CKD Models of Care: Nephrologists as the General Manager vs Member of a Larger Team?

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Mayo Clinic
Disclosure of Interests

No disclosures
1. Provide safe, timely, quality care
2. Eliminate unwarranted variation in care
3. Perform only necessary tests, procedures, and therapies
4. Provide end-of-life care
5. Address the crushing costs of care
6. Attain patient alignment
7. Deliver patient-focused care
Population Health Resource Relationship
2010 data from Mayo Clinic HSER

KDIGO Controversies Conference on Advanced CKD | December 2-5, 2016 | Barcelona, Spain

COST
% of Medicare Spending
- 50%
- 45%
- 5%

Chronic Disease
# of Chronic Conditions
- 3+
- 1-2
- 0

Services
- Multi-disciplinary Care Teams
- Home Monitoring
- “Medical Home” Education
- Community Support
- Wellness, Risk Screening
- Shared Decision Making
- Health Education

Population
% of community
Essential Elements of a Chronic Care Model

- Appropriate, early patient identification
- Supportive system of longitudinal care
- Smooth transitions along disease trajectory
- Interventions to delay progression
- Trained team members
- Formalized protocols, communication tools and education
- Data management
Achieving Population Health at Each Level of the Pyramid

- Community Based Care (Primary)
- Intermediate Care (Secondary)
- Complex Care (Tertiary – Quaternary)

Nephrology AKI/CKD/ESRD/Tx

KDIGO
“Patients don’t get vacations.”

-Mayo Clinic Dialysis Services Patient
Re-Engineering Dialysis Practice Delivery Experience
Patients We Serve Represent Different Personas

I started dialysis in the hospital. I thought I was getting sick a couple months ago, but I didn’t have a primary care doctor. To be honest, I was afraid of the cost and never imagined getting so sick so quickly. Now I have a lot of hospital bills to pay, and I’m trying to organize my Medicare all at once now. It’s so confusing. I need to find a primary doctor that I like. I’ve been out for a couple months but I’m just now understanding the process. Sometimes I have to skip dialysis, because of my work schedule. I know that it messes up my schedule, and that scares me. I don’t have a choice though. I have to put food on the table for my young kids. My wife is already doing most of the work. To pay for all of these pills and diabetes appointments, I have to work extra shifts when I can. Then on top of this, the care team wants me to exercise and diet. I have so much stress on my mind that I can’t imagine where I would find the time. I want to be a dad too. “I’ll CROSS THAT BRIDGE LATER.”

JOHN (M)  AGE 42
ACUTE ESRD (GRAFT)
HAD TO QUIT WORKING
MARRIED WITH KIDS

The Center for Innovation developed 8 Personas for ESRD based on more than 100 observations & interviews.
Ms. Krisa Ryan
Chronic Kidney Disease Patient Trajectory
Patient Needs
Seen Through the Eyes of Personas

- **Shared Decision Making** (Non-paternalistic discussion between the patient and the care team around goals within the community.)
- **Collaboration & Empowerment** (Effectively exchanging information to set up mutual understanding and success.)
- **Open & Honest Communication** (Transparency of cost, data, modalities, and delivery of care)
- **Improved Education Intervals and Interpretation** (Real-time information that has a tighter feedback loop translated on the patient level to gain maximum usability of information.)
- **Clarified External Relationships** (Mutual understanding of team member roles and activities that would support their capacity to maintain workload for the future state. Note patients and their family units as active members of team.)
NARRATIVE

I've been on dialysis for a couple months now. I used to be at Eisenberg, but now they moved me out here to the NE clinic. It's farther from my nursing home. Not that it matters, but I don't know why they moved me. I take a shuttle and nobody meets me. I have no family, and I don't know anyone else at dialysis. I hate it. I don't have any options. I'm sad most of the time. I can't even choose the food I eat at the nursing home. I don't feel like myself anymore. I don't know if I can stop dialysis or if that's sacrilegious. I hope someone talks to me. Maybe I'll tell my nurse. She talks to me the most. If they knew what I needed though, why wouldn't they give it to me?

"I DON'T FEEL LIKE MYSELF ANYMORE."

