Case Study: Empira Fall Prevention & Reduction Program
A Summary of the Innovating and Successful Empira Study
Modified August 2020

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A Minnesota quality improvement collaborative of older adult service providers, called Empira was awarded a pay-for-performance (PIPP) three-year grant to reduce resident falls by 20 percent over baseline measures in 16 participating nursing homes. Over the course of the three years, the facilities not only achieved the goal of fall reduction, but significantly improved the quality of care and life for its residents. This summary explains the steps taken and insights gained from this study, as presented by Sue Ann Guildermann, RN, BA, MA, the Director of Education for Empira. The following are highlights from Sue Ann's presentation on their innovative and successful Fall Reduction Program, used with permission.

Empira Fall Prevention & Reduction Program

How did Empira assist 16 facilities in cutting nearly one-third of their risk adjusted prevalence of resident falls and reduce their recurrent falls from double to a single digit? Guildermann explained, "Success was achieved by implementing best practices from evidence-based studies and getting every employee involved in determining the root causes of the fall, which was the single biggest change in our practice."

First Responder's Responsibilities

Prior to the study, nurses were the primary staff who responded to resident falls, but that changed when all employees were empowered to "Check, Call and Care" when responding first to a resident that had fallen. Instructions for first responders include these six steps:

1. Immediately go to and stay with the resident;
2. If you are not a nurse, call for a nurse;
3. Encourage the resident not to move, ask, "Are you okay?"
4. Ask them, "What were you doing just before you fell?" and/or "What were you trying to do just before you fell?"
5. Begin getting answers to the "10 questions"; and
6. Stay for the fall huddle and assist in getting it started.

As reminders, the six steps were laminated, placed in work areas and on employee name badges. All employees were required to finish all six steps and ancillary staff was given permission to stop what they were doing to participate in the care and huddle as fall situations arose. Administration ensured staff that their supervisors would provide them with assistance to finish their previous tasks, as needed. The Fall Risk Coordinator in each facility reports to the administrator, who oversees the program, so it's no longer solely a nursing program.

During this phase, observation skills are critical because it's easy to miss something you're not looking for. The "10 Questions" referenced under step five are:

1. Ask Resident: Are you OK?
2. Ask resident: What were you trying to do?
3. Ask resident or determine: What was different this time?
4. Position of Resident?
   a. Did they fall near a bed, toilet or chair? How far away?
   b. On their back, front, left side or right side?

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c.   Position of their arms and legs?
5.   What was the surrounding area like?
        a.   Noisy? Busy? Cluttered?
        b.   If in bathroom, contents of toilet?
        c.   Poor lighting – visibility?
        d.   Position of furniture and equipment? Bed height correct?
6.   What was the floor like?
        a.   Wet floor? Urine on floor? Uneven floor? Shiny floor?
        b.   Carpet or tile?
7.   What was the resident's apparel?
        a.   Shoes, socks (non-skid?), slippers, bare feet?
        b.   Poorly fitting clothes?
8.   Was the resident using an assistive device?
        a.   Walker, cane, wheelchair, merry walker, other?
9.   Did the resident have glasses and/or hearing-aids on?
10. Who was in the area when the resident fell?

Fall Huddle

The fall huddle takes around 10 minutes and is performed immediately after the resident is stabilized. To do this, the charge nurse asks all the staff working in the area of the fall to meet briefly together to determine the root cause analysis (RCA) of the fall. First, they review the "10 Questions," and then the supervisor asks the staff:

- "Who has seen or has had contact with this resident within the last few hours?"
- "What was the resident doing?"
- "How did they appear? How did they behave?"

Next, the persons involved in the fall or incident are asked to re-create what happened, or in other words, do exactly what they did when the fall happened the first time. The same people, equipment, room and timespan of day should be used. Sometimes the resident is too excited to simply tell the staff what happened, so it helps to have them get back into the original position and show the staff what was done. If the resident is cognitively impaired, still ask them the same questions and note their responses, even if they don't verbally answer. They can frequently communicate a non-verbal or garbled response. It is up to staff to further interpret what that means when doing the RCA. For example, a resident responding, "Come in, come in," could in reality, have heard the sound from the pill-crusher on the med cart in the hall.

The charge nurse on duty completes a <u>Falls Scene Investigation (FSI) Report</u> (pages 10-13 below) soon after the fall occurs and/or during the fall huddle. It is a data collection tool used to investigate and determine the RCA. The information is stored in an Empira software tracking system, where reports are generated and discussed at the next monthly Fall Committee meeting.

Root Cause Analysis (RCA)

When conducting a RCA, most facilities are locked into a proactive fall prevention approach, where they:

- Speculate on specific risk factors for falls
- Take actions based on the assessment of conditions or problems with the resident
- Act on predictions

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The problem with this approach is that it doesn't work well to treat everyone the same (e.g. all residents with dementia get an alarm, gripper socks, low bed, etc.) because each person and each fall are unique and different. For better results in determining a RCA, staff should look at the person and situation individually, which led Empira to take a post-fall reactive approach that is evidence-based, where they:

- Investigate current falls that occur
- Collect factual evidence from the fall event (as previously described)
- Study the causation of falls

The RCA is a process to find out what happened, why it happened and determine what can be done to prevent it from happening again. Aiming performance improvement operations at root causes is more effective than merely treating the symptoms of problems. Problems are best solved by eliminating and correcting the root causes, as opposed to merely addressing the obvious symptoms with "scatter-gun approaches" to solutions.

