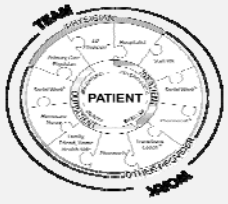
Communication between clinicians*: measurement, quality, and outcomes

*Across care settings

This is a presentation of a recent study on communication between clinicians in one area of health care

The urgency to understand and improve this aspect of care



Quantitative findings

Qualitative findings

Why communicate?

[New Yorker]

- **Integrate expertise**
- **Coordinate actions**
- **Identify roles and responsibilities**
- **Negotiate differences**

Generate a shared mental model of the patient and priorities for care

[Press AJMC 2012; Horwitz JAMA 2011]

Modes of communication between clinicians have evolved

Then: letters, phone calls, face-to-face (personal relationships)
Now: EMR, text, email, ancillary staff (virtual relationships)

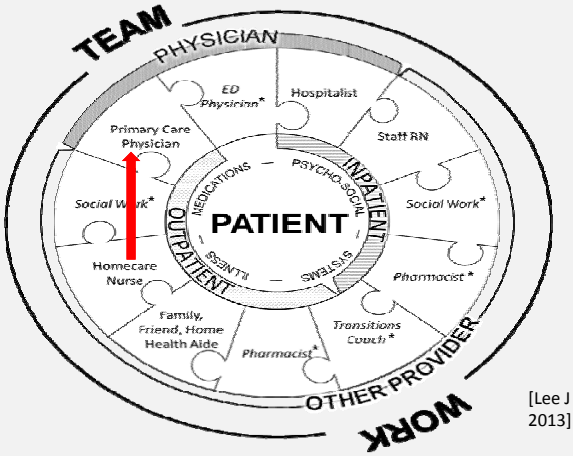
Structure and incentives are aligning to support coordination of care

- Accountable care organizations
- Medical home/neighborhood
- Health information exchanges

http://www.youtube.com/watch?v=u7-OFX-xCC8

The success or failure of these initiatives could hinge on effective communication between clinicians

Communication between clinicians is especially critical during transitions in care (eg, hospital discharge)



[Lee J Hosp Med 2013]

How do we measure its occurrence, quality, and impact?

Specific Aims

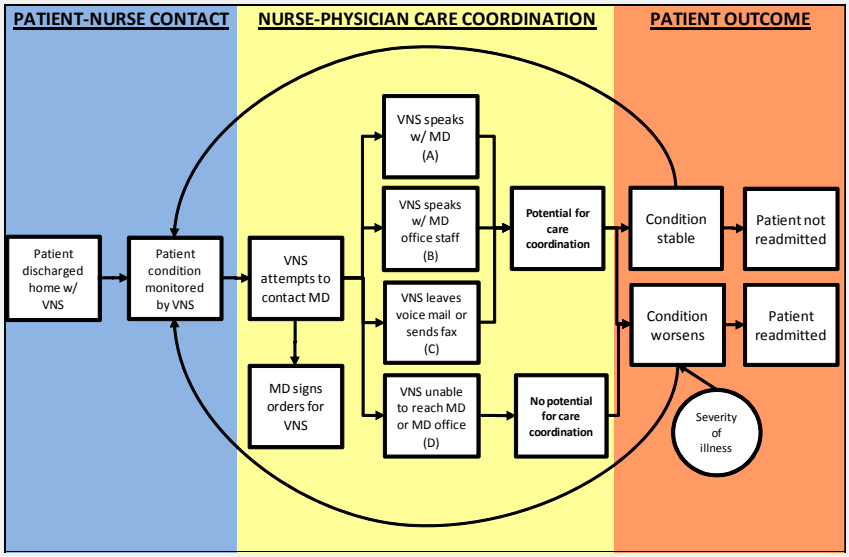
1) **Develop a novel method to assess the "success" of communication between home health nurses and physicians caring for recently hospitalized patients**