INFLUENCERS

Shared Decisions
Collaboration
Communication
Education
Relationships
Shared Decision-making:
- Patient Education & Discussion about treatment options: Decision aids; Disease Trajectory Visual Tool; Dialysis Quick Start Guide & “Who to Call” Guide
- Annual medication therapy management consult with pharmacist
- Nurse Care Coordinator assigned to highest risk patients
- Palliative Care/Advanced Care Planning

Best Practice for Chronic Kidney Disease (CKD):
- Alert for primary care physicians for Nephrology referral eGFR <25
- Patient Education: Revised hand-outs, class contents
- Multi-author tracking tool
- Standard visit elements/visit template
- Shared, multi-authored care plan and check list
- CKD care process pathway/best practices available to all

Best Practice for End Stage Renal Disease:
- Care Team notified when inpatient care required or ED visit
- Emergent dialysis in the ED
- Admission order set/ co-location of patients when possible
- Work unit huddles and structured hand-offs
- Palliative Care / Advanced Care Planning
- Pharmacist Medication Management
- Continued use of multi-author tracking tool
- Nurse Care Coordinator assigned to highest risk patients
- Discharge Checklist
- “Quick Start” and “Who to Call” guides with dismissal information/education

Best Practice for Inpatient care:
- Patient Education & Discussion about treatment options: Decision aids; Disease Trajectory Visual Tool; Dialysis Quick Start Guide & “Who to Call” Guide
- Dialysis NP & RN part of the inpatient care team & part of dismissal rounds
- Standard Order Sets
- Medication Management/med reconciliation
- Palliative Care part of the Nephrology team
## Healthy Transitions

<table>
<thead>
<tr>
<th>Initial Management</th>
<th>Intervention Group %</th>
<th>Control group %</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peritoneal dialysis</td>
<td>23</td>
<td>3</td>
<td>.05</td>
</tr>
<tr>
<td>Outpatient HD center</td>
<td>58</td>
<td>23</td>
<td>.029</td>
</tr>
<tr>
<td>Pre-emptive Transplant</td>
<td>13</td>
<td>3</td>
<td>NS</td>
</tr>
<tr>
<td>Mature AVF/AVG</td>
<td>52</td>
<td>28</td>
<td>NS</td>
</tr>
</tbody>
</table>
## Proposed Models

<table>
<thead>
<tr>
<th>Models</th>
<th>1 (FP/ Specialty + CM)</th>
<th>2 (FP/ Specialty + CM + Allied Health Team)</th>
<th>3 (Specialty Clinic)</th>
<th>4 (Subspecialty Clinic)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>FP’s ± specialist MD(s) supported by a care coordinator in managing patients with the selected cluster of diseases</td>
<td>FP’s ± specialist MD(s) supported by a care coordinator and allied health team to manage patients with the selected cluster of diseases</td>
<td>Specialist MD(s), care coordinator, and allied health team provide consultation services and/or share care with FP’s for patients with the selected cluster of diseases</td>
<td>Subspecialist MD(s), specialist MD(s), care coordinator, and allied health team provide consultation services and/or share care with FP’s for patients with the selected cluster of diseases</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Virtual network FP ± specialist MD offices On or off-site care coordinator</td>
<td>Virtual network FP ± specialist MD offices Off-site care coordinator Off-site allied health team</td>
<td>Common location (clinic) for review of patients</td>
<td>Common location (clinic) for review of patients</td>
</tr>
<tr>
<td><strong>Access to care coordinators</strong></td>
<td>CM has specialty expertise in disease cluster</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Access to allied health</strong></td>
<td>Usual access through CM as required</td>
<td></td>
<td>Part or full team with specialty expertise</td>
<td></td>
</tr>
<tr>
<td><strong>Access to specialist MDs</strong></td>
<td>May be available in the community or accessible via scheduled visits to the community and/or telehealth</td>
<td></td>
<td>Available in the community</td>
<td></td>
</tr>
<tr>
<td><strong>Access to subspecialist MDs</strong></td>
<td>May be accessible but not available in the community</td>
<td></td>
<td>Available in the community</td>
<td></td>
</tr>
<tr>
<td><strong>Access to group education</strong></td>
<td>Refer to relevant existing hospital and/or community-based education sessions; possibility of web-based or telehealth education sessions</td>
<td>On-site group education available that is specific to disease cluster, lifestyle, and/or self-management Refer to relevant existing hospital and/or community-based education sessions</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Use of evidence-based protocols</strong></td>
<td>Includes use of standardized tools for data collection</td>
<td></td>
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</tr>
<tr>
<td><strong>Individual care plan available</strong></td>
<td>Full or partial electronic care plan and electronic health record</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Focus on risk reduction</strong></td>
<td>Individual and group level</td>
<td></td>
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</tbody>
</table>
Accountable/Valued Care at each level of the pyramid

