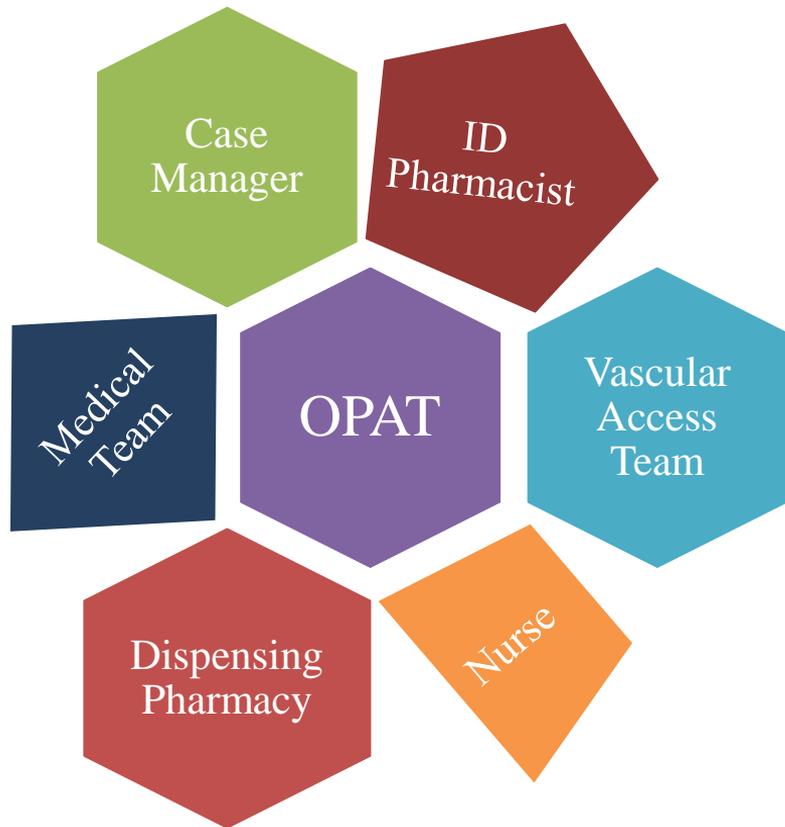
Routine, CONTINUOUS

▶ Infectious Diseases Inpatient Consult (optional)

[click for more](#)



OPAT Consult Order Set





▼ OPAT PharmD

Diagnosis	<input type="text" value="Streptococcus bovis endocarditis, native valve"/> Streptococcus bovis endocarditis, native valve taken today
Prescribing Team	<input type="text" value="Primary Team"/> <input type="text" value="ID Bone & Joint"/> <input checked="" type="text" value="ID"/> <input type="text" value="ID/HIV"/> ID taken today
Antibiotics	<input type="text" value="Ceftriaxone;"/> <input type="text" value="Acyclovir"/> <input type="text" value="Amikacin"/> <input type="text" value="Amphotericin B"/> <input type="text" value="Ampicillin"/> <input type="text" value="Ampicillin/Sul..."/> <input type="text" value="Bactrim"/> <input type="text" value="Cefazolin"/> Ceftriaxone taken today
Start Date	<input type="text" value="9/18/17"/> <input type="text" value="10/30/17"/> 9/18/2017 taken today 10/30/2017 taken today
Total Duration (in days)	<input type="text" value="42"/> 42 taken today
Line Access	<input checked="" type="text" value="PICC"/> <input type="text" value="Tunneled Central..."/> <input type="text" value="Midline"/> <input type="text" value="Peripheral IVs"/> <input type="text" value="AV Fistula/Graft"/> <input type="text" value="PermaCath"/> PICC taken today
Payor	<input checked="" type="text" value="Parkland Financial Assistance"/> <input type="text" value="Voucher"/> <input type="text" value="Funded"/> <input type="text" value="Complex Case"/> Parkland Financial Assistance taken today
Weekly Labs	<input checked="" type="text" value="CBC"/> <input checked="" type="text" value="BMP"/> <input type="text" value="CMP"/> <input type="text" value="CRP"/> <input type="text" value="CPK"/> <input type="text" value="Vanco..."/> CBC; BMP taken today