To effectively conduct an RCA, there are three areas to investigate:

1. **Internal/Intrinsic conditions** – check such things as:
- Vital signs
- Pain
- Orthostatic blood pressure – nurses should be consistent and use CDC Guidelines
- Neuro checks
- Lab results
- Diagnoses – make sure nurses are knowledgeable of them. For example, there is a huge difference between macular degeneration (can only see peripheral vision) and glaucoma (can only see ahead).
- Medications –diuretics can work within 20-minute intervals for up to four hours, so the nurse should inform nursing assistants when to anticipate toileting needs. Nurses should know the side effects, adverse drug reactions, Black Box Warnings, etc. They should beware of a "Prescribing Cascade" of drugs when a side-effect develops from a medication. Oftentimes, the side effect is interpreted as a sign or symptom of a new diagnosis, so more medications are prescribed, resulting in more side-effects, and so on.
- Vision and hearing conditions.
- Cognitive, confusion, mood status
- Wandering – usually has no goal, but provides comfort, calming.
- Pacing – a need is not met, rhythmic or repetitive.
- Grabbing – can be due to dizziness to stop from spinning, so staff should not move or hold onto the resident.
- Pushing – to get away from being startled or attacked, so staff should slowly back away from the resident.
- Poor balance, strength and/or endurance
- Recent changes in conditions

If a resident has changes in mood and cognitive status, frequent napping, and increased falls and agitation, it could be caused by sleep fragmentation, such as being awakened every two hours. It can be difficult to give residents undisturbed sleep, as they will need hydration control, silence, firmer mattresses, etc.

Nurses should eliminate noisy medication carts and avoid disturbing sleeping residents (in order to take medications) as much as possible. They need to understand what makes a drug "unnecessary" according to CMS, which is any drug when used:

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- In excessive dose; or
- For excessive duration; or
- Without adequate monitoring; or
- Without adequate indications for its use; or
- In the presence of adverse side effects, which indicate the dose should be reduced or the drug discontinued; or
- Any combinations of these reasons.

2. **Environment/Extrinsic conditions** – the primary external conditions for falls are:
- Noise levels (staff, alarms, television) – residents in noisy areas (e.g. near nurse's station) fall more often than those in quieter areas. The noisiest time is during shift change and meals.
- Busy activity – the busiest month is frequently December.
- Incorrect bed height
- Clutter, such as mats on the floor – the presence of a floor mat can create a fall hazard because staff, families and residents can trip over them. They create an uneven floor surface, do not go the full length of the bed, and are confusing to residents with dementia.
- Personal items and/or assistive devices not seen or within reach
- Visual conditions– aging decreases depth perception and color definition so residents need more illumination and contrast, such as a dark call light, toilet seat, tissue box, phone, etc.
- Incorrect footwear – such as crepe soles, gripper socks (only good for shiny, even linoleum floors) and open-backed slippers or shoes. Residents need fully enclosed, slip-resistant footwear that is easy to get on and off and the color contrasts to the floor color.

3. **Operational/Systemic conditions** – check these for clues:
- Admission period (first 72 hours)
- Room and household or unit change
- Time of day – high risk of falls during shift change, break or mealtimes.
- Days of the week specific to the facility
- Location of the fall:
- Rehab/short stay – they want independence and to go home, so may try to do more than they are able. Staff should encourage them to work at their own pace.
- Memory loss/secured – residents are less likely to fall if the unit is sunny, bright, active and engaging.
- Type of fall – transfer, walking, reaching, or however they were initiating movement from one place to another because they had an unmet need.
- Staff times, staff assignments, number of staff, etc.
- Routines of services, such as PT and activities – these are needed more in the evening.

There are primary four unmet needs that contribute to unassisted movement that often result in a fall. To identify these, staff should go on rounds one hour before and one hour after the time the fall had occurred for the next couple of days. People tend to be routine creatures of habit, so identifying these unmet needs can help answer the "why?" question. The unmet needs to check for are known, as "the 4 Ps":

1. **Position:**
- Does the resident look comfortable?
- Ask the resident, "Would you like to move or change your position?"
- Also ask, "Are you where you want to be?"
- Report to the nurse

2. **Personal (Potty) Needs:**

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- Ask the resident, "Do you need to use the bathroom?"
- Ask if they'd like help to the toilet or commode.
- Report to the nurse

3. **Pain:**
   - Does the resident appear to be uncomfortable or in pain?
   - Ask the resident, "Are you uncomfortable, aching or in pain?"
   - Also ask what you can do to make them comfortable.
   - Report to the nurse

4. **Placement:**
   - Is the bed at the correct height?
   - Are the phone, call light, remote, walker, trash can, water, urinal, and tissues all near the resident?
   - Place them all within easy reach.

The place of the resident's fall is very important to the RCA, according to a former CMS investigator, Molly Morand, suggests the "why?" question can be answered by understanding how far away the resident was from a sitting position (transfer surface) when they fell:

- At bedside – think orthostatic blood pressure, are medication changes needed?
- Five feet away – they probably lost their balance/gait, do they need a PT evaluation and treatment for balance?
- Greater than 15 feet away – they probably have problems with strength/endurance and need a PT evaluation and treatment for strength and endurance.

If the fall occurred in or near the bathroom, it is important to always check for urine on the floor, as well as the contents of the toilet for further clues as to why they fell, such as:

- Foul smell – Urinary tract infection? Dehydration?
- Huge amount of stool – Vagal nerve stimulation? Constipation?
- Blood – Possible internal bleed?

