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| Thiazide – Hydrochlorothiazide (HCTZ)   |
| Time 0 – APC or MD StartWeek 4Week 8 | HCTZ 12.5mg once daily in the morning*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*HCTZ 25mg once daily in the morning*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60* :Consult clinician to add an additional agent*.* |
| **Monitoring:** | Order: Follow-up labs (BMP) at 2 weeks after starting Hydrochlorothiazide therapy OR changing Hydrochlorothiazide dose. If patient is taking Lithium, a Lithium level also required at 2 weeks after starting Hydrochlorothiazide therapy OR changing Hydrochlorothiazide dose and communication to BH prescribing provider (HVMA and outside HVMA prescribers) at start and each dose change. Lithium levels should be checked 12 hours after last dose. |
| **RN 2nd level check of exclusion criteria (at each dose increase):**  | **Side effects (at each dose increase):** | **Monitoring (at time of enrollment):** |
| * Age ≥ 80yr
* Current anti-arrhythmic therapy
* eGFR < 45
* Current digoxin therapy
* Current lithium therapy
* Diagnosis of atrial fibrillation
* Sulfa allergy
* Gout
* Pregnancy

**If present, consult with clinician.** | * Signs and symptoms of allergic reaction (including rash)
* Dizziness, lightheadedness, orthostasis
* Photosensitivity (precaution, e.g. seasonally related, sun vacationing, tanning)
* Sexual dysfunction (Do you have any change in sexual function?)

**If any significant side effects, consult with clinician.** | Review last lab values for: * Sodium, potassium, BUN, creatinine, glucose, calcium, eGFR (renal function) within the last 6 months

If patient has a diagnosis or history of gout:* Uric acid within the last 6 months

If patient is on Digoxin:* Digoxin level within the last 6 months

If patient is on Lithium:* Lithium level within the last 6 months

If no results available within the last 6 months, order required labs as listed above. Lithium levels should be checked 12 hours after last dose.**If any lab abnormalities, consult with clinician.** |

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|  **Title**  | **RN Hypertension Medication Titration Protocol** |
| **Author : Thad Schilling, MD** | **Date of Origin**  | 10/2009 |
| **Reviewed/Approved by**  | Quality Assurance Committee  | **Date Reviewed/ Approved** | 10/1/2009 4/6/2012 |
|  | Clinical Leadership | **Revised** | 6/13/2013 |
| **Responsible for Implementation**  | Thad Schilling, MD |
| **Keywords**  | Protocol, Nursing, Medication, Hypertension, Thiazide, Diuretic, HCTZ, Hydrochlorothiazide |
| **Share Place Site**  | *TBD* |

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| Thiazide - Chlorthalidone |
| Time 0 – APC or MD StartWeek 4Week 8 | Chlorthalidone 12.5mg once daily in the morning*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*Chlorthalidone 25mg once daily in the morning*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60 :*Consult clinician to add an additional agent. |
| **Monitoring:** | Order: Follow-up labs (BMP) at 2 weeks after starting Chlorthalidone therapy OR changing Chlorthalidone dose. If patient is taking Lithium, a Lithium level also required at 2 weeks after starting Chlorthalidone therapy OR changing Chlorthalidone dose and communication to BH prescribing provider (HVMA and outside HVMA prescribers) at start and each dose change. Lithium levels should be checked 12 hours after last dose. |
| **RN 2nd level check of exclusion criteria (at each dose increase):** | **Side effects (at each dose increase):** | **Monitoring** **(at time of enrollment):** |
| * Age ≥ 80yr
* Current anti-arrhythmic therapy
* eGFR < 45
* Current digoxin therapy
* Current lithium therapy
* Diagnosis of atrial fibrillation
* Sulfa allergy
* Gout
* Pregnancy

**If present, consult with clinician** | * Signs and symptoms of allergic reaction (including rash)
* Dizziness, lightheadedness, orthostasis
* Photosensitivity (precaution, e.g. seasonally related, sun vacationing, tanning)
* Sexual dysfunction (Do you have any change in sexual function?)

