When the system fails the patient

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Financial constraints force Carla to give up her car, making transportation difficult.

Poor blood flow noted in AV fistula.

Appointment made for Ultrasound at Hospital. Carla uncomfortable telling nurse that she isn’t sure how she’ll make it.

Carla arrives late, policy directs that she be forced to reschedule. Clerk, recently reprimanded, unwilling to make an exception. Reschedule for two days later.

Very low blood flow noted in dialysis, prompting transfer to ED. Critical Potassium level and clot noted in fistula.

Carla admitted to hospital, given tPA. Started on IV heparin and PO warfarin. Given temporary dialysis.

Carla explains that checking INR regularly with Primary care will be difficult, social worker suggests that the level be followed in Dialysis. It is unclear if these arrangements are made.

Carla receives standard discharge instructions, including need to follow INR and to see nutritionist. She is tired from her stay and leaves form in a friends car.

Appointment made for Nutrition consult, but Carla cannot be reached by phone. Appointment slip mailed, but no follow-up.

Carla misses dialysis, and assistant thinks to call police after getting no answer on her cell phone but gets distracted. Carla is feeling poorly but ignores a friends suggestion to call for help.

Returns to ED, waits for labs. Critical potassium reported but critical INR value entered without calling ED. Cursory physical exam may miss neurological signs. Carla suffers subdural hematoma.

2.5 weeks later, DVT diagnosed in right arm. INR below goal. Apparently Carla’s INR was never checked in Dialysis. Started again on heparin and warfarin. Nutritionist meets with Carla and redirects diet.
## What went wrong?

<table>
<thead>
<tr>
<th>Communication Breakdown</th>
<th>Policy Failures</th>
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<tbody>
<tr>
<td>• Carla uncomfortable discussing transportation hardships</td>
<td>• Radiology clerk unable to “work-in” Carla after she arrives late</td>
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<td>• Clear discharge instructions not reliably received by primary MD and dialysis clinic</td>
<td>• Critical INR value not required to be called to the RN in the ED</td>
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<td>• Instructions for INR checks not relayed to dialysis clinic</td>
<td>• Visitation hours prevent family from staying with Carla on her birthday, possibly resulting in missed information</td>
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<tr>
<td>• Appointment for nutrition consult not reliably relayed to Carla</td>
<td>• Discharge instructions given to patient, but unclear if any effort is made to ensure that patient understands what has been said or planned</td>
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<tr>
<td>• Carla misses dialysis, and can’t be reached by cell phone, call to police to check on her forgotten</td>
<td>• No nutritionist or pharmacist available for discharge counseling for patients on medications that require dietary modifications</td>
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<td>• Lab tech fails to call critical INR result to ED. No one else notes critical value</td>
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<td>• Medical student concerned about mental status, but delays reporting</td>
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New Rules for System

• Carla’s healthcare “system” is about as far from a system as it could be. A basic rule that could guide the development of an ideal healthcare system would be:

“An individual should be assured that every microsystem of healthcare they interact with (doctor’s office, dialysis clinic, etc.) works seamlessly with every other microsystem in order to create a macrosystem capable of providing the best possible care”
Ideal Process Map

Primary Care Physician

- Organizes all of Carla’s care, aware of her financial limitations and family support systems.
- Coordinates Dialysis, other referrals as needed and any medication monitoring.
  - IS notified each time Carla has an ED visit or hospitalization

Dialysis Clinic

- Carla’s dialysis managed appropriately by Nephrologist
- Policies in place to follow necessary labs as Carla in clinic 3 times per week
  - Patient is routinely called if absent from dialysis
- Education provided regarding disease and risks of Dialysis

Hospital

- Flexible policies for rescheduling
  - Open visitation options
  - Failsafe policy for reporting critical lab values
- Culture where anyone feels comfortable reporting a change in patient status

Electronic Medical Record Exchange

- Expedient and accurate sharing of records between Primary Care, Dialysis, and others
- Up-to-date contact information
- Tools to monitor for appropriate patient follow-up
<table>
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<th>Making PART of the System Better</th>
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<tr>
<td>• Uniform reporting of critical lab values</td>
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<tr>
<td>• Ensuring patient follow-up after discharge</td>
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<td>• Accurate communication with primary care and other care providers</td>
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<td>• Reliable discharge instructions given to patients, with demonstrated understanding</td>
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<td>• “99% of critical lab values called to floor within 10 minutes of result”</td>
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<td>• “Within 6 months, contact made with each patient 48 hours after discharge to ensure follow-up”</td>
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<tr>
<td>• “Implement system within 12 months to allow electronic transfer of discharge summary and any recommendations made for each patient to ensure accurate follow-up”</td>
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<td>• “Under direction of Social Work, ensure that every patient understands plan for discharge and any follow-up before leaving the hospital by the end of 3 months”</td>
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Process Measures
(tracking progress of improvement)

Uniform reporting of lab values

Create a database used to log all critical lab values – using the electronic medical record, require the lab, radiology, etc. to log what time the critical value was discovered with an electronic signature, and also require the nurse on the floor to log what time the critical value was relayed to him/her with an electronic signature; track the elapsed time between when both values were logged (with a goal of 10 minutes or less)