Beware of situations that can inadvertently hinder, divert or prevent a successful root cause analysis, such as:

- **Blame Game** – the goal is to understand why the fall happened, rather than blaming someone for the cause of the fall. The point of a human error investigation is to understand why actions that are now questionable made sense to people at the time they did it. You have to keep asking "why?" again and again. Likewise, give staff permission to trust their instincts and question or tell others "I don't think it's safe" when indicated, rather than remaining silent and risk a fall.
- **Tunnel Vision** – at the time the accident occurred, people usually behave seeing only one way to perform. They weren't aware of the consequences of their actions. In reconstructing the event, they can view it from an outsider's perspective, and because they now have hind-sight knowledge, they will likely see different actions that could have been taken.

The RCA should not be a simple five-minute judgement call by one staff member, but instead should be a process undertaken by a team in a concerted effort to identify the true primary root cause for the resident fall. Shortcuts too often lead to inappropriate, canned interventions that have nothing to do with meeting the resident's actual needs (the real problem) and can even hasten the next fall because true preventative measures were missed. Staff must be diligent

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in their investigation and continue to ask "why?" until they find the root cause(s) of the issue. For example, take the following scenario:

Mr. SP, 74 y/o lives alone, recently widowed, alcohol dependent, slightly confused, easily agitated, has multiple hematomas from many falls.

Most facilities would simply implement interventions to treat the falls, such as to provide a personal alarm due to his confusion. Some may even look further and try to treat the agitated behaviors with ways for staff to gently approach him. Neither of these interventions will be effective for long with Mr. SP because the confusion and his behaviors were only symptoms, not the root cause. Upon digging deeper, staff would have found:

- He had many falls and hematomas (Why?)
- Due to his confusion and agitation (Why?)
- Those began when he started drinking heavily (Why?)
- He started drinking after his wife recently died, leaving him alone (Why?)
- Unresolved grief over the recent death of his wife.

By looking backwards at the conditions that existed before the fall, staff will discover proximal causes. Once the primary root cause for the fall is identified, interventions that match the causative agent for the fall can be implemented. In this case, grief counseling by the resident's pastor eventually addressed the symptoms and eliminated the falls.

Interventions

By now, most of the clues and evidence, by observation, examination, interviews and assessments, have been gathered. Primary root causes for the fall, based upon the aggregate data, should have been identified. The next step is to implement corrective actions and interventions to eliminate the root cause(s) of the problem.

- Determine what can be done to prevent the problem from happening again?
- Does the interventions/solutions match the causes of the problem?
- How will it be implemented?
- Who will be responsible to do what?
- How will the interventions effect other operations or people in the facility?
- What are the risks to implementing the solutions?
- How will it be audited and evaluated?

A medical intervention can be defined as patients receiving treatments or actions that have the effect of preventing injury, illness, and/or prolonging of life.

Pre-Fall Interventions

Fall interventions should not start after the resident's first fall has taken place, but instead, when the resident first arrives at the facility upon admission. A "Falls Admission Risk Assessment" should address the following:

- Identify the individual's specific risk factors for being at high risk for falling.
- If the person has a recent history of falls, determine the predisposing causes or triggers for the falls.
- Consider psychological/emotional factors (e.g., grief, depression, self-imposed restriction of activity, etc.).
- Focus on lower-extremity balance and strengthening status. Conduct a physical therapy assessment upon admission for balance and lower extremity strength.
- Individualize admission interventions to keep the resident safe and minimize falling.

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- Create brochures that talk about your fall program. Then distribute and discuss with residents, family and friends, inviting them to become part of the program too. View the Fall Prevention & Reduction and The False Assurance of Resident Alarms brochures (on page 14 below).

Other fall interventions to be done during admission include:

- Select a roommate with similar sleep/wake patterns.
- Offer slow, repeated orientation to room, roommate, etc.
- Create a room/bed area that most closely represents the resident's home environment (placement of items in and on nightstand, bed, furniture and equipment). Make sure they get out on the same side of the bed as before.
- Personalize the room so that the resident will know it is their room (signs, pictures, items, own bedspread and pillow, etc.).
- Adapt the room to the resident's physical limitations (nightstand, equipment placement, bed in relation to bathroom or door, etc.).
- Create contrast with items to background areas (toilet seat, call light, etc.).
- Set bed height to be correctly heighted to the resident – mark it.
- Individualized correct footwear.
- Staff should check the "4Ps" during rounds.

Residents with a diagnosis of osteoporosis, hip/pelvis fractures and osteoarthritis may benefit from the use of hip protectors, not because they prevent falls, but because they may reduce the severity of injury if a fall occurs.

Post-Fall Interventions

Remember, interventions must match the causative agents of the fall, as identified by the RCA. The best interventions have stronger actions rather than to simply rely on education or memory alone. According to the National Center for Patient Safety's "Hierarchy of Actions," the classification of corrective actions and interventions range from:

- **Weak** – actions that depend on staff to remember their training, policies, assignments, regulations, etc.
  - Examples include, "remind staff to ___," or "remind the resident to ___."
- **Intermediate** – actions are somewhat dependent on staff remembering to do the right thing, but tools are provided to help the staff remember or to help promote better communication.
  - Examples include lists, pictures, icons, color bands, etc.
- **Strong** – does not depend on staff to remember to do the right thing. The tools or actions provide very strong controls.
  - Examples include timed light switches, auto lock brakes, etc.

An example of a good intermediate-to-strong action/intervention concerning correct bed height is:

- Resident sits on the edge of the bed with their feet flat on the floor, hips are slightly higher than knees.
- Mark wall with tape to indicate top of the mattress or top of the headboard at this position.
- Bed heights are checked routinely and maintained by all staff as they enter or leave a resident's room.

