“Focus on Food”

A strategic approach to undernutrition in nursing homes throughout County Durham, Darlington and Teesside

Executive Summary

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“This new approach to managing undernutrition in care homes shows that residents’ care can be improved and costs reduced at the same time. I strongly support the “Focus on Food” recommendations to implement these findings across County Durham and Teesside”

- Gerald Tompkins, Older Person Led,
County Durham and Tees Valley, Strategic Health Authority

County Durham and Tees Valley NHS
Workforce Development Confederation

Copies of the main “Focus on Food” report and exceutive summary can be obtained from www.nyx.org.uk

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"Focus on Food" was funded by the Older Person's Sub-group of County Durham and Tees Valley Workforce Development Confederation and Nutricia Clinical Care.

"Focus on Food" was supported by County Durham and Tees Valley Strategic Health Authority, County Durham National Care Standards Commission, Teesside National Care Standards Commission, and all the local Nutrition and Dietetic Departments throughout County Durham and Teesside.

Acknowledgements

The assistance of the following people is acknowledged by Rachael Masters, project co-ordinator:

All the staff and residents at the project homes (Eastbourne House: Darlington; Bethany House Christian Nursing Home: Newton Aycliffe; The Hawthorns: Peterlee; Teesdale Lodge: Thornaby, Normanby Hall Nursing Home: Normanby and Ayresome Court: Yarm). Your hard work, support and enthusiasm for "Focus on Food" has been priceless.

Jackie Kay, Head of Service, South Durham and Darlington Nutrition and Dietetic Service, for supporting my secondments and for your guidance and support throughout the project. **Pauline Potts**, Data Processor, University of Newcastle, for being "my right hand person" during the project; and for all your rapid responses to the numerous emails and telephone calls for help with the analysis. **Claire Oldale** and **Christine Russell**, Nutricia Clinical Care, for your advice on the project structure and for organising Nutricia Clinical Care to fund the extension of "Focus on Food". **Dr Rosemary Richardson**, Queen Margaret University College, Edinburgh, for your advice on open and flexible learning and help on designing the knowledge and understanding forms. **Dr Carolyn Summerbell**, University of Teesside, for advice both now and in the future on the "Focus on Food" report and the anticipated journal articles and MPhil.

To the following people who were part of the "Focus on Food" steering group, I would like to thank for your continual support and advice during the project:

Helen Suddas - Primary Care Development and Performance Manager, County Durham and Darlington Health Authority. **Richard Morris** - Pharmaceutical Advisor, Sedgefield Primary Care Trust. **Liz Woods** - Senior Dietitian, North Durham University Hospital NHS Trust. **Ed Collins** - Care Home Inspector, County Durham National Care Standards Commission. **Christina Haworth** - Primary Care Co-ordinator, Durham Dales Primary Care Trust. **Fiona Taylor**- Senior Dietitian, Guisbrough Community Nutrition and Dietetic Department. **Lynda Brooker**- Head of Nutrition and Dietetics, North Tees & Hartlepool NHS Trust. **Marleen Freeman** - Head of Nutrition and Dietetics, North Tees Hospital. **Jackie Kay**- Head of Service, South Durham and Darlington Nutrition and Dietetic Service. **Kathleen Spellman** - Care Home Inspector, Teesside National Care Standards Commission. **Dr Milnes** - GP, Park House Surgery, Lanchester. **Kath Fishwick** - District Nurse, Easington Primary Care Trust

Pamela Hughes, South Durham Health Care NHS Trust, for your secretarial assistance. **Neil Pallister Bosoworth**, NPB Catering, for your assistance with the food photographs and enthusiasm. **Craig Robson**, South Durham Health Care NHS Trust, for your IT assistance. **Sharon Bengston**, Nutrition Systems for your rapid advice on using Comp-eat 5. **Richard Elcoat**, Abbott Nutrition for organising the loan of the knee callipers. **Mark Summersby**, Office Point Bishop Auckland, for all your help and advice on printing the numerous "Focus on Food" resources. To **all the dietitians and staff** at South Durham and Darlington Nutrition and Dietetic Service, who have supported both me and the project throughout the past 20 months.