- Define and involve the population – patients and families
- Redesign care services across sites
- Manage population health
  - systems integration- including efficient referral networks
  - equitable and efficient resource allocation
  - knowledge management
- Manage the financial system across sites
Improve Outcomes and Add Value

Develop flexible partnerships with PCP, Specialists and Community Services

• Establish direct connectivity
• Define evidence based guidelines for the care of people with acute and chronic disease
• Help define efficient and effective processes to ensure the guidelines are
  – easily accessed
  – integrated into practice flow
  – monitored to assess success (outcomes, compliance)
Build a network of providers whose roles transition with the needs of the patient.

**CKD 0-2**

**PCP**
Best Practice Protocols designed collaboratively with specialists to manage risks for progression of CKD & monitor

**CKD 3**

**PCP**
Coordinated care with Nephrologist & Nephrology Team
Protocols and processes to manage risks for CKD progression, complications of CKD, renal replacement education, access planning & monitoring

**CKD 4**

Coordinated care shifts from the PCP to the Nephrologist & Nephrology Team taking the lead

**CKD 5**

Dialysis & Transplant

Coordinated care Nephrologist & Nephrology Team & PCP
Must Connect the System
Create an Extended Multidisciplinary Team

Understand and Utilize/Enhance the Capacity and Capabilities of Inpatient and Outpatient Facilities/Practices/Resources

Tertiary ↔ Community
Using technology to stay connected

**Connected Care Domains**

<table>
<thead>
<tr>
<th>Service Lines</th>
<th>Platforms (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Live Video (Synchronous)</strong></td>
<td><strong>Mobile Health (mHealth)</strong></td>
</tr>
<tr>
<td>- Live, two-way interaction between a person and a provider using audiovisual telecommunications technology.</td>
<td>- Health care and public health practice and education supported by mobile communication devices such as cell phones, tablet computers, and PDAs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Store-and-Forward (Asynchronous)</strong></th>
<th><strong>Remote Patient Monitoring (RPM)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Transmission of recorded health history through an electronic communications system to a practitioner, usually a specialist, who uses the information to evaluate the case or render a service outside of a real-time or live interaction.</td>
<td>- Personal health and medical data collection from an individual in one location via electronic communication technologies, which is transmitted to a provider in a different location for use in care and related support.</td>
</tr>
</tbody>
</table>

**Transactions Across the Continuum of Care**

- Prevention
- Presentation
- Diagnosis
- Treatment
- Recovery
- Management
Chronic Kidney Disease
- Chronic Kidney Disease (Adult) – Patient Considerations – Complications

Non-ST Elevation Myocardial Infarction (NSTEMI)
- Non-ST Elevation Myocardial Infarction (Adult) – Description – Diagnosis – Treatment – Patient Considerations

Anemia
- Anemia (Adult) – Diagnosis – Treatment – Clinical Follow-Up

Calciphylaxis
- Description – Diagnosis – Treatment

Proteinuria
- Diagnosis – Treatment – Clinical Follow-Up – Patient Considerations – Complications

Autosomal Dominant Polycystic Kidney Disease (ADPKD)
- Description – Diagnosis – Screening – Complications

Atheroembolic Renal Disease
- Diagnosis – Treatment – Prevention – Complications

Nephroureterectomy
- Indications and contraindications – Side Effects – Patient Considerations – Diagnosis – Clinical Follow-Up