2) **Determine the association between communication success and risk of hospital readmission**

3) **Identify nurse, physician, and patient characteristics associated with communication success**

4) **Explore barriers to effective communication from the perspectives of nurses and physicians**

We theorized that communication attempts from nurse to physician fell into one of four categories of "success"



Data

- **VNSNY electronic medical record**
  - **Patient, RN, and MD identifiers and characteristics**
  - **Documentation of RN-MD communication attempts (free-text)**
- **Medpar and BASF (Medicare inpatient claims and eligibility file) to determine admission/readmission**
- **AMA Masterfile: physician characteristics**
- **2 RN focus groups (12 RNs in each)**
- **10 individual MD interviews**

Study population

- **Congestive heart failure**
- **Medicare FFS insurance**
- **Receipt of home health care from VNSNY in 2008 or 2009 within 8 days of a hospital discharge**
- **At least one valid communication attempt between hospital discharge date and +30 days (or readmission)**

N=6,741

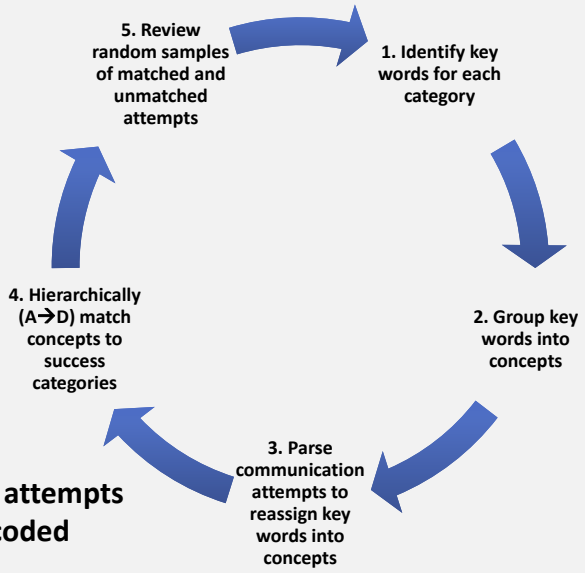
Measures

- **Outcome**
  - **30-day all-condition, all-cause readmission**
  - **30-day CHF-specific, all-cause readmission**
- **Key independent variable: communication "success"**
  - **Communication failure rate (D attempts/total attempts)**
  - **Communication success rate (A attempts/total attempts)**
  - **Any attempt D (yes/no)**
  - **First attempt D (yes/no)**

Analysis

- **Logistic regression estimating effect of communication failure/success on risk of readmission during episode**
- **Sensitivity analysis using Cox proportional hazard model**
- **Logistic regression estimating effect of RN and MD characteristics on communication failure/success**
- **Covariates**
  - **Patient: demographics, comorbidities, care and support**
  - **RN: fixed effects (compensation, degree, experience)**
  - **MD: specialty, certification, experience**
  - **Hospital: fixed effects**

We developed a novel computerized text-processing algorithm to categorize "success" of communication attempts



55,141 total attempts
1,416 hard-coded

External validity test of algorithm

- Intended to assess if the algorithm categorized as we intended it to
- 3 home health nurses not involved in algorithm development
  - Given conceptual explanation and a single "gray area" example for each code
  - Given 100 communication attempts to code independently
- Multirater reliability results (D vs. non-D):
  - For the 3 raters (excluding the algorithm): kappa=0.869, $p<0.0001$
  - For 4 raters: kappa=0.850, $p<0.0001$
    - ➢ Algorithm = human coders

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For study population, most communication attempts were "successful"

Grade	
A	PT HAS LOW PULSE TODAY 48-52--VN CALLED MD OFFICE AND SPOKE W/ X. AS PER X MD STATED
B	MD BUSY. LEFT MSG. WITH SECR. X RE: WOCN'S RECOMMENDATION FOR WD. CARE
C	MESSAGE LEFT FOR MD RE; CHANGES IN POC…
ABC	A, B, or C; but unable to further specify
D	NO MD CLAIMS TO KNOW PT.
Total	