Monthly Fall Committee

The Fall Committee should always meet at the same time and day. All appropriate departments are represented and the charge nurse and nurse aide from the fall are "ad hoc" members. They will bring with them the FSI report, medication administration record (MAR), resident's chart, fall huddle findings, and hourly rounding notes. The agenda for the meeting includes:

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- New resident falls information:
    - Review FSI report, huddle findings and RCA
    - Review interventions – do they match the RCA? Are they weak, intermediate or strong interventions?
    - Discussion and suggestions
- Status of residents from previous falls and interventions
- Status reports and audits from related on-going facility-wide projects, such as alarm reduction, medication reduction, QI/QM reports, etc.
    - Are we seeing any trends, commonalities and/or patterns to the falls, facility-wide?
    - Are systems and operational changes needed?

Lessons Learned

At the conclusion of the Empira three-year study, the primary findings from the RCA of falls were:

- Internal conditions of residents at the time of the fall were primarily:
    - Unmet needs (4 Ps)
    - Sleep fragmentation and sleep deprivation
    - Poor balance
    - Reduced mobility
    - Reduced strength
    - Sarcopenia (the loss of muscle mass and coordination that results from the process of aging)

    The lessons learned from the falls prevention program prompted Empira to pursue improved residents' sleep, which could encourage mobility, balance and strength, and dramatically reduce the prevalence of falls.

- External conditions of environment at the time of the fall were primarily:
    - Noise levels (staff, personal alarms, televisions)
    - Busy activity (shift change, meals)
    - Moving in (first 72 hours)

    The biggest lesson learned was that if they could stop the noise and stop disturbing sleep, then they could reduce falls.

- Operational conditions of facilities at the time of the falls were primarily:
    - Shift change
    - Meals
    - Staff not knowing the resident's routines

Rarely was the root cause of a fall only a clinical or environmental condition, but rather the result of an underlying systemic breakdown. The operations and management of systems, processes and procedures had the greatest impact and effect on fall reduction. For example, at least two facility-wide projects were created from these findings related to balance in therapeutic recreation, and alarm and restraint reduction and elimination.

Balance in Therapeutic Recreation

Balance is a combination of posture, range of motion, strength, reaction time, visual perception, somatosensory and pain. As we age, we lose our balance because we become more sedentary. This is especially true in health care facilities

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where staff tend to do things for residents. According to a study by the Journal of the American Geriatrics Society in December 2008, "the greatest effect in preventing falls was seen with exercise that challenged balance." As previously stated, the 16 facilities quickly identified balance as a leading contributor to resident falls so they created opportunities for residents to stand and reach more often, incorporating balance into current activity programs, activities of daily living and newly created Therapeutic Recreation (TR) programs. The TR programs worked because:

- Residents were assessed by physical therapy for their ability to stand and balance (both static and dynamic).
- Residents were identified as:
  - Hand free
  - One hand support
  - Two hand support
  - Assist by staff
- New TR programs were specifically created and designed to offer opportunities to balance.

Opportunities for standing, reaching and turning were also incorporated in daily routines, such as:

- When offering something to residents, have them reach for meds, toothbrush, tissues, foods, etc.
- Turn to get toilet paper and perform self-hygiene
- Turn and reach for clothing items once they are set up
- Lift arms and lift head to assist with dressing
- Encourage resident to self-propel their own wheelchair to enhance muscles, posture, balance and independence

Alarm and Restraint Reduction and Elimination

The use of personal alarms with residents can easily startle and constrain them from normal repositioning movements, which can be problematic. It also can be considered a form of restraint as defined by CMS. Personal alarms are alerting devices designated to emit a loud warning signal when a person moves. The most common types of personal alarms are:

- Pressure sensitive pads placed under the resident while they are sitting on chairs, in wheelchairs or when sleeping in bed
- A cord attached directly on the person's clothing with a pull-pin or magnet adhered to the alarming device
- Pressure sensitive mats on the floor
- Devices that emit light beams across a bed, chair or doorway

The thought process behind the use of personal alarms is that, when a resident moves, they fall down. So, if you prevent unassisted movement or mobility, you can prevent the fall. The truth is, the resident has needs, and their needs may trigger them to move and because they are weak, they fall. When residents who are at risk move, they can fall. If staff addresses the resident's needs and gets them physically active and stronger to prevent immobility, they can reduce their falls.

Through an RCA process of determining resident needs (that set the alarm off) and what they were doing beforehand, the facilities were able to eliminate most of the personal alarms in their buildings over time. Using multiple evidence-based studies, they worked with residents on an individual basis and developed effective protocols and procedures for removing alarms and restraints. Instead of just reacting to alarms, this new fall program relied heavily upon anticipatory care.