▼ OTHER

Administration	<input checked="" type="text" value="Self/Caregiver"/> <input type="text" value="Home Infusion"/> <input type="text" value="Facility"/> <input type="text" value="Hemodialysis"/> <input type="text" value="Complex Case"/> Self/Caregiver taken today
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OPAT PharmD

Diagnosis

Streptococcus bovis endocarditis, native valve
Streptococcus bovis endocarditis, native valve taken today

Prescribing Team

Primary Team ID Bone & Joint ID ID/HIV
ID taken today

Antibiotics

Ceftriaxone; 

Acyclovir	Amikacin	Amphotericin B	Ampicillin	Ampicillin/Sul...	Bactrim	Cefazolin	
Cefepime	Cefoxitin	Ceftaroline	Ceftazidime	Ceftazidime/A...	Ceftolozane/T...	Ceftriaxone	
Ciprofloxacin	Clindamycin	Colistin	Daptomycin	Doxycycline	Ertapenem	Fluconazole	
Gentamicin	Imipenem	Isavuconazole	Itraconazole	Levofloxacin	Linezolid	Meropenem	
Metronidazole	Micafungin	Minocycline	Moxifloxacin	Nafcillin	Penicillin G	Piperacillin/Ta...	
Polymyxin B	Posaconazole	Rifampin	Tigecycline	Tobramycin	Vancomycin	Voriconazole	

Ceftriaxone taken today

Start Date

9/18/17 
9/18/2017 taken today

Stop Date

10/30/17 
10/30/2017 taken today

Total Duration (in days)

42 
42 taken today



Line Access	<input checked="" type="checkbox"/> PICC <input type="checkbox"/> Tunneled Central... <input type="checkbox"/> Midline <input type="checkbox"/> Peripheral IVs <input type="checkbox"/> AV Fistula/Graft <input type="checkbox"/> PermaCath
	PICC taken today
Payor	<input checked="" type="checkbox"/> Parkland Financial Assistance <input type="checkbox"/> Voucher <input type="checkbox"/> Funded <input type="checkbox"/> Complex Case
	Parkland Financial Assistance taken today
Weekly Labs	<input checked="" type="checkbox"/> CBC <input checked="" type="checkbox"/> BMP <input type="checkbox"/> CMP <input type="checkbox"/> CRP <input type="checkbox"/> CPK <input type="checkbox"/> Vanco...
	CBC; BMP taken today
OTHER	
Administration	<input checked="" type="checkbox"/> Self/Caregiver <input type="checkbox"/> Home Infusion <input type="checkbox"/> Facility <input type="checkbox"/> Hemodialysis <input type="checkbox"/> Complex Case
	Self/Caregiver taken today



▼ IV Antibiotic Follow-up



Eligibility

Meets OPAT criteria for self-administration at home

Medically stable, only requires hospitalization for IV antibiotics



Where will patient receive IV antibiotics

Home Administration with Home Health and Home Infusion
 Another Facility

Patient has reliable transportation for follow-up appointments and refills

Patient has a working refrigerator and telephone number

Is patient currently using or used in the last year any illicit drugs or excessive alcohol?



Case Management: Eligibility Screening Tool

Mang, Norman, PHARMD Pharmacist Signed OPAT Progress Notes
Date of Service: 9/18/2017 2:22 AM Creation Time: 9/18/2017 2:22 AM

Hide copied text 

I met with the patient to discuss the possibility of discharging home with IV antibiotics for 5 more weeks to complete treatment for a complicated heart infection. Patient expressed to me that they were nervous about their condition, but were feeling better about the future now that they had a definitive plan from their doctor. They asked several questions regarding the logistics of giving IV antibiotics at home and were concerned about how they would pay for their therapy. Patient reports living in an apartment with his wife Thelma, and he is the sole provider. Mr. Adam is nervous about his financial situation since he has been out of work for over 2 weeks due to his condition. I have referred them to their floor financial counselor to identify any additional funding sources available to them. Per discussion with patient and his wife, he will return home to his 2nd story apartment to complete the remainder of his therapy. He and his wife share a car for transportation and Thelma reports that she can drive him back and forth to Parkland once weekly for his appointments. Their apartment has a working refrigerator and Mr. Adam currently owns a smart phone with a 3 month pre-paid plan. The patient reports drinking 1-2 beers on the weekend socially but denies ever using illicit drugs in his life.