On average, communication attempts were infrequent, and the communication failure rate was moderate

Study population (N=6,741)	
Avg. age	81 years
All-condition readmission rate	21%
Avg. # of communication attempts	2.3 (range 1-25)
# hospitals	310
# nurses	1,039
# physicians	3,014
Avg. "failure" rate (D/total)	8%
Avg. "success" rate (A/total)	46%

Unadjusted readmission rates were higher in categories of cases with more communication failures

	No. of cases (%)	Unadjusted readmission rate (%)
Low failure rate (0-9%)	5,841 (87%)	21%
Moderate (10-49%)	324 (5%)	17%
High (50-100%)	576 (8%)	26%
No attempt failed	5,828 (86%)	21%
≥1 attempt failed	913 (14%)	23%
First attempt successful	6,014 (89%)	21%
First attempt failed	727 (11%)	23%

Effect of communication failure on readmission not significant in multivariate analyses

Measure of failure	Coefficient (SE)
Failure rate	0.0593 (0.0376)
Any attempt failed	0.0160 (0.0214)
First attempt failed	0.0201 (0.0231)

"Success" rate (A/total) had nonlinear significant effect on readmission (p<.01)

Success rate	Linear coeff	Squared coeff	Change in readmission rate
0	-0.2212	0.2352	0
50%	-0.2212	0.2352	-5%
100%	-0.2212	0.2352	1%

Some patient, nurse, and physician characteristics were associated with success/failure rates

	Failure rate (coeff)	Success rate (coeff)
Income ($30k-$50k)	-0.0183**	0.0350*
Income (>$50k)	-0.0298***	0.0177
>Bachelors degree	-0.0213**	0.0072
Surgeon	-0.0017	-0.0480***

*0.10
**0.05
***0.01

Barriers to effective communication identified by both RNs and MDs

Accountability

Is there a physician willing to be responsible for overseeing the patient's home care?

- **RN**: "When the patient comes out of the hospital and they don't have a community doctor… we try to get in touch with the referring physician…but the doctor will just say, 'No, I'm not going to talk about that patient. He's not my patient. I just saw him in the hospital.'"
- **PCP MD**: "If I didn't see the patient, I don't feel comfortable – I will advise the RN to reach the other physician."
- **Specialist MD**: I'd say the nurses contact me rarely for issues I shouldn't be dealing with (i.e. vital signs etc.). It does happen once in a while. I assume they are calling the PCP…and that's who's dealing with these things."

Accessibility

Can the home health nurse reach the responsible physician in a timely manner, including after hours and on weekends? Can the MD reach the RN?

- **RN**: "You leave a message, you leave a message, you leave a message. You cannot get the doctor. By the time you turn around, the same patient is back in the hospital."
- **Specialist MD**: "Typically they (RNs) call my office line, my secretary or office has to find me and that's incredibly inefficient. I don't routinely give out my cell phone number so they don't have it to call me."
- **PCP MD**: "A lot of nurses know me, I know them, they have my phone number, I have their phone number. I'd rather you call me first than reflexively send someone to the ER with something we can deal with."

Approach

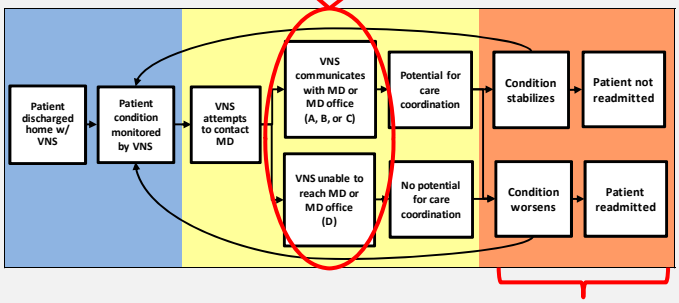
Attitude (willingness), knowledge, and skills to collaborate and manage a patient at home

- **RN:** "I've gotten hung up on, yelled at by the doctor…for me giving her suggestions that the patient should go to a cardiologist. She is just like, 'Who are you? You're just a nurse.'"
- **PCP MD**: "I believe it (home care) does help me take care of the patient. I appreciate it because it's the "second eye" that sees the patient."
- **Specialist MD**: "I have no faith that who I am talking to has an appropriate understanding of what is going on. Basically it is a pre-911 call."

