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| **FENA (Fractional Excretion of Sodium)** |
| **Purpose** | This procedure provides instructions for calculating FENA (FRACTIONIONAL EXCRETION OF SODIUM) |
| **Policy Statements** | This procedure applies to all personnel who perform testing on the Abbott Alinity ci and are responsible for calculating FENA |
| **Clinical Significance** | To provide meaningful information for random sodium excretion. Urinary sodium excretion normally relates to intake. Body sodium stores are based on intake and renal excretion. The fractional excretion of sodium based on simultaneously collected random urine and blood samples for the determination of sodium and creatinine levels is an indicator of acute tubular renal necrosis.  |
| **Instrument** | **PRIMARY METHOD:** Abbott Alinity ci (MACC) Minneapolis, Abbott Alinity c (SALIC) St. Paul |
| **Test Code** |

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| **Sunquest test code** | **Test description** |
| FENA | Fractional Excretion of Sodium measured in % |
| NA | Sodium in serum/plasma |
| CREA | Creatinine in serum plasma |
| UNAR | Sodium in random urine |
| UCRE | Creatinine in random urine |

FENA may be ordered as an “Add on” test after urine sodium is done. In this instance the duplicate test must be credited. |
| **Sample** | **Plasma** (lithium heparin) preferred or Serum (no gel) **and** **Urine:** Random collection no preservatives, obtained simultaneously with the blood sample. Refer to the Specimen Collection Manual for instructions for collection and processing of samples.**Patient Preparation:** Eat a normal diet with a normal amount of salt. Certain diuretic medicines may affect test results.**Minimum volume:**0.2 mL plasma or serum1.0 mL random urine**Stability:**Plasma/serum: 1 day/ Room Temperature, 7 days at 2-8°C, or 3 months at -20°C Urines (random or 24 hour collections) 2 – 8 ºC / 4 days. Freeze for longer storage.**Rejection criteria**: Unlabeled specimens**Specimen Processing:**1. Whole blood and body fluid specimens should be centrifuged according to Specimen Processing procedures prior to analysis.
2. Complete clot formation should take place before centrifugation.
3. Separate serum or plasma from cells with a maximum limit of 2 hours from the time of collection. Specimens should be free of particulate matter.
4. Centrifuge Urine specimens prior to analysis
5. Transfer serum, plasma, or urine to a properly labeled pilot tube. Minimum labeling includes sample accession ID, and/ or patient name, medical record number, collection date and time.
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| **Special Safety Precautions** | Follow laboratory safety policies and procedures. |
| **Calibration** | The calculation requires a current calibration for sodium and creatinine. Refer to the Abbott Alinity assay procedures for urine and serum sodium, and urine and serum creatinine for calibration information. |
| **Quality Control** | Refer to the Quality Control section of each assay procedure for urine and serum sodium, and urine and serum creatinine. |
| **Procedure** | Follow the activities in the table below for PERFORMING FENA (Fractional Excretion of Sodium) |
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| **Step** | **Action** |
| 1 | Process the serum/plasma sample for sodium and creatinine, and the urine sample for sodium and creatinine according to the Abbott Alinity assay procedures. |
| 2 | Results will automatically cross into the Laboratory Information System (Sunquest) when no error messages are present. |
| 3 | Sunquest will perform the calculation for FENA when all data is present without error message. |
| **Calculations** | The actual calculation performed by the computer system:FENA = Urine Na X serum Creat X 100 Urine Creat serum Na |
| **Critical Values** | None defined |
| **Reference Intervals** | Expected value: 1 - 3%Prerenal azotemia, dehydration: <1%Acute tubular necrosis: > 3% |
| **Result Reporting** | Results will print on the instrument printer and are automatically sent to the laboratory computer system with associated error messages. The operator must review each result before reporting.**Computer entry:** OEM (online result entry)1. In **Sunquest**, use function OEM and enter the instrument method code.
2. The screen will default to the last “cup number” resulted. Enter the next cup number to continue.
3. When results are displayed on the screen, press “D” to display the previous results for comparison.
4. Press “M” to modify or remove the result (enter -), or to append a comment (- MIQ English text code.)
5. When the results are ready to be sent, press “A” to accept.
6. The next available result comes up for review and resulting.

MEM (manual result entry)1. In **Sunquest**, use function MEM.
2. Use worksheet BF1
3. Modify method to the instrument method code.
4. Enter patient’s accession #.
5. Manually enter the results as prompted.
	1. For UNAR enter the random urine sodium result in mEq/L. **NOTE**: If urine sodium result is <20, FENA will result as UNCA “Unable to calculate”
	2. For UCRE enter the random urine creatinine result in mg/dL
	3. For NA enter the serum/plasma sodium result in mEq/L
	4. For CREA enter the serum/plasma creatinine result in mg/dL.
6. Accept or modify as in OEM.
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| **Historical Record** | **Version** | **Written/Revised by:** | **Effective Date:** | **Summary of Revisions** |
|  | L. Lichty | June 20, 2005 | Initial Version |
|  | L. Lichty | July 15, 2011 | New format, renumbered from CH 6.075 |
|  | L. Lichty | April 27, 2015 | Updated for Vista |
|  | Erin Bartos | June 30, 2017 | Updated format, biennial review, added urine sodium <5 result entry. |
|  | Elauteria Earnhardt | 04/13/2020 | Removed information pertaining to the RXL analyzer |
|  | Erin Bartos | October 28, 2020 | Replacement of Siemens Dimension analyzer with Abbott Alinity ci. Changed Urine NA <20 to result with UNCA |
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