Finally to **James Masters**, for being my continual source of strength and support during the project and for never complaining about all the frantic requests on mathematical and computer problems.

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Summary

"Focus on Food" provided a practical framework, which successfully reduced the incidence of undernutrition in nursing homes.

The "Focus on Food" guidelines and nutritional screening tool (NST) were practical for staff in nursing homes to incorporate into their everyday working practices. In homes which received nutrition training there was a positive impact in the quality of nutrition and dietary care provided, resulting in positive clinical outcomes for residents and significant cost savings for Primary Care Trusts (PCTs).

To improve the health and quality of life of older people in both private households and care homes in County Durham and Teesside, and provide cost savings of over £420,000 annually to local PCTs, it is recommended the findings of "Focus on Food" are built upon by state registered dietitians facilitating:

- The implementation of the NST and guidelines into all dual registered, EMI and nursing homes using open and flexible learning

- The implementation of NST and guidelines into the community at large, through working in partnership with health professionals, local authority workers and local training colleges

Introduction

Up to 71% of residents are at risk of undernutrition[6], but between 50-100% of undernourished residents are not being unrecognised by care home staff[7], due to a lack of nutrition training and screening protocols[3].

Undernutrition predisposes to disease, adversely affects well being, quality of life and clinical outcome and has major economic consequences. However, the effects of undernutrition can be reversed by simple dietary interventions, which can enhance residents' food intakes, which include:

- Small, nutrient dense meals
- Nourishing snacks & drinks between meals
- Assistance with choosing and eating food
- Dietary supplements, in specific cases

As residents are dependent upon "normal food" for their sustenance, food fortification and nourishing snacks should always be the primary route of intervention for undernutrition. It is recognisable as "normal" to the resident and is an effective method of treatment[8].

Dietary supplements should never be given as a substitute for food. They should only be given if food fortification has been ineffective[4]. Dietary supplements only provide benefits to people with a BMI <20[4], but they replace rather than add to normal food intake in people with a BMI <20[2]. Dietary supplements are likely to be of little or no value in people with little weight loss and a BMI >20[4].

Undernourished individuals place higher demands on health resources, which has significant cost implications:

- "A conservative estimate places the cost of undernutrition in excess of £1 million per average parliamentary constituency per year."[3]
- "£1.2 billion could be annually saved if undernutrition was identified and treated in both the community and hosptial"[3]

Undernutrition should form part of the clinical governance agenda in every PCT. Recent national reports and standards[1,2,5,9,10] now demand that investments and further work are required to place undernutrition of older people high on the agenda for change.

The National Service Framework for Older People[1] emphasises the importance of developing integrated strategies for older people aimed at promoting good health and quality of life. These include:

- "Health promotion activities for older people, which… improve nutrition and diet…"
- "Wider initiatives involving a multi-sectoral approach to promoting health, though...healthy eating…….." [1]

The National Minimum Standards – Care Homes for Older People[2], provides specific nutrition and dietary related standards on assessment, dietary provision and training, making them mandatory practice in all care homes. All residents are now required to have a full assessment of dietary needs, weight and

nutrition screening undertaken on admission and subsequently on a periodic basis and a record is maintained of nutrition, including weight gain or loss and appropriate action.

To combat undernutrition in the community at a national level, a multi-disciplinary working party at BAPEN (British Association of Parenteral and Enteral Nutrition) have recently developed a new evidenced based nutritional screening tool (NST) called MUST (malnutrition universal screening tool)[3].

The MUST determines an individuals risk of undernutrition based on:

- Body mass index (BMI)
- Unintentional weight loss in last 3-6 months.

Individuals are categorised as low, moderate or high risk of undernutrition. The MUST is the most validated evidenced based NST available in the UK, and is unique because it takes a maximum of only two minutes to complete and is linked to the clinical management of the patient.

