“Randomized Multilevel Intervention to Improve Outcomes of Residents in Nursing Homes in Need of Improvement” Rantz, Marilyn, PhD, RN, FAAN, et.al., JAMDA January 2012, vol.13,n0.1, 60-68.

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Rationale: Multiple limited, narrow focus intervention studies have demonstrated improvement in quality of care of nursing home patients; e.g., reduce physical restraints without injuries; exercise, ambulation, strength training effective for frail NH residents; demented can improve self-care abilities; falls can be prevented and injuries reduced; pressure ulcers can be reduced; weight loss can be minimized; nutrition and hydration can be improved; incontinence reduced. These studies are short, hours, days, weeks or a few months.

Quality improvement across all care systems in the NH can be facilitated by simple educational interventions which are financially feasible. (Unspoken rationale)

Improved care will improve working conditions, staff retention.

Only 2 previous studies attempted quality improvement across all care systems. Both demonstrated improvements in resident outcomes in falls, constipation, mobility, behavioral symptoms, little or no activity and pressure ulcers.

Neither addressed leadership, communication or commitment to group process for decision making. Felt important from preliminary studies.

Study assumptions:

Changing systems of care requires major commitment and willingness to take risks by administrators and clinicians. Nursing facilities are “complex adaptive systems”.

Organizational interventions are powerful methods to influence healthcare. Results of narrowly focused studies (as above, some famous) can be used to prepare interventions in clinical and basic care systems.

“Getting the basics done”: requires consistent nursing leadership, consistent nursing leadership, team and groups focus leadership, and an active quality improvement program.

Study type: This study was a multilevel intervention over 2 years: Experimental intervention to build organizational capacity to create and sustain improvement of quality of care.

Randomized, two group repeated measures design. 2-year multilevel intervention.

Selection of sites: Eligible - Nursing homes within 103-county, 3-hour driving radius of the project coordinating site, including St Louis and Kansas City, as well as rural areas.

Selected: Nursing homes that needed to improve quality of care as measured by the MDS Quality Indicators above the 40th percentile on 4 resident outcomes (bowel and bladder incontinence, weight loss, pressure ulcers, decline in ADLs) for 2 consecutive 6 month periods. These were selected because these clinical problems are prevalent in nursing homes, amenable to nursing interventions, and sensitive to quality of care. These have been found to be reliable measures of quality of care in NHs and effective outcome measures in other studies.

155 of 356 nursing homes were selected.

These were randomly assigned to the intervention and control groups.
Table 1 shows similar demographics, similar acuity, among intervention and control homes.

Intervention: targeted 3 levels, owners, nursing and administrative staff and direct care staff.

Intervention: Research nurse met with administrators and owners and explained the study.

1-Research site: Facility received a manual with quality improvement tools and 2 textbooks. MDS QI reports were utilized to identify the specific potential problems of the facility. A research nurse with gerontological training consulted on site for 1 to 4 hours, formal meetings, on nursing units.

2-Control site: Control group received monthly videotaped in-services and reading materials about aging and physical assessment of elders. Investigator called monthly to answer any questions about the materials.

Measuring care outcomes:

Analysis: Observable Indicators of Nursing Home Care Quality instrument, 30-minute inspection. Data were collected by an independent nurse observer blinded to the intervention, at baseline and at the end of years 1 and 2 in the intervention group and at baseline and at the end of year 2 in the control group. Median change scores revealed improved scores in the intervention group and worsened scores in the control group (Table 2). [Field tested in 530 nursing homes in 3 states: 30 reliable and discriminating items scored 1 to 5]. Proprietary product.

Measuring effects on staff:

Working conditions: Anticipated improved working conditions: “Tell Us about your Nursing Home” survey: measures communication, leadership, and teamwork. (Connectedness, organizational harmony, clinical leadership, and timely and understandable information). Over 7000 staff asked to complete survey at beginning and at end of the intervention. Intervention site staff: 71% completed survey at beginning, 63% at end. Control site staff: 65% and 53%. Highest to lowest views of the organization were administrative, RN/LPN, CAN, and then “not given”. Highest scores were given by new employees, then 1 to 3 names, then over 3 years, then “not given”.

Statistical methods:

QI scores were analyzed by quarter for 2 years. Repeated measures analysis used logistic regression with the pre-intervention score as covariate. Dependent variable was the QI score for each quarter. Independent variables were group membership, time from enrollment, term for group by time interaction.

Regression methods used for QI data were applied to the QM outcomes (incontinence, weight loss, late loss ADLS, bedfast, pressure ulcers for low and high risk residents).

Conclusions:

Helping nursing homes improve quality is a worthwhile enterprise.

Comprehensive organizational interventions require testing to determine efficacy to guide allocation of scarce resources.