Patient is medically stable for discharge per my discussion with Dr. Seuss, patient's primary attending and will likely be ready for discharge in 48-72 hours.



Case Management: Eligibility Screening Tool

Parkland
Information Technologies

Mang, Norman, PHARMD

Pharmacist

Addendum

OPAT

Date of Service: 9/18/2017 2:13 AM

Creation

Eligibility: Meets OPAT criteria for self-administration at home

Medically stable, only requires hospitalization for IV antibiotics: **Yes**

Where will patient receive IV antibiotics: **Home Administration with Self Administration**

Patient has reliable transportation for follow-up appointments and refills: **Yes**

Patient has a working refrigerator and telephone number: **Yes**

Is patient currently using or used in the last year any illicit drugs or excessive alcohol?: **No**

Has care coordination, case management, and pharmacy consult been placed? **Yes**







Manual Documentation of Patient Teaching

PATIENT/FAMILY COMPETENCY

Patient/Caregiver **MUST** complete THREE return demonstrations. Patient must show improvement with each subsequent demonstration and have at least one SATISFACTORY demonstration prior to discharge. Patient discharge is to be canceled if patient/caregiver is unable to demonstrate a competency marked with “**”.

This educational form MUST be faxed to 214-590-9721 addressed to Attention: OPAT Nurse Navigator, prior to patient discharge. Patient will not receive an OPAT appointment if the educational form is not completed and faxed.

Caregiver Name: _____ Relationship to Patient: _____

S = Satisfactory

N = Needs more practice

U = Unsatisfactory

Nurse to date and initial items

EDUCATIONAL ITEMS	INITIAL DEMO BY	RETURN DEMO	RETURN DEMO	RETURN DEMO
Date of demonstration _____				
State reason for IV antibiotics: “Treat infection in _____”				
State length of treatment: “_____ days/weeks”				
State why washing hands is important when accessing PICC line				
Demonstrate proper hand washing**				
State frequency of and reason for clinic visits: “weekly for PICC dressing changes, flushing the catheter, lab work, and additional antibiotics”				
Clean a flat surface and/or lay out clean paper towels for equipment				
Identify equipment used: “PICC line, IV tubing, extension set, microclave, gloves, alcohol pad, IV medication bag”**				
Put on a pair of clean gloves before handling any supplies or equipment				
Check the label on the new IV medication bag (patient name, medication name, beyond use date)				
Label IV tubing/check label on IV tubing; change every 4 days or if spike has touched anything				
Check IV medication bag: clear and without anything in it				
Mix powdered medication into bag, if needed**				
Close roller clamp of IV tubing				
Take cover off outlet port of IV medication bag				
Put spike in new IV medication bag without touching spike to anything				
Squeeze the drip chamber until half full of liquid				
Hang bag above patient’s head				
Open the roller clamp and let the fluid fill the IV tubing				
Close roller clamp of IV tubing				

Patient/Caregiver demonstrated satisfactory competency in the self-administration of IV antibiotics

Nurse Signature	Nurse Printed Name	ID #	Satisfactory (Y/N)	Date/Time





Self-Administration: Preparing, Starting, and Completing an Intermittent Infusion

State reason for clinic visits and frequency		
Clean a flat surface and/or lay out clean paper towels for equipment		
Identify equipment used: **		
Put on a pair of clean gloves before handling any supplies or equipment	Satisfactory	Satisfactory
Check the label on the new IV medication bag (patient name, medication name, beyond use date)	Satisfactory	Satisfactory
Label IV tubing/check label on IV tubing; change every 4 days or if spike has touched anything	Satisfactory	Satisfactory
Check IV medication bag: clear and without anything in it	Satisfactory	Satisfactory
Mix powdered medication into bag, if needed **	Needs More...	Satisfactory
Close roller clamp of IV tubing	Needs More...	Satisfactory
Take cover off outlet port of IV medication bag	Needs More...	Satisfactory
Put spike in new IV medication bag without touching spike to anything	Needs More...	Satisfactory
Squeeze the drip chamber until half full of liquid	Satisfactory	Satisfactory
Hang bag above patient's head	Satisfactory	Satisfactory
Open the roller clamp and let the fluid fill the IV tubing	Satisfactory	Satisfactory
Close roller clamp of IV tubing	Satisfactory	Satisfactory
Clean PICC injection cap with alcohol (15 seconds) **	Needs More...	Needs More...
Flush PICC line with 1-2 syringe(s) of saline using a pulsating method **	Satisfactory	Satisfactory
Take the cap off the end of the IV tubing without touching it to anything	Satisfactory	Satisfactory
Twist the end of the IV tubing into the PICC injection cap **	Needs More...	Needs More...