To address local issues on undernutrition in nursing homes and concerns amongst GP colleagues that dietary supplements were being used in increasing volumes and unmonitored in nursing homes, a project called "Focus on Food" was established. Joint funding was obtained from the Older Person's Sub-group of County Durham and Tees Valley Workforce Development Confederation and Nutricia Clinical Care.

The project was completed by a Senior 1 Community Dietitian, whose role was to determine a practical framework for nursing home staff to identify and treat undernourished residents as part of their normal working routine, which once evaluated could be implemented into all care homes across County Durham, Teesside and Darlington.

Method

The aims of the "Focus on Food" were:

i. To determine if the implementation of the MUST NST and nutritional guidelines improves the quality of nutritional care provided to residents in nursing homes, when supported by different modes of facilitation (training delivery)
ii. To determine the most cost and clinical effective method to prevent and treat undernutrition in nursing homes

The three modes of facilitation evaluated were:

- 2 homes: in-house training was offered to all catering and qualified/care staff
- 2 homes: open and flexible learning (OFL) packages were offered to all qualified/care staff and in-house training to all catering staff
- 2 homes: no training provided. The homes implemented the guidelines without dietetic support or training

Six nursing homes were chosen from the care home register and allocated to the three modes of facilitation.

All the resources developed for the project were based on recommendations from nationally recognised standards and reports [1,2,5,9,10] and fulfilled all the nutrition and dietary related standards in the "National Minimum Standards-Care Homes for Older People"[2].

All dietary interventions for undernutrition were based on the use of "real food" rather than prescribed dietary supplements.

Undernutrition protocol:

Low risk

- No action necessary; repeat NST monthly

Moderate risk

- Increase intake by 600 calories, 20g protein (equivalent to two dietary supplements) by:
  - Provide two nourishing snacks daily
  - Fortify one dish at each meal
  - Provide a multi-vitamin tablet daily
  - Complete food charts for four days
  - Weigh weekly

High risk

- Increase calorie intake by 900 calories, 30g protein (equivalent to 3 dietary supplements) by:
  - Provide two home-made high calorie/protein drinks daily
  - As moderate risk interventions
  - If high risk for two consecutive months but the resident's weight has declined or remained stable referred the resident to the local nutrition & dietetic department via GP.

Two training packages were developed for healthcare staff and one session for catering staff. Each healthcare session was repeated

three times to incorporate the various shift patterns.

i. "Why won't Mrs Jones eat?" - factors that affect a resident's dietary intake – 1½ hours
ii. Undernutrition: how to identify, treat and monitor residents at risk – 2 hours

Catering staff training: "Every mouthful counts": adapting meals to prevent weight loss – 2 hours

The OFL nutrition modules were developed by PACE (Partnership for Active and Continuous Education) at Queen Margaret University College Edinburgh. PACE gave the project permission to adapt the modules so the content mirrored the in-house training packages.

The OFL modules were funded by the healthcare staff in the OFL homes agreeing to open an individual learning account (ILA), a government funded training scheme. The OFL modules were linked to the accredited RCN training hours and NVQ level II. The OFL module consisted of 3 components: completion of OFL pack, a case study and attendance at a workshop.

Data was collected by the project co-ordinator prior to the implementation phase and seven months afterwards. Data was collected to identify any variations between the different modes of facilitation in the areas of:

- Assessment
- Dietary provision
- Clinical Outcomes
- Cost effectiveness
- Training and education
- Staff opinions

Findings

1. Demographics

Six homes participated in the project, with 210 residents at baseline, 54 (26%) residents died and 45 new residents moved into the homes between the baseline and evaluation phases. The evaluation results are based on the 158 residents who were in the homes for the duration of the project.

The average age of residents was 82 years old, 81% were female and 94% of residents were classified as requiring nursing care. The average length of stay was 2 years 7 months. All residents had at least two long-standing medical problems.

Two hundred and forty-one staff were actively involved in the nutritional well-being of residents, 82% healthcare staff, 18% catering staff. Overall staff turnover was 19%.