Resident Outcomes: no significant group to group effects except on pressure ulcers. Weight loss showed improvement of 2.0 in weight loss score.
Study claims to have proven that it is possible to build organizational capacity to create and sustain improvement over 2 year period.

Quality of care as measured by the OIQ improved. Weight loss and pressure ulcers improved.

The intervention of monthly on-site consultations by a senior practice nurse is an effective method to help nursing homes improve care.

Staff mix, staff retention and organizational working conditions remained similar in the intervention and control groups. Some NH have 100% C.N.A. turnover/year. Leadership turnover remained “alarmingly high” particularly in the intervention group. 17 intervention homes retained administrator, 24 control homes. 9 intervention homes retained DON, 16 control homes. 1 home had 7 administrators, 2 had 6 DONs. (Table 4)

Direct and total costs remained similar. Total costs and direct resident care costs were calculated. (Table 6). Total costs per patient per day increased 6% in the intervention homes, decreased 3% in the control homes. Direct care costs increased 9% in intervention homes, not in control homes. This was due to increase in LPN hours per patient which brought the intervention homes to the level of the control homes.

Cost efficiencies anticipated to result from improved care processes did not occur.

The comprehensive multilevel intervention did not result in organizational improvements in cost efficiencies, staff retention, or organizational working conditions.

Shifting organizational culture may be more difficult than hypothesized.

Public Policy Aspect:

1- How much time needed to support change: 2 hours per month. Continuous monthly consultations were necessary to sustain improvement. Supports a state clinical consultation program (Missouri).

2- Nurse with gerontologic education is successful coach.

3- Staff turnover is expensive, this intervention did not change staff turnover.

This was the first study in nursing homes to undertake a bundled multilevel intervention targeted to improving care delivery and cost outcomes

From the quantitative analysis of this randomized trial, we have learned that helping some facilities in need of improvement to actually improve care quality and improve some resident outcomes can be done effectively, while not increasing staffing and costs of care within the facility.

Nurses with graduate education in gerontological nursing are successful coaches who can, in very few hours per month, be the catalyst for improvement.

Nursing home leaders, using the readily available, facility-specific, QI reports, can engage staff to consider different (evidence-based) ways of approaching the care, engage them to actively watch each other in care delivery, measure how they are doing, and apply new best practice approaches to care.
Direct care staff and administrator turnover is associated with a negative effect on quality of care. In another study, turnover of less than 30% for RNs, 50% for LPNs, and 40% for CNAs were identified as potential targets needed to improve quality of care to residents. In our study, these low turnover targets recommended by Castle and colleagues for the clinical staff were not achieved, leadership turnover was excessive (150% director of nursing and 100% administrator), and operational cost efficiencies were derailed.

Appendix:

MDS Quality Indicator Report

The MDS Quality Indicator (QI) Report summarizes, by state, the average percentage of nursing home residents who activate (trigger) one of 24 quality indicators (32 with subcategories) during a quarter. QIs are triggered by specific responses to MDS elements and identify residents who either have or are at risk for specific functional problems needing further evaluation. QIs are aggregated across residents to generate facility level QIs, which is the proportion of residents in the facility with the condition. In a like manner, QIs can be aggregated across facilities to generate the state level QIs presented in these reports. QIs are not definitive measures of quality of care, but are "pointers" that indicate potential problem areas that need further review and investigation. These data, at a nursing home level, are used by State survey agencies to target survey and quality monitoring activities. The data are also shared with the facilities; each facility receives a report of its own data, as well as its statewide data. This report can be used by the facility as a tool to rate its performance compared to the state and to target areas of care for improvement. Because the data reports can be generated for sequential time frames, they are also useful to track trends.

The quality indicator data include all nursing home residents in a given state. Excluded from the report are assessments for residents who were recently admitted to the nursing home or recently admitted after a stay in a hospital. Excluding these assessments increases the likelihood that the potential problem captured by the QI is rooted in care provided within a facility.

Some nursing homes have a higher number of residents who are frailer and sicker. In order to take this fact into account, some of the QIs are "risk adjusted". The residents in a facility are grouped into "high risk" and "low risk" for a certain problem, and the QI is assessed separately in each of these groups. The high risk group includes only residents who have other medical conditions that may make them more susceptible to developing the problem. For example, residents at high risk for developing pressure ulcers are those with malnutrition, who are bed bound, or who have certain other conditions. The low risk group includes all other residents.

Data are presented at a state and national, not at a facility level. Percentages for a particular measure may vary between states. High or low percentages may be the result of a number of factors, so caution is advised in interpreting state comparisons. The variation may indicate differences in quality of care, but other reasons for variation may include geographic differences in patterns of care. For example, in some areas nursing home residents with grade 4 pressures ulcers are hospitalized, while in other areas, they remain in the nursing home. In some geographic areas, frail elderly persons are more likely to be cared for in their own or relatives' homes, so in those areas, nursing home residents may be more frail or ill than in other areas.