Primary Hyperparathyroidism
- Diagnosis – Treatment – Clinical Follow-Up

Hypocalcemia
- Diagnosis – Treatment – Complications
## Chronic Kidney Disease

### Core Materials

<table>
<thead>
<tr>
<th>Document</th>
<th>MC Number</th>
<th>Stage 2/3</th>
<th>Stage 4/5</th>
<th>User Guide (when available)</th>
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<tbody>
<tr>
<td>Advance Health Care Planning: Making Your Wishes Known (Spanish)</td>
<td>MC2107-05</td>
<td>X</td>
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<tr>
<td>Chronic Kidney Disease</td>
<td>MC2107-05SP</td>
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<tr>
<td>Chronic Kidney Disease What You Can Do to Help [DVD] (Spanish)</td>
<td>MC0539</td>
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<tr>
<td>CKD and ESRD Care Paths (Spanish)</td>
<td>MC1489-37</td>
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<td>CKD and ESRD Care Team Notebooks (Spanish)</td>
<td>MC1489-30</td>
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<tr>
<td>CKD: The Importance of Good Nutrition (Arabic)</td>
<td>MC0533-06</td>
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<tr>
<td>CKD Treatment Options (generally received in a class) (Arabic, Spanish)</td>
<td>MC0533-03</td>
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<tr>
<td>CKD Treatment Options [DVD] (Spanish)</td>
<td>MC0533-04SP</td>
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<tr>
<td>Decision Aid Cards (English)</td>
<td>MC4106-178</td>
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<td>Decision Aid Cards Guidelines</td>
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<tr>
<td>Eating Well with Kidney Disease, Diabetes and Heart Disease (Spanish)</td>
<td>MC7525</td>
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<tr>
<td>Foods High in Phosphorus (Spanish)</td>
<td>MC0084</td>
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<tr>
<td>GFR, A Key to Understanding How Well Your Kidneys are Working</td>
<td>MC158375</td>
<td>X</td>
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</tbody>
</table>
Prevalence of renal damage (Stage of CKD) in 6,142 patients with type II Diabetes enrolled in the Study

- No CKD: 3,071 (50%)
- Stage I: 222 (3.6%)
- Stage II: 856 (13.9%)
- Stage IIIa: 1,227 (20.0%)
- Stage IIIb: 579 (9.4%)
- Stage IV: 147 (2.4%)
- Stage V not on dialysis: 40 (0.6%)
Smooth Transitions
Standardization-Collaboration-Communication

- Consistent integrated flow of information
- Standardization of care & care team members’ roles – including the patient
- Expanded CKD/ESRD team
**Concept:** Integration across medical settings and disease phases, captained by nephrologists, will improve care quality and patient outcomes in late-stage chronic kidney disease (CKD) through renal replacement therapy and/or end-of-life care.
Comprehensive CKD Care Model
Nephrologists as the Captain

**Goal:** Develop a CMMI pilot program to test an integrated kidney care delivery model led and implemented by nephrology practices that encompasses the spectrum of advanced kidney disease including late-stage CKD, dialysis, transplantation and post-transplant care, full access to palliative care and transition to hospice care when appropriate.
Comprehensive CKD Care Model
Nephrologists as the Captain

- Manage and slow the progression of kidney disease and other complex chronic conditions common in patients with advanced kidney disease
- Prepare for, and manage care transitions to
  - maximize patient satisfaction
  - improve outcomes
  - optimize shared-decision making
  - reduce costs
- coordinate care and educate patients and caregivers about treatment choices (transplant, Dialysis, Conservative care)
Comprehensive CKD Care Model
Nephrologists as the Captain

1. What expertise is needed in the CKD care model?

2. What are the patient population(s) that would benefit from being in the CKD care delivery model?

3. What is the relationship and role of the primary care physician and subspecialists?

4. What are the patient care needs that the CKD care model should address? (Services to be included)

5. What are the goals of the model and how will they be measured?

6. What model design would best facilitate the goals?
Impact for Nephrologists Based on Model

- investment
- risk

Contract
Comprehensive Care

KDIGO
Our Responsibility

Enhance the delivery of patient-centered, high valued care through

• Developing new patient centered, collaborative, seamless care models
• Research and discoveries for translation to inform best practices
• Knowledge transfer and education
• Establishing appropriateness criteria for tests, therapies and procedures
• Defining/influencing metrics for monitoring value of care
• Influencing public policies
• Teaching multidisciplinary patient-centric team-based care

Value = \frac{\text{Quality (outcomes, safety, service)}}{\text{Cost}}
NARRATIVE

I started in the Diabetic Nephropathy Clinic a couple years ago. I’m an ESRD patient now. They placed a catheter for PD and I was able to start doing home PD. That worked for a couple years, but now I’ve had to change to home HD. My boyfriend comes to every appointment with me and helps me at home. I don’t have any other health problems now, so it’s much easier to manage. Now I have a steady routine and my care team is really pleased with me. I have been able to work and nothing can stop me. I don’t know what I would do in the future if I had to change anything again.

“YOU JUST HAVE TO BE OPTIMISTIC.”

INFLUENCERS

Shared Decisions

Collaboration

Communication

Education

Relationships