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Facility Name: _____ Resident Name: _____ Med. Rec. # _____ Room # _____ Admit

Date: _____ Date of Fall _____ Time of Fall: _____ AM / PM

Staff / Witness present at / or finding resident after fall: _____

FALL DESCRIPTION DETAILS:	
1. Factors observed at time of fall: ☐ Resident lost their balance ☐ Resident slipped (give details): ☐ Lost strength/appeared to get weak ☐ Wheelchair / bed brakes unlocked ☐ Bed height not appropriate ☐ Equipment malfunction (specify): ☐ Environmental noise ☐ Environmental factors (circle or write in): clutter, furniture, item out of reach, lighting, wet floor, other (specify):	2. Draw a picture of area and position in which resident was found. (e.g. face down, on back / R or L side, position of arms and legs, furniture /equipment /devices nearby) ***If fall within 5 feet of transfer surface do orthostatic BP**
3. Fall Summary: ☐ Found on the floor (unwitnessed) ☐ Fall to the floor (witnessed) ☐ Intercepted fall (resident lowered to floor) ☐ Self-reported fall	4. Fall Location ☐ Resident room ☐ Activity Room ☐ Hallway ☐ Dining room/day room ☐ Bathroom [CHECK TOILET CONTENTS] ☐ Toilet contains urine /feces ☐ Shower/tub room ☐ Outside building on premises / off premises ☐ Other (specify) :
5. What was resident doing during or just prior to fall? ☐ Ambulating ☐ Attempting self-transfer ☐ Transfer assisted by staff ☐ Reaching for something ☐ Slide out / fall from wheelchair ☐ Rolling/sliding out of bed ☐ Sitting on shower/toilet chair ☐ Other (specify):	6. What type of assistance was resident receiving at time of fall? ☐ Assisted per care plan: ☐ Alone and unattended ☐ Assisted with more help than care plan describes
7. **What did the resident say they were trying to do just before they fell**?	
CONTRIBUTING FACTORS TO HELP IDENTIFY ROOT CAUSE OF FALL:	
8. Describe resident's mental status prior to fall:	9. Describe resident's psychological status prior to fall:

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How does this compare to the resident's usual mental status?	How does this compare to the resident's usual psychological status?

10. Footwear at time of fall: ☐ Shoes ☐ Bare feet ☐ Gripper Socks ☐ Slippers ☐ Socks ☐ Off load boots ☐ Amputee	11. Gait Assist devices at time of fall: ☐ None ☐ Has device and was in use ☐ Has device but was not in use
12. Did vision or hearing contribute to fall? ☐ Yes ☐ No Explain:	13. Alarm being used at the time of the fall? ☐ Yes ☐ No If yes, was it working correctly?
14. Time last toileted or Catheter emptied: _____ AM /PM Continence at above time: ☐ Wet ☐ Soiled ☐ Dry	15. Did fall occur? ☐ Next to transfer surface (assess postural hypotension) ☐ 10 ' from transfer surface (assess balance) ☐ > 15 ' from transfer surface (strength /endurance)

16. Medications given in last 8 hours prior to fall (check all that apply):
- ☐ Anti-anxiety
- ☐ Anticoagulant
- ☐ Antidepressant
- ☐ Antipsychotic
- ☐ Cardiovascular
- ☐ Diuretic
- ☐ Laxative
- ☐ Narcotic
- ☐ Seizure
- ☐ New meds/changed dose within last 30 days

17. Vital Signs: ☐ Were temperature, pulse, respirations and/or O2 Sat out of normal range for this resident? ☐ Yes ☐ No ☐ Did orthostatic BPs suggest the BP change contributed to the fall? Lying _____ ☐ Yes Sitting _____ ☐ No Standing _____	18. (Blood Sugar check is required for diabetic resident) Was resident's Blood Sugar significant? ☐ Not applicable ☐ Blood sugar within normal range for resident ☐ Blood sugar out of normal range (describe): 19. Does recent Hgb show evidence of Anemia? ☐ Yes ☐ No

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Re-Creation of Last 3 Hours Before Fall

Below, the primary Nursing Assistant who observed and /or assisted the resident during the three hours prior to the fall will write a description to re-create the life of the resident before the fall:

PRINT NAME:

Re-enactment of fall (to be done if Root Cause is NOT determined):

Fall Huddle *(What was different THIS time?)*

ROOT CAUSE OF THIS FALL:
Review of Contributing factors (Check all that apply):

☐ Alarm
☐ Amount of assistance in effect
☐ Assistive/protective device
☐ Environmental factors/items out of reach
☐ Environmental Noise
☐ Footwear
☐ Medication

☐ Medical status/Physical condition/Diagnoses
☐ Mood or mental status
☐ Toileting status
☐ Vision or hearing
☐ Vital signs abnormal or significant
☐ Last 3 hours "re-creation" issue/s

What appears to be the initial root cause(s) of the fall?

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Describe initial interventions to prevent future falls:

☐ Care Plan Updated ☐ Nurse Aide Assignment updated

NURSE COMPLETING FORM:

Printed Name: _____

Signature:

Date and Time:

Falls Team Meeting Notes:

Summary of meeting: Systemic or operational conditions that may contribute to falls? Any patterns or trends to the residents' falls?

Conclusion:

Additional Care Plan / Nurse Aide Assignment Updates:

Signatures with Date and Time:

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The Challenge

According to the U.S. Centers for Disease Control and Prevention:

- One in four Americans aged 65+ falls each year.

- Every 11 seconds, an older adult is treated in the emergency room for a fall; every 19 minutes, an older adult dies from a fall.

- Falls are the leading cause of fatal injury and the most common cause of nonfatal trauma-related hospital admissions among older adults.

- Falls result in more than 2.8 million injuries treated in emergency departments annually, including over 800,000 hospitalizations and more than 27,000 deaths.

- In 2015, the total cost of fall injuries was $50 billion. Medicare and Medicaid shouldered 75% of these costs.

- The financial toll for older adult falls is expected to increase as the population ages and may reach $67.7 billion by 2020.

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Fall Prevention & Reduction Program

Everyone is at risk for falls, but not everyone falls. Why? We at Empira attempted to answer this question.

