Supplemental Table 1: RRT criteria at Mayo Clinic Rochester

- Acute decline in oxygen saturations < 90%
- Acute change in heart rate (HR): < 40 bpm or > 130 bpm
- Acute change in systolic BP: < 90 mmHg
- Acute change in RR: < 10 or > 28 breaths per minute
- Acute chest pain suggestive of ischemia
- Acute and persistent change in conscious state from baseline if known, new GCS < 14 if baseline unknown
- Acute onset of symptoms suggestive of stroke

Supplemental Table 2: Taxonomy of where and what diagnostic errors and delays occur[a]

Where in Diagnostic Process	**What went wrong**
Access/presentation	Denied care Delayed presentation
History	Failure/delay in eliciting critical piece of history data Inaccurate/misinterpretation of history Suboptimal weighing of piece of history Failure/delay to follow up of critical piece of history
Physical exam	Failure/delay in eliciting a critical physical exam finding Inaccurate/misinterpreted critical physical exam finding Suboptimal weighing of critical exam finding Failure/delay to follow up on critical exam finding
Tests (labs/radiology)	Ordering • Failure/delay in ordering needed test(s) • Failure/delay in performing ordered test(s)

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	• Suboptimal test sequencing • Ordering of wrong test(s) Performance • Sample mix-up/mislabeled • Technical errors/poor processing of specimen/test • Erroneous lab/radiology reading of tests • Failed/delayed transmission or result to clinician Clinician processing • Failed/delayed follow up action on test result • Erroneous clinician interpretation of test
Assessment	Hypothesis generation • Failure/delay in considering the correct diagnosis Suboptimal weighing/prioritization • Too much weight to low(er) probability/priority diagnosis • Too little consideration of high(er) probability/priority dx • Too much weight on competing diagnosis Recognizing urgency/complications

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	• Failure to appreciate urgency/acuity of illness • Failure/delay in recognizing complication(s)
Referral/consultation	Failure/delay in ordering needing referral Inappropriate/unneeded referral Suboptimal consultation diagnostic performance Failed/delayed communication/follow up of consultation
Follow up	Failure to refer to setting for close monitoring Failure/delay in timely follow up/rechecking of patient

[a]Reproduced with permission from: "Table 3. Taxonomy of where and what errors occurred." *From*: Schiff GD, Kim S, Abrams R, et al. Diagnosing Diagnosis Errors: Lessons from a Multi-institutional Collaborative Project. In: Henriksen K, Battles JB, Marks ES, et al., editors. *Advances in Patient Safety: From Research to Implementation* (Volume 2: Concepts and Methodology). Rockville (MD): Agency for Healthcare Research and Quality (US); 2005 Feb. (AHRQ Publication No. 05-0021-2). Available from: https://www.ncbi.nlm.nih.gov/books/NBK20492/ [15]

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Supplemental Table 3: Modified Goldman classification

Diagnostic Error Class	Modified Classification
Class I	A major diagnostic error with a potential adverse impact on patient survival or safety; earlier detection probably would have changed management
Class II	A major diagnostic error that did not have an impact on survival or safety; earlier detection probably would not have changed management
Class III	A minor diagnostic error related to the primary disease
Class IV	Other minor diagnostic errors

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Supplemental Appendix A: Standard operating procedure for the review of patients who screen positive for potential diagnostic error and delay (DEAD)

Scope and applicability

Diagnostic errors and delay are recognized as contributors to avoidable illness. The Institute of medicine has published a recent report on improving diagnosis in healthcare in the US. Diagnostic errors and delays remain a largely understudied area in healthcare. Detection of diagnostic error has previously been described in comparison to autopsy findings, with rates suggestive of 10 – 20%.

The critical 'golden hour' accurate diagnosis and timely delivery of treatment is challenged by nonspecific signs and symptoms along with complex interactions and evolving problems including diagnostic errors. In order to assess the role of critical and timely delivery of treatments we must be able to identify critical syndromes.

A standardized procedure has been developed to abstract data that helps identify organ system failures and diagnosis recognition at admission, time of RRT activation or ICU admission if present. A convenience sample of patients has been identified from an existing RRT database. The patients were sequentially selected as the first 130 patients from this database and constitute the sample of patients provided for application of this standardized operating procedure. The charts are to be screened for diagnostic error or delay by identifying discrepancies in organ system failures or problem lists at each time point. In order to assess the ability of this screening method to identify patients with a diagnostic error or delay you will review their charts and

inter-rate reliability will be tested using agreement statistics. All data will be entered in RedCap.

Procedure

1. Identify patient and their mayo clinic number from the provided convenience sample of patients.
2. Select patient by searching in synthesis using the subject's mayo clinic number
3. Confirm last name as the name listed in the data spreadsheet
4. Review the chart for the hospital encounter of interest from initial presentation to discharge:
    - Clinical notes (under documents tab) including ED and all hospital notes relevant to the encounter
    - Imaging (under documents tab)
    - Laboratory results (under Labs tab)
    - Vital signs during admission (under vital signs tab)
    - Nursing assessments (under viewers/reports tab)
5. Was there a diagnostic error or delay?
        - Diagnostic error is defined as a failure to establish an accurate diagnosis or failure to communicate the diagnosis in medical records
        - Diagnostic delay is the failure to establish a timely explanation of the patient's health problem and communicate it in the medical records
        - Use Table 1 to help guide your assessment of diagnostic error and/or delay.

Table 1: Taxonomy of where and what diagnostic errors and delays occur (From: Schiff GD, et al. (2005). Diagnosing Diagnosis Errors: Lessons from a Multi-institutional Collaborative Project. Advances in Patient Safety: From Research to Implementation (Volume 2: Concepts and Methodology). Henriksen K, Battles JB, Marks ES and L. DI. Rockville (MD), Agency for Health Research and Quality (US).**)**

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Tests (labs/radiology)	Ordering • Failure/delay in ordering needed test(s) • Failure/delay in performing ordered test(s) • Suboptimal test sequencing • Ordering of wrong test(s) Performance

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	• Sample mix-up/mislabeled • Technical errors/poor processing of specimen/test • Erroneous lab/radiol reading of tests • Failed/delayed transmission or result to clinician Clinician processing • Failed/delayed follow up action on test result • Erroneous clinician interpretation of test
Assessment	Hypothesis generation • Failure/delay in considering the correct diagnosis Suboptimal weighing/prioritization • Too much weight to low(er) probability/priority diagnosis • Too little consideration of high(er) probability/priority dx • Too much weight on competing diagnosis Recognizing urgency/complications • Failure to appreciate urgency/acuity of illness • Failure/delay in recognizing complication(s)

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Referral/consultation	Failure/delay in ordering needing referral Inappropriate/unneeded referral Suboptimal consultation diagnostic performance Failed/delayed communication/follow up of consultation
Follow up	Failure to refer to setting for close monitoring Failure/delay in timely follow up/rechecking of patient

6. If there was a diagnostic error, which type of diagnostic error was present?
    - Type I
        - A major diagnostic error with a potential adverse impact on patient survival or safety; earlier detection probably would have changed management
    - Type II
        - A major diagnostic error that did not have an impact on survival or safety; earlier detection probably would not have changed management.
    - Type III
        - A minor diagnostic error related to the primary diagnosis
    - Type IV
        - Other minor diagnostic error

Quality control

Once charts have been reviewed by two critical care fellows the results will be reviewed for agreement. Subjects in which the two fellows did not have agreement will be reviewed by two board certified critical care attendings/consultants.