Giving Your Intravenous (IV) Antibiotics through Your PICC Line at Home



Your doctor wants you to have antibiotics through your PICC line at home.

These antibiotics will treat the infection in your _____.

The name of your IV antibiotic is _____.

You will need to give yourself this antibiotic for _____ weeks.

During this time you will have appointments at the Parkland clinic. It is very important for you to come to these clinic appointments because this is when we will check your blood and make sure you are doing well. We will also change your PICC dressing each week at your clinic appointment. Your nurse will check that there is no infection at the place where the line goes into your body.

Your first appointment in the Parkland clinic is: _____.
If you cannot come to this appointment, please call 214-590-2297 to make another appointment.

Getting ready to give your antibiotic through your PICC line:

1. Clean a dry, flat place to put your supplies on **or** put a clean and dry paper or cloth towel down before you put your supplies down.

2. The supplies you will need to give your antibiotic through your PICC line are:

- IV antibiotic bag
- IV tubing
- IV tubing extension set
- Microclave cap
- 2 pairs of gloves
- Alcohol pads
- Saline flushes



Dandose sus Antibióticos Intravenosos (IV) en Casa a través de su Línea PICC



Su médico quiere que usted se de los antibióticos en casa a través de una línea PICC.

Estos antibióticos son el tratamiento para la infección que usted tiene en _____.

El nombre del antibiótico intravenoso es _____.

Tendrá que darse este antibiótico durante un periodo de _____ semanas.

Durante este tiempo, tendrá citas en la clínica de Parkland. Es muy importante que mantenga sus citas en ésta clínica porque le haremos exámenes de sangre para asegurarnos que usted está recibiendo el tratamiento adecuado del antibiótico. También vamos a cambiar su vendaje de la línea PICC una vez por semana en la clínica. La enfermera revisará que no haya infección en el lugar por donde el catéter entro en su cuerpo.

Su primera cita es: _____
Si usted no puede venir a esta cita, llame al 214-590-2297 para hacer otra cita.

Preparándose para darse su antibiótico a través de su línea PICC:

1. Limpie y seque un lugar plano para poner sus materiales o extienda una toalla de papel o un paño limpio y seco antes de poner sus materiales.

2. Los materiales que necesitará para darse su antibiótico a través de su línea PICC son:

- Bolsa de antibióticos IV
- El tuve intravenoso o intravenoso con extensión (si usted se está autoadministrando el medicamento)
- Entrada Microclave
- 2 pares de guantes
- Almohadillas de alcohol
- Jeringas con solución salina







On-demand Educational Videos

PATIENT EDUCATION VIDEO English ; ID : OPAT - CUST00700 ✓ Accept ✗ Cancel

Frequency: Once
Starting: 9/18/2017 Today Tomorrow At: 1123
First Occurrence: **Today 1123**
Scheduled Times: [Hide Schedule](#)
9/18/17 1123

Video Content Language: Arabic | Cantonese | **English** | French | Japanese | Korean | Mandarin | Polish | Portuguese | Punjabi | Russian | Somali | Spanish | Vietnamese

Category?: Anesthesia | Cancer | Cardiac | Diabetes | GI | Hypertension | **ID** | Kidney | Liver | Medications | Neurology | Parkland | Pulmonary | Relaxation | Surgical | WISH

Video?: Lyme Disease - V1098

Priority: Routine Urgent

[Show Additional Order Details](#)

Next Required Link Order ✓ Accept ✗ Cancel

Dallas, TX 4:04 PM TUE, FEB 13 44 °F

Education

Required Videos

Suggested Videos

- [Allergy >](#)
- Cardiology
- Dermatology
- Ears-Nose-Throat
- Emergency Medicine
- Endocrinology
- Gastroenterology
- General Surgery
- Health & Wellness