What is Empira's Falls Prevention & Reduction Program?

To prevent and reduce the incidence of falls in nursing homes and senior living communities.

How was it done?

Empira took a reactive approach, using root cause analysis to conduct fall scene investigations with an interdisciplinary team.

Observed the internal, external, and operational factors for each individual's fall.

Interventions are than created and implemented based on the root cause that was identified.

Interventions were personalized from individual to individual.

Two main causes of falls were:

- Personal alarms use
- Disruptive sleep practices

There were multiple layers to the program.

- What are the first responder's responsibilities?

- When should a fall huddle take place and what does a fall huddle entail?

- How is a root cause analysis conducted?

- What causes the individual to fall?

- How to determine what intervention(s) should be implemented?

- What were the pre-fall interventions that were placed?

- What are the post-fall interventions that will be put into place?

- What is a monthly fall committee and who should be a part of this committee?

How to Reduce Falls?

- Proper footwear (shoes with nonskid soles)

- Keep hallways, bathrooms, kitchen, and bedrooms well lit

- Remove clutter from the floor; including throw rugs and electrical cords

- Install grab rails near the toilet and in the shower/bathtub

- Install handrails on staircases

- Ice slippery sidewalks

- Utilize proper assistive devices (walker, cane)

- Exercise regularly

- When changing positions from laying to standing, sit on the edge of the bed to allow blood pressure to stabilize to reduce episodes of light-headedness/dizziness.

- Minimize the number of alcohol drinks

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The False Assurance of Resident Alarms

According to the Centers for Medicare & Medicaid Services, examples of negative potential or actual outcomes include:

- **Loss of dignity**
- **Feelings of shame, embarrassment**
- **Dehumanization**
- **Confusion, fear, agitation, anxiety, or irritation**
- **Decreased mobility**
- **Bowel and bladder incontinence**
- **Sleep disturbances**

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These once well intended alarms are actually causing more harm than good.

Types of resident alarms include:

- **Chair and bed sensor pads**
  pressure sensitive pads placed under the resident while they are sitting on chairs, in wheelchairs or when sleeping in bed.

- **Bedside alarmed mats**
  pressure sensitive mats on the floor to alert when a resident has exited the bed.

- **Personal alarms**
  A cord attached directly on the person's clothing with a pull-pin or magnet that disconnects when pulled apart.

- **Infrared beam**
  Motion detectors that emit beams of light across a bed, chair or doorway.

Resident alarms may be considered restraints

According to the Centers for Medicare & Medicaid Services the use of resident alarms may have the unintended consequence of inhibiting freedom of movement.

A resident may be afraid to move to avoid setting off the alarm and creating noise that will bother others; the potential fear this places on the resident has the same effect of a physical restraint.

Studies have shown that the noise produced by alarms agitated residents so much that residents fitted with alarms did not move at all to avoid activating the alarm.

This can also be embarrassing for the person activating an alarm. Think about a time when your phone rang loudly in a quiet area. Did you feel embarrassed?

Alarm fatigue

Studies have found that false alarms are common and lead to "alarm fatigue", where staff no longer respond to the sound of an alarm.

Alarms were intended to prevent life altering falls but as their use increased many discovered this practice to be intrusive and undignified while ultimately lowering to the quality of life for residents.

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Empira Best Practice	Fall Prevention & Reduction Evidence-based Resources
Individual Risk Assessment	**Costa dos Reis, K., &Costa de Jesus, C ". (2015). Cohort study of institutionalized elderly people: fall risk factors from nursing diagnosis. doi: 10.1590/0104-1169.0285.2658** By utilizing Taxonomy II and NANDA-I as tools along with the Falls Risk Assessments in LTC, a team can best identify those who are likely to fall. These tools have shown a high efficacy regarding detection of elderly people at risk for falling and should be applied in clinical nursing practice. **de Ruiter, S., de Jonghe, J., Germans, T., Ruite, J., Jansen, R. (2016). Cognitive impairment is very common in patients with syncope and unexplained falls.** *AMDA*, **doi: 10.1016/j/jamda2016.11.2012** Evaluation and assessment is necessary to determine cause of syncope and unexplained falls in individuals with cognitive impairment. The study suggests that there is a correlation between cognitive impairment and syncope/ falling that could possibly be from the result of cardiovascular disease. Recommendation is given to utilize the MoCA over the MMSE for routine cognitive screenings of older patients that present with syncope and/ or unexplained falls as a way to assess. **Dicke J.D. (2015). Discriminative ability of fall Risk outcome measures. 4DB5563ABE860CF4** Results indicate that the Berg Balance Scale, Fullerton Advanced Balance Scale, Timed Up-and-Go, and Activity-Specific Balance Confidence Scale may be used to assess functional capacity, but not necessarily fall risk. That these tools should be used in conjunction with other fall risk assessment tools for evaluation of fall risk. **Klenk, J., Becker, C., Palumbo, P., Schwickert, L., Rapp, K., Helbistad, Todd C., Lord, S., Kerse, N. (2017). Conceptualizing a dynamic fall risk model including intrinsic factors and exposures, doi: 10.1016/j.jamda.2017.08.001** Through the use of the dynamic fall risk model (taking into account internal, external and operational) causation to falls, a team can best individualize a person's care and ADL's to support their needs. A team must identify modifiable factors in relation to falls, as it is more difficult to modify intrinsic factors that can contribute to a fall. **Ko, F. (2017). STRIDE: A pragmatic trial of multifactorial fall injury prevention intervention.** *Strategies to Reduce Injuries and Develop Confidence in Elders.* Having a comprehensive fall prevention strategy is feasible in the clinical and long term care setting. Upon admission or significant change is noted those at risk for falls must be identified using a comprehensive fall risk assessment.
Appropriate Bed Heights	**Morse, J., Gervais, P., Pooler, C., Merryweather, A., Doig, A., Bloswick, D. (2017). The safety of hospital beds: ingress, egress, and in-bed mobility. doi: 10.1177/2333393615575321** Patients' needs and abilities must be assessed when considering bed and bed height. Beds must allow for safe ingress and egress for the individual that is utilizing the bed. When egressing patients should be able to sit to stand and maintain balance. When patient is sitting on the edge of their bed, with their knees bent at a 90 degree angle with feet firmly planted on the floor this is the safest height. For beds to be maintained while both occupied and unoccupied.
Contrast in the Environment	**Beach, R., (2013). Effect of compliant floor on postural stability. 40005B7445E9F714** In this study, it was found that compliant (shock absorbing) flooring increased the sway/ balance of patients with Parkinson's disease and healthy adults. The use of compliant flooring was inconclusive as to the benefits to risk verses benefits to those at risk for falls. **Leiva-Caro, J., Salzar-Goonzalez, B. (2015). Connection between competence, usability, environment and risk of falls in elderly adults. doi: 10.1590/0101-1169.0331.2659** It is important to consider the environment that an elderly adult resides in. Having contrast to the environment and ensuring level surfaces are primary factors to consider as a fall preventative measure. This in turn promotes a greater interaction between the elder and their environment, allowing them to engage as much as possible. There is correlation/ interaction noted of the elderly adult in terms of making adaptations to the environment verses not and as a result determines additional fall risk when the environment is not considered a vital part of fall prevention.