In summary…

This is possible to identify from computerized analysis of free text

14% of cases had ≥1 attempt fail; 8% had half or more fail; RNs and MDs identified remediable barriers to communication



The direct effect of communication failure on readmission was mostly explained by other variables

"We train, hire, and pay doctors to be cowboys. But it's ~~pit crews~~ people need." [Atul Gawande, HMS Commencement 2011]

air traffic controllers

- **Research**
  - ✓ New measures of cross-setting communication
- **Education**
  - ✓ Training at all levels to build skills
- **Practice**
  - ✓ Low- and high-tech support tools
  - ✓ Culture change

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Research team

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Extra slides

Significant gaps exist in our knowledge about care coordination and clinical collaboration

> **"In July 2011, HHS tasked NQF to lead a two-phased project on care coordination across episodes of care and care transitions…Despite extensive targeted outreach to solicit new measures—especially those that address cross-cutting components of care coordination—NQF did not receive any new measures for review."**
>
> *-NQF Endorsement Summary, August 2012*

Next steps

Natural language processing in the EMR to assess collaborative practice by primary care physicians

Domains

1. **MD-RN (internal and external)**
2. **PCP-Specialist**
3. **PCP-Hospitalist**

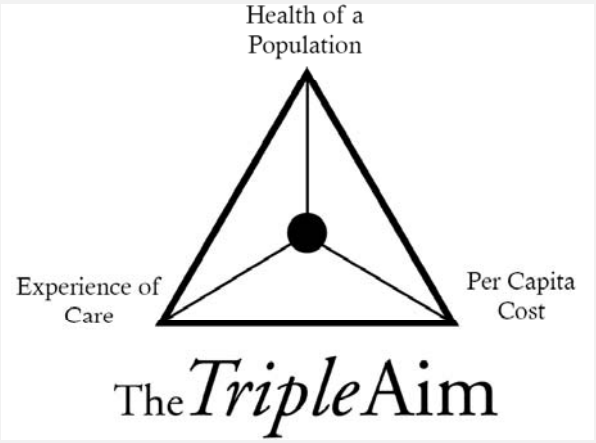
Collaborative practice summary score

-Validate with manual chart review

-Apply to different populations of patients

-Ultimately link with pt experience and outcomes (eg hospitalizations)

Effective communication between clinicians could impact achievement of all aspects of the triple aim



But right now, on the whole, communication between clinicians is poor

"Process"		
	PCP always get info back after referral	37%
	PCP routinely notified about hospital discharge	17-20%
	Discharge summaries without info on pending tests	65%
"Outcomes"		
	30-day readmission	20%

How could communication between home health nurses and physicians be improved?

RNs suggest shared mental model, and MDs suggest different routes of communication

- **RN:** "We need doctors to take on ownership. When you refer a patient to home care we need you to be accessible, willing to communicate with us."
- **RN:** "Educate the doctors that we don't want to take time from them. We are busy ourselves. You come on the phone, it takes 30 seconds, we discuss the patient. They need to learn where we're coming from."
- **MD Specialist:** "Written communication is antiquated and there are a lot more modern ways to deal with it. Email maybe even text messaging. Ideally I'd like them to call cell phone to cell phone."
- **MD Specialist:** "The ability to use Skype or similar technology. 'Look at this abdominal wound; this leg looks terrible. Let me show you.'"