Allergy

- Allergic Reaction: Anaphylaxis** 0h 5m
- Allergic Reaction: Angioedema** 0h 4m
- Allergic Rhinitis** 0h 4m
- Asthma** 0h 4m
- Atopic Dermatitis** 0h 5m
- Metered-Dose Inhaler** 0h 6m

allstate cisco





Consumerization of Healthcare Information

The screenshot shows the Parkland website interface. At the top, there are navigation links for Careers, Volunteer, Donate Now, MyChart, Vendors, and Español. Below this is the Parkland logo and a search bar. The main content area is divided into several sections:

- Getting to Parkland:** A list of links including What to Expect at Parkland, Getting Around Parkland, Patient Information & Tools, Patient Care Services, Patients' Rights, Social Work, Pastoral Care, Parkland Community Health Plan, Health Insurance, Marketplace (ACA), and Parkland Research.
- Pharmacy:** A list of links including Getting Your Medicine, Mail Order Pharmacy, Pharmacy Help, Educational Videos, and Police Department.
- Educational Videos:** A section titled "Educational Videos" with a sub-header "Use eye on screen". It contains a video thumbnail of a woman holding pills and text explaining the purpose of the videos. Below the video are links for "Asthma/Allergy", "Chemotherapy", and "Diabetes".
- Related Documents:** A section titled "Related Documents" with a list of links:
 - OPAT: Self-Administered IV Antibiotic Administration by Gravity- Patient Instruction in English
 - OPAT: Self-Administered IV Antibiotic Administration by Gravity-Patient Instruction in Spanish

A purple arrow points from the "OPAT: Self-Administered IV Antibiotic Administration by Gravity-Patient Instruction in English" link to a smartphone displaying a QR code.



Mang, Norman, Pharmacist Signed	OPAT	Discharge Instructions
PHARMD		
Date of Service: 9/18/2017 11:36 AM	Creation Time: 9/18/2017 11:36 AM	

To learn how to administer IV antibiotics without a pump, scan the QR Code or follow the link below.



<https://youtu.be/YesnVlwMQZw>





OPAT - Outpatient IV Antibiotic Orders

Home IV antibiotics require an inpatient OPAT consult
Place OPAT consults >=2 days prior to anticipated discharge to allow for teaching and setup

▼ Self-Administered (PFA / Unfunded Patients)

Please E-Prescribe antibiotics and flushes to the **'PMH Anderson Clinic and Discharge Pharmacy'**

▶ Antibiotics - Intermittent Infusion

▶ Antibiotics - Continuous Infusion

▼ Line Maintenance

Normal saline flushes
R-0, e-Rx

Heparin flushes (add only for tunneled CVC or IR-inserted PICC line)
R-0, e-Rx

▼ Supplies

Supplies (auto-calculated if flowsheet is completed by OPAT RN)

▼ Labs

CBC ■
Routine, Clinic Collect, Expected: S Approximate, Expires: S+10

BMP (Na, K, Cl, CO2, Anion Gap, Glu, Creat w/GFR, Calcium Total, BUN) ■
Routine, Clinic Collect, Expires: S+10

LFT Panel

CRP ■
Routine, Clinic Collect, Expires: S+10

OPAT - Outpatient IV Antibiotic Orders

Home IV antibiotics require an inpatient OPAT consult
Place OPAT consults >=2 days prior to anticipated discharge to allow for teaching and setup

▼ Self-Administered (PFA / Unfunded Patients)

Please E-Prescribe antibiotics and flushes to the **'PMH Anderson Clinic and Discharge Pharmacy'**