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Strength and Balance Activities	Ciprandi, D., Bertozzi, F., Zago, M., Ferreira, C., Boari, G., Sforza, C., Galvani, C. (2017). **Study of the association between gait variability and physical activity. doi: 10.1186/s11556-017-0188-0** Physical activity, including walking, is encouraged/ advised for the elderly and can be improved by gait stability. Environmental modifications, with the assist of an occupational therapist, should be practiced along with the exercise to increase lower body strength, regular vision checks, medication review by MD and frequent assessment for fall risk. Lopez, P., Pinto, RS., Radaellli, R., Rech, A., Grazioli, R., Izquierdo, M., Cadore, EL. (2017). **Benefits of resistance training in physically frail elderly; a systemic review. doi: 10.1007/s40520-017-0863-z** Physical exercise is one of the most important components in frailty prevention and treatment for older adults. Exercise promotes significant enhancement to muscle strength, muscle power, and functional outcome. Thus, reduces additional fall risk and is an effective fall intervention. Reinoso, H., McCaffrey, R., (2017). **Mitigating fall risk: A community fall reduction program. doi.org/10.1016/j.gerinurse.2017.08.014** Through the use of a team-based approach to health promotion and exercise is vital in a successful fall prevention program. Evidence suggests that the most effective fall preventative initiatives are through a thorough review of and adjustment of medications and pharmacologic treatments, exercise programs, footwear modifications, Vitamin D to strengthen bones, correcting visual impairments, environmental modifications and interventions. Trela, C., Forlini, C., Oliveira, S., Pereira, M., Dias, J., Cardoso, J., (2017). **Effects of exercise program on risk factors of falls in the elderly, doi 10.4025/actahealthsci.v34ispec.11353** The risk of falls in the elderly population can be predicted by the following factors: reduced muscle strength and impaired balance and gait. In this study, it was found that by promoting an exercise program, there was a positive effect on the improvement of the functional capacity and the balance of the elderly women who participated. Tsutsumumoto, K., Doi, T., Makizako, H., Suzuki, T., Shimada, H. (2017). **Association of social frailty with both cognitive and physical deficits among older people; doi 10.1016/j.jamda.2017.02.005** Through increase social engagement and by participating in community programs (including regular exercise groups) there is a substantial decrease in the risk of frailty amongst older adults. A decrease in frailty promotes increased muscle strength, gait and balance amongst elders in Japan.
Alarm Elimination	**Author unknown (Jan. 2013). Why Bed alarms fail to reduce patient falls,** *Health Forum Magazine.* This article suggests that bed alarm devices and alarm systems failed to include human factors/ and ergonomics in its design and implementation. That the human-device interaction is poor, noting that humans can be conditioned to not hear an alarm and that alarms create a false sense of security to professionals. Farnina-Lopez, E., Estevez-Guerra, G.J., Polo-Luque, M.L, Hanzelikova Pogranyiva, A., Penelo, E. (2017). **Physical restraint use with elderly patient: perceptions of nurses and nursing assistants in spanish acute care hospitals, doi: 10.1097/NNR.0000000000000252** Educational programs for healthcare workers must include the reasons and rationale for restraint use as a means to prevent falls and as a means to improve quality of care. Policy and procedures in healthcare settings must address a common misbelief that that restraint use is an effective intervention to promote patient safety. Horowitz, A.; (Dec. 2014). **Personal resident alarm: more protection or more risk?,** *Legal Landscape Long-Term Living* Alarms use contributes to an unsafe environment and their use has resulted in an increase of fall incidence. To promote resident dignity and quality of life, bed and chair alarm use needs to be reviewed and ceased. Healthcare workers must think beyond the fall and apply root cause analysis when as to why a resident fell.
Medication Reduction	Hanlon, J., Zhao, X., Naples, J., Aspinall, S., Perera, S., Nace,D., Castle, N., Greenspan, S., Thorpe, C. (2017). **Central nervous system medication burden and serious falls in older nursing home residents, JAGS 65:1183-1189.** In this study, it was found that nursing home patients with a history of falls and high doses of CNS medication use (taking 3 or more standardized daily doses) had an almost two-fold increase in odds of a serious fall. Directive given to medical providers to be vigilant for the opportunity to discontinue or decrease dosages of CNS medications and consider non-pharmacological interventions as a means to derease fall risk.