Ensuring patient follow-up after discharge / Reliable discharge instructions

Keep patient’s chart active in the medical record 48 hours after discharge (as if they were still in the hospital) – active chart would not close until a member of the healthcare team documented making contact with the patient within 48 hours after discharge – record when contact was made in electronic log

Accurate communication with PCP

Since discharge information will be passed to PCP and other providers in the electronic medical record: require the PCP/other provider input an electronic signature to verify receipt and understanding of the discharge summary – track how long it takes between the time the patient is discharged to the time the PCP/other provider acknowledges understanding of the discharge summary, and when PCP appointment is scheduled
Outcome Measures
(assessing impact of improvement)

Uniform reporting of lab values

Help staff form an understanding of why prompt response to a critical lab value is Necessary thru training. As a possible example to assess this: after a few months of implementation of the new reporting system ask laboratory technicians to rate their understanding of the importance of the new process on a scale of 1-10 and allow for commentary.

Ensuring patient follow-up after discharge / Reliable discharge instructions

This could also be assessed by measuring the percentage of patients contacted within 48 hours of discharge. Use a monthly chart review with random sampling of a subset of the discharges. A simple evaluation could also be sent to a representative sample of patients to have them assess their understanding of instructions.

Accurate communication with PCP

Ask community physicians to respond to the new program for enhanced hospital to clinic communication after several months of implementation. Specifically assess their feelings regarding improved communication and the impact on patient safety.
Balancing Measures (monitoring costs of improvement)

Uniform reporting of lab values

Will need to allocate money & IT work hours to design a way to input information into the electronic medical record; will need to assess whether implementation of the new mandatory reporting of critical lab values distracts the lab technicians or nurses on the floor in any way.

Ensuring patient follow-up after discharge / Reliable Discharge Instructions

Determine if the benefit of connecting with patients outweighs the cost associated with hiring a person, or reassigning an employee from other tasks, to provide post-hospital follow-up (in essence, assess if the employee’s talent could be better used elsewhere).

Accurate communication with PCP

Is the increased complexity, cost, and burden on IT personnel worth the improved level of communication and transferability?
What changes first?

Improved reporting of Critical Lab Values

— Relatively straight-forward process changes
— Could easily start with either the lab for the Emergency Department (if separate) or with one or two lab tests, allowing rapid incremental changes
— Would need support from IT to embed this process in electronic reporting of laboratory data, ideally in a way that can’t be bypassed or forgotten
Testing change-Critical Lab Values

• What questions do you hope to answer with this test, and what do you predict the answers are?
  — How readily can the process for reporting laboratory values be altered to allow prompt reporting of critical lab values

• What changes will be tested?
  — Addition of new database to track reporting of critical values, including staff involved and times where values were both noted and reported to the appropriate unit

• How will the changes be tested (consider small scale early)?
  — Since most hospitals have centralized lab facilities, starting with only one laboratory test might allow for the best chance at success

• Who will run the test?
  — Implementation should be overseen by a multidisciplinary team that should at a minimum include a physician, a nurse, laboratory technician and a patient

• Where and when will the test take place?
  — Initial implementation should take place during a time where members of the improvement team are available to help with any questions or immediate problems. This will also allow for monitoring and recognition of unforeseen complications of the new process
Testing change-Critical Lab Values

• **What information is important to collect?**
  — Percentage of critical values called to unit
  — Time from recognition of critical value to report
  — Additional time required by lab technician to report critical values and subsequently any delays in other laboratory processes

• **Why is it important?**
  — These data will allow the team to assess the process measures as well as to address balancing measures

• **Who will collect the data / how will the data be collected?**
  — Data on reporting should be retrievable from new database process
  — Data on time spent by the lab technician performing the new process would require observation or self-reporting, preferably both to address any possible inconsistencies or resistance to the change
  — Data collection could be provided by a student interested in being part of the change

• **Who will analyze the data prior to study?**
  — The ideal analyst would be a member of the hospital quality team

• **Where will data be kept?**
  — Any data with patient information should already be stored using standard protections. All other data should be secured where tampering or potential exposure is limited

• **When will the collection of data take place?**
  — With each round of implementation, both for the small scale (one laboratory test) and with subsequent expansions/iterations up to the full process change with all critical values
Challenges

• As with any change, there is likely to be resistance from many members of the healthcare team, most likely from the people who’s daily tasks will be altered (lab techs, social workers required to call patients in follow-up, IT professionals charged with implementation of electronic records and new processes, etc.)

• In addition, the benefit of the change may not be readily apparent to the employees of the hospital, especially as changes are implemented gradually. This may add to frustration and resistance.

• These obstacles can best be overcome by securing support from key leaders in all areas, including laboratory, social work, nursing and physicians. In addition, regular reporting of improvement outcomes can bolster support for the new changes. Finally, patient stories can serve as a powerful tool to focus employees as they allow a personal connection. For example, one could tell contrasting stories before and after changes. One to detail the unfortunate outcome for Carla, and another where early reporting of lab data, careful follow-up, or effective discharge instructions made a positive difference.