▼ Antibiotics - Intermittent Infusion

CeFAZolin 1 gm IVPB
R-0, e-Rx

CeFAZolin 2 gm IVPB
R-0, e-Rx

CeFEPime 1 gm IVPB
R-0, e-Rx

CeFEPime 2 gm IVPB
R-0, e-Rx

CeTRIAXone 1 gm IVPB
R-0, e-Rx

CeTRIAXone 2 gm IVPB
R-0, e-Rx

Daptomycin + Monitoring Panel

Ertapenem 1 gm IVPB
R-0, e-Rx

Meropenem 500 mg IVPB
R-0, e-Rx

Meropenem 1 gm IVPB
R-0, e-Rx

Micafungin 100 mg IVPB
R-0, e-Rx

Micafungin 150 mg IVPB
R-0, e-Rx



Home Antibiotic Therapy Management

Home Antibiotic Therapy Management

Home Antibiotic Supplies

Number of home IV antibiotics	1
Number of home IV antibiotic administrations per day	1
Number of home IV antibiotic therapy days remaining	31
Size of gloves needed	large
Number of sets of IV tubing needed	
Number of boxes of gloves needed	
Number of boxes of alcohol prep pads needed	

Supplies

Supplies (auto-calculated if flowsheet is completed by OPAT RN)



Category of supply(ies):

IV Tubing

Dx Assoc.:

Comments:

Insert SmartText

IV Tubing (60 gtt): 10 tubings
Gloves (100 count, large): 2 boxes
Alcohol prep pads (200 count): 1 boxes
Tegaderm: 1 EA
Tape (1"): 1 roll



Value-driven Stewardship in Transitions of Care

Intervention

General Information

Type: OPAT

Subtype:

Status:

Significance:

Title	Number
Additional Work-up Recommended	1104
Central Line Placement Avoided	1105
Discontinue Anti-infective Therapy	1027
Drug Information Request	1032
Drug Interaction Screening	1034
IV to PO Switch	1106
Laboratory Monitoring Recommended	1107
Modify Dose	1029
Modify Duration	1022
Modify Frequency	1023
Modify Therapy for Outpatient Use	1108
Other (Describe in Scratch Notes)	1024
Prior Authorization	1020
Referral Recommended/Placed	1109

TRUVEN
HEALTH ANALYTICS™

IBM Watson Health

Daptomycin Monthly Expenditures







Clinic Follow-up Decision Support Tool

IV ABX APPT ■

P

Class:

Priority:

Is the individual placing the referral a Clinical Pharmacy Specialist?

Patient receiving home health services?

What is the tentative date the appointment is requested for?

What is the total duration of therapy?

What infectious disease is the patient receiving antimicrobials for?

What antibiotics will the patient be receiving as an outpatient?

Was the patient seen by the Infectious Diseases Consult service?

Does the patient have a PICC line?

Is the pt HIV-infected?

Priority

- Time Critical: 4 – 7 days
- Next Available: 7 – 10 days

Home Services

- S-OPAT: 4 – 10 days
- H-OPAT: 10 – 14 days

Antibiotic Selection

- Determines laboratory monitoring

ID Consult

- ID attending assignment



Continuity of Care Safeguards



Past and Future Appointments						Comment
Future Appointments Through 3/17/2018						
Status	Date	Time	Visit Type	Length	Department	Provider
Sch	9/22/17	7:00 AM	LAB	30	LAB HEMATOLOGY [554536]	LAB HEMATOLOGY, LAB [42545035]
Sch	9/22/17	8:30 AM	FOLLOW UP	30	FACULTY CLINIC 2 [530814]	ONC TRANSITIONAL VISITS [42541214]
Sch	9/22/17	9:00 AM	TRANSFUSION PRBC 3 HRS	180	INFUSION CENTER 2 [530825]	THOMAS, JESSY [50007457]
Sch	9/25/17	8:30 AM	LAB	30	LAB HEMATOLOGY [554536]	LAB HEMATOLOGY, LAB [42545035]
Sch	9/25/17	10:00 AM	FOLLOW UP	30	FACULTY CLINIC 2 [530814]	ONC TRANSITIONAL VISITS [42541214]
Sch	9/25/17	11:00 AM	TRANSFUSION PRBC 3 HRS	180	INFUSION CENTER 2 [530825]	INFUSION CHAIR 30 [42541582]
Sch	9/26/17	9:30 AM	NEW OPAT	30	ID OPAT [530836]	LAU, ABBY [043940]
Sch	9/29/17	7:30 AM	LAB	30	LAB HEMATOLOGY [554536]	LAB HEMATOLOGY, LAB [42545035]

BestPractice Advisory - Testplum, Jacqu

⚠ Patient currently enrolled in OPAT (Outpatient Parenteral Antimicrobial Therapy) program. Please activate OPAT inpatient referral to notify the OPAT team of patient's admission.