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	Jamieson, D., Nishtala, P.S., Scrase, R., Deely, J.M., Abey-Nesbit, R., Connolly, M.J., Hilmer, S.N., Abernethy, D.R., Schuluter, P.J., (Dec. 2017). Drug burden and its association with falls among older adults in New Zealand; A national population cross-sectional study. doi: 10.1007/s40266-017-0511-5 Adverse outcomes related to an increase in falls were studies with 71,856 participants. Adverse outcomes and increase in falls with serious injury were noted with the elderly population when taking anticholinergic and sedative medication, noted polypharmacy. The Drug Burden Index (DBI) can be a tool that for clinicians to use to decrease polypharmacy and help reduce falls for older adults. **Marcum, Z., Perera, S., Newman, A., Thorpe, J., Switzer, G., Gray, S., Simonsick, E., Shorr, R., Bauer, D., Castle, N., Studenski, S., Hanlon, J. (Aug. 2015). Antihypertensive use and recurrent falls in community-dwelling older adults: findings from the ABC study. doi: 10.1093/Gerona/giv095** Use of loop diuretics were shown to significantly increase fall risk in older adults, while the use of antihypertensives were shown to not be statistically significant with recurrent falls. **Okada, H., Okada, M., Kamada, N., Yamaguchi, Y., Kakehashi, M., Sasaki, H., Katoh, S., Morita, K. (2016). Reducation of diuretics and analysis of water and muscle volumes to prevent falls and fall-related fractures in older adults. doi: 10.1111/ggi.12719** This study found that by replacing and reducing use of diuretics, and replacing with spironolactone 12.5 mg on alternating days appeared to have contributed to a decrease in the incidence of falls and elimination of fall related injuries. **Yusupov, E., Chen, D., & Krishnamachari, B. Medication use and falls: Applying BEERS criteria to medication review in Parkinson's. doi: 10.1177/2050312117743673** Use of a high mean number of prescription medications are associated with increased falls in the elderly with Parkinson's disease. Comprehensive medication previews that consider use of the BBERS criteria and polypharmacy are needed as a part of the multifactorial fall prevention in patients with Parkinson's disease.
Rounding on the 4 P's	**Mercer, J., Fagan, C.; (2010). Hourly Rounding-The 4 P's",** *Peninsula Regional Medical Center* Evidence-based research indicates that by utilizing and following through with the practice of the 4 P's with hourly rounding decreased fall rates, decreased skin breakdown rates, and increased both patient and staff job satisfaction.
Hip Protectors	**Cianferotti, L., Fossi, C., & Brandi, M.L., (July 2015). Hip protectors: are they worth it? doi:10.10007/s00223-015-0002** Randomized controlled trials of hip protectors have given contradictory results regarding their efficacy. There is little data is available of the cost effectiveness and adherence is a major problem in assessing the effectiveness of their use. **Korall, A., Godin, J., Feldman, F., Cameron, I., Leung, P.M., Sims-Gould., Robinovitch. (2017). Validation and psychometric properties of commitment to hip protectors (C-HiP) index in long-term care providers of British Columbia, Canada; a cross-sectional survey. doi: 10.1186/s12877-017-0493-5** Hip protectors are a promising technology for the prevention of hip fractures for frail elderly patients in LTC. There is a lack of data to show effectiveness of hip protectors due to lack of adherence in wearing the hip protectors, which was noted at 50% in the study.
Fall Committee	**Author unknown. (June 20, 2014). Falls Team,** *Veteran's Affairs Fall Protocol* Use of interdisciplinary falls teams are the key to successful falls prevention programs. The falls team should include: a clinical nurse specialist, Nurse Managers, RN's, Nursing Assistants, LPN's, Pharmacist, Rehabilitation Therapists, Physician/ nurse practitioner. **Boockvar, K., (2017). Interdisciplinary approaches for preventing delirium and falls in the nursing home setting",** *HELP (Hospital Elder Life Program).* A Fall Committee must contain an interdisciplinary approach to ensure effectiveness in fall prevention. **Chu, R. (March 2017). Preventing in-patient falls: The nurse's pivotal role",** *Wolters Kluther Health*; **retrieved from:** www.Nursing2017.com Falls prevention requires a multidisciplinary approach to create a safe environment for the patient and to reduce potential injuries as the result of a fall. Nurses' education to a fall prevention program are vital in preventing falls in LTC settings.
Education	**Gray-Miceli, D., de Cordova, P., Crane, G., Quigley, P., Ratcliffe, S., (2016). Nursing home registered nurses' and licensed practical nurses' knowledge of causes of falls,** *Wolters Kluter Health*, *J Nurs Care Qual*; **(Vol 31). No. 2., pp 153-160.** The standard of care to evaluate staff knowledge of falls in LTC rests on administration of knowledge tests that should follow continuing education programs. All nurses working in LTC settings should possess scientific knowledge about the multifactorial causation to falls and be able to apply RCA and critical thinking skills to assess the situation/ fall.

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