**If any significant side effects, consult with clinician.** | Review last lab values for: - Sodium, potassium, BUN, creatinine, glucose, calcium, eGFR (renal function) within the last 6 months.If patient has a diagnosis or history of gout:- Uric acid within the last 6 monthsIf patient is on Digoxin:- Digoxin level within the last 6 monthsIf patient is on Lithium:- Lithium level within the last 6 monthsIf no results available within the last 6 months, order required labs as listed above. Lithium levels should be checked 12 hours after last dose.**If any lab abnormalities, consult with clinician.** |

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|  **Title**  | **RN Hypertension Medication Titration Protocol** |
| **Author : Thad Schilling, MD** | **Date of Origin**  | 10/2009 |
| **Reviewed/ Approved by**  | Quality Assurance Committee  | **Date Reviewed/ Approved** | 10/1/20094/6/2012 |
|  | Clinical Leadership | **Revised** | 6/13/2013 |
| **Responsible for Implementation**  | Thad Schilling , MD |
| **Keywords**  | Hypertension, Protocol, Nursing, Medication, Chlorthalidone, Diuretic, Thiazide |
| **SharePlace Site**  | *TBD* |

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| ACEi – Lisinopril |
| Time 0 – APC or MD StartWeek 4 Week 8Week 12  | Lisinopril 5mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*Lisinopril 10mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*Lisinopril 20mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60 :*Consult clinician to add an additional agent. |
| **Monitoring:** | Order: Follow-up labs (Creatinine, Potassium) at 2 weeks after starting Lisinopril therapy OR changing Lisinopril dose. If patient is taking Lithium, a Lithium level also required 2 weeks after starting Lisinopril therapy OR changing Lisinopril dose and communication to BH prescribing provider (HVMA and outside HVMA prescribers) at start and each dose change. Lithium levels should be checked 12 hours after last dose. |
| **RN 2nd level check of exclusion criteria (at each dose increase):** | **Side effects (at each dose increase):** | **Monitoring (at time of enrollment):** |
| * Age ≥ 80yr
* Current therapies:

 ● ARB ● anti-arrhythmic  ● lithium * eGFR < 45
* Documented angioedema reaction to an ACEI or ARB
* Diagnosis of atrial fibrillation or idiopathic/ hereditary angioedema
* Women of child bearing potential
* Pregnancy

**If present, consult with clinician.** | * Signs and symptoms of allergic reaction (including rash)
* Dizziness, lightheadedness, orthostasis
* Cough
* Sign and symptoms of angioedema
* Sexual dysfunction (Do you have any change in sexual function?)

**If any significant side effects, consult with clinician.** | Review last lab values for: * Potassium, creatinine, eGFR (renal function) within the last 6 months.

If patient is on Lithium:* Lithium level within the last 6 months

If no results available within the last 6 months, order required labs as listed above. Lithium levels should be checked 12 hours after last dose.**If any lab abnormalities, consult with clinician.** |

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| **Title**  | **RN Hypertension Medication Titration Protocol** |
| **Author : Thad Schilling, MD** | **Date of Origin**  | 10/2009 |
| **Reviewed/ Approved by**  | Quality Assurance Committee  | **Date Reviewed/ Approved**  | 10/1/20094/6/2012 |
|  | Clinical Leadership | **Revised** | 6/13/2013 |
| **Responsible for Implementation**  | Thad Schilling, MD |
| **Keywords**  | Hypertension, Protocol, Nursing, Medication, Lisinopril |
| **SharePlace Site**  | *TBD* |

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| Calcium Channel Blocker – Amlodipine |
| Time 0 – APC or MD StartWeek 4Week 8 | Amlodipine 2.5mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*Amlodipine 5mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60:*Consult clinician to add an additional agent*.* |
| **Monitoring:** | None required |
| **RN 2nd level check of exclusion criteria (at each dose increase):** | **Side effects (at each dose increase):** | **Monitoring (at time of enrollment):** |
| * Age ≥80yr
* Current anti-arrhythmic therapy
* eGFR < 45
* Diagnosis of atrial fibrillation
* Heart failure
* Women of child bearing potential
* Pregnancy

**If present, consult with clinician.** | * Signs and symptoms of allergic reaction (including rash)
* Dizziness, lightheadedness, orthostasis
* Peripheral edema
* Sexual dysfunction (Do you have any change in sexual function?)

**If any significant side effects, consult with clinician.** | **None**  |

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|  | **RN Hypertension Medication Titration Protocol** |
| **Author : Thad Schilling, MD** | **Date of Origin**  | 10/2009 |
| **Reviewed/ Approved by**  | Quality Assurance Committee  | **Date(s) Reviewed/ Approved**  | 10/1/2009 4/6/2012 |
| **Responsible for Implementation**  | Thad Schilling , MD |
| **Keywords**  | Hypertension, Protocol, Nursing, Medication, Amlodipine |
| **SharePlace Site**  | *TBD* |