Acknowledge Reason _____

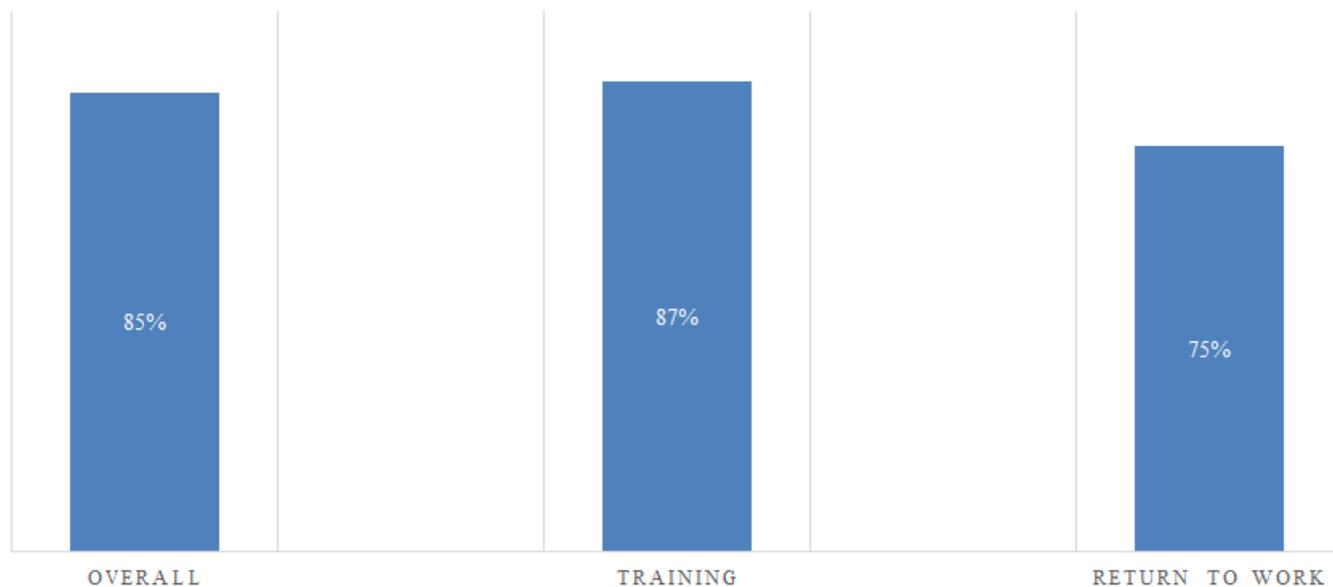


- Determine whether indigent, often poorly educated and mostly non-English-speaking patients S-OPAT program can administer IV antibiotics at home as safely and effectively as traditionally accepted models of outpatient care available to patients with funding (H-OPAT)





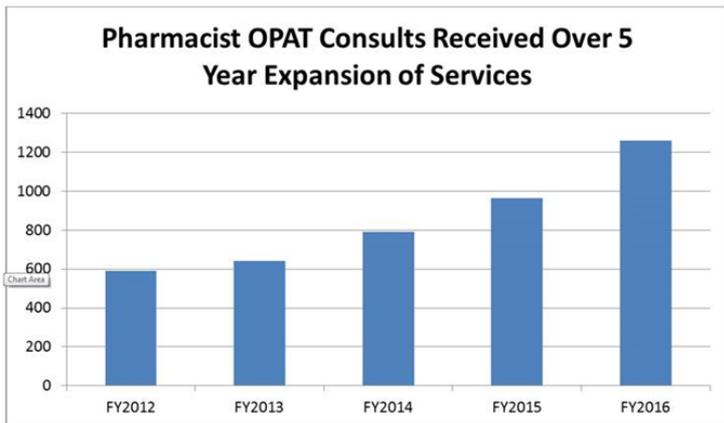
PATIENT SATISFACTION SCORES



Did not vary based on gender, race, age, or preferred language (p >0.05)



- 30-day readmission rate 47% lower for S-OPAT patients compared to H-OPAT standard of care
- 27,666 inpatient days avoided
- \$40,000,000 saved for hospital
- Improved resource utilization by freeing beds for acutely ill



RESEARCH ARTICLE

Self-Administered Outpatient Antimicrobial Infusion by Uninsured Patients Discharged from a Safety-Net Hospital: A Propensity-Score-Balanced Retrospective Cohort Study

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CrossMark

Abstract

OPEN ACCESS

Citation: Bhavan KP, Brown LS, Haley RW (2015) Self-Administered Outpatient Antimicrobial Infusion by Uninsured Patients Discharged from a Safety-Net Hospital: A Propensity-Score-Balanced Retrospective Cohort Study. *PLOS Med* 12(12): e1001922. doi:10.1371/journal.pmed.1001922

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Data Availability Statement: Since the database is composed of electronic medical records data with which statistical identification of individual patients would be difficult to prevent, it can be shared with researchers who meet the criteria for access to confidential data and only with the approval of the UT Southwestern Medical Center's institutional review board (IRB@utsouthwestern.edu).

Funding: The authors received no specific funding for this work.

Background

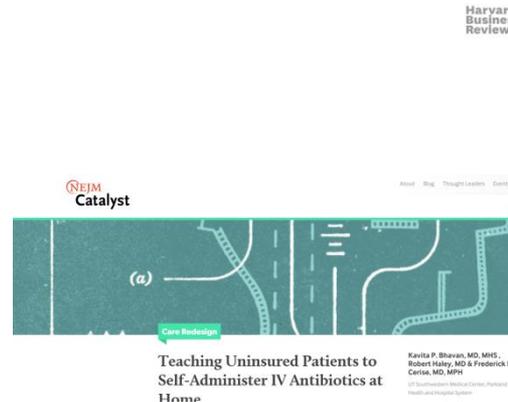
Outpatient parenteral antimicrobial therapy (OPAT) is accepted as safe and effective for medically stable patients to complete intravenous (IV) antibiotics in an outpatient setting. Since, however, uninsured patients in the United States generally cannot afford OPAT, safety-net hospitals are often burdened with long hospitalizations purely to infuse antibiotics, occupying beds that could be used for patients requiring more intensive services. OPAT is generally delivered in one of four settings: infusion centers, nursing homes, at home with skilled nursing assistance, or at home with self-administered therapy. The first three—termed healthcare-re-administered OPAT (H-OPAT)—are most commonly used in the United States by patients with insurance funding. The fourth—self-administered OPAT (S-OPAT)—is relatively uncommon, with the few published studies having been conducted in the United Kingdom. With multidisciplinary planning, we established an S-OPAT clinic in 2009 to shift care of selected uninsured patients safely to self-administration of their IV antibiotics at home. We undertook this study to determine whether the low-income mostly non-English-speaking patients in our S-OPAT program could administer their own IV antimicrobials at home with outcomes as good as, or better than, those receiving H-OPAT.

Methods and Findings

Parkland Hospital is a safety-net hospital serving Dallas County, Texas. From 1 January 2009 to 14 October 2013, all uninsured patients meeting criteria were enrolled in S-OPAT, while insured patients were discharged to H-OPAT settings. The S-OPAT patients were trained through multilingual instruction to self-administer IV antimicrobials by gravity, tested for competency before discharge, and thereafter followed at designated intervals in the S-OPAT outpatient clinic for IV access care, laboratory monitoring, and physician follow-up.



- Achieving the Triple Aim Through Disruptive Innovations In Self-Care
 - Bhavan KP, Agrawal D, Cerise F. JAMA. 2016 Nov 22;316(20):2081-2082.
- Self- Administered Outpatient Antimicrobial Infusion by Uninsured Patients Discharged from a Safety Net Hospital: A Propensity Score Balanced Retrospective Cohort Study
 - Bhavan KP, Brown LS, Haley RW. PLoS Med. 2015 Dec 15;12(12):e1001922.



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ORGANIZATIONAL STRUCTURE

The Value of Teaching Patients to Administer Their Own Care

Harvard
Business
Review

Health Care Innovation Doesn't Have to Be Driven by Profit

by Frederick P. Cerise, MD
DECEMBER 14, 2015



Questions

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