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| ARB - Losartan |
| Time 0 – APC or MD StartWeek 4Week 8Week 12 | Losartan 25 mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*Losartan 50mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*Losartan 100 mg once daily *Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60:*Consult clinician to add an additional agent. |
| **Monitoring:** | Order: Follow-up labs (Creatinine, Potassium) at 2 weeks after starting Losartan therapy OR changing Losartan dose. If patient is taking Lithium, a Lithium level also required at 2 weeks after starting Losartan therapy OR changing Losartan dose and communication to BH prescribing provider (HVMA and outside HVMA prescribers) at start and each dose change. Lithium levels should be checked 12 hrs. after last dose. |
| **RN 2nd level check of exclusion criteria (at each dose increase):** | **Side effects (at each dose increase):** | **Monitoring (at time of enrollment):**  |
| * Age ≥ 80yr
* Current therapies:

 ● ACEi ● anti-arrhythmic  ● lithium * eGFR < 45
* Documented angioedema reaction to an ACEI or ARB
* Diagnosis of atrial fibrillation or idiopathic/ hereditary angioedema
* Women of child bearing potential
* Pregnancy

**If present, consult with clinician.** | * Signs and symptoms of allergic reaction (including rash, angioedema, cough)
* Dizziness, lightheadedness, orthostasis
* Sexual dysfunction (Do you have any change in sexual function?)

**If any significant side effects, consult with clinician.** | Review last lab values for: * Potassium, creatinine, eGFR (renal function) within the last 6 months.

If patient is on Lithium:- Lithium level within the last 6 monthsIf no results available within the last 6 months, order required labs as listed above. Lithium levels should be checked 12 hours after last dose.**If any lab abnormalities, consult with clinician.** |

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|  | **RN Hypertension Medication Titration Protocol** |
| **Author : Thad Schilling, MD** | **Date of Origin**  | 10/2009 |
| **Reviewed/ Approved by**  | Quality Assurance Committee  | **Date(s) Reviewed/ Approved**  | 10/1/2009 4/6/2012 |
|  | Clinical Leadership | **Revised** | 6/13/2013 |
| **Responsible for Implementation**  | Thad Schilling , MD |
| **Keywords**  | Hypertension, Protocol, Nursing, Medication, ARB, Losartan |
| **SharePlace Site**  | *TBD* |

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| ARB - Irbesartan |
| Time 0 – APC or MD StartWeek 4Week 8Week 12 | Irbesartan 75 mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*Irbesartan 150mg once daily*Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60, increase dose to:*Irbesartan 300 mg once daily *Confirm medication adherence, review for exclusion criteria and side effects. Review home BP readings (4 minimum). If at goal, schedule patient for RN BP check in office. If any single home reading or any single office reading is above goal, and none is < 100/60:*Consult clinician to add an additional agent. |
| **Monitoring:** | Order: Follow-up labs (Creatinine, Potassium) at 2 weeks after starting Irbesartan therapy OR changing Irbesartan dose. If patient is taking Lithium, a Lithium level also required at 2 weeks after starting Irbesartan therapy OR changing Irbesartan dose and communication to BH prescribing provider (HVMA and outside HVMA prescribers) at start and each dose change. Lithium levels should be checked 12 hrs. after last dose. |
| **RN 2nd level check of exclusion criteria (at each dose increase):** | **Side effects (at each dose increase):** | **Monitoring (at time of enrollment):**  |
| * Age ≥ 80yr
* Current therapies:

 ● ACEi ● anti-arrhythmic  ● lithium * eGFR < 45
* Documented angioedema reaction to an ACEI or ARB
* Diagnosis of atrial fibrillation or idiopathic/ hereditary angioedema
* Women of child bearing potential
* Pregnancy

**If present, consult with clinician.** | * Signs and symptoms of allergic reaction (including rash, angioedema, cough)
* Dizziness, lightheadedness, orthostasis
* Sexual dysfunction (Do you have any change in sexual function?)

**If any significant side effects, consult with clinician.** | Review last lab values for: * Potassium, creatinine, eGFR (renal function) within the last 6 months.

If patient is on Lithium:- Lithium level within the last 6 monthsIf no results available within the last 6 months, order required labs as listed above. Lithium levels should be checked 12 hours after last dose.**If any lab abnormalities, consult with clinician.** |

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|  | **RN Hypertension Medication Titration Protocol** |
| **Author : Thad Schilling, MD** | **Date of Origin**  | 3/2013 |
| **Reviewed/ Revised by**  | Quality Assurance Committee  | **Date(s) Reviewed/ Approved**  | 5/2/2013 |
| **Approved by:** | Clinical Leadership | **Date(s) Reviewed/ Approved**  | 6/13/2013 |
| **Responsible for Implementation**  | Thad Schilling , MD |
| **Keywords**  | Hypertension, Protocol, Nursing, Medication, ARB, Irbesartan |
| **SharePlace Site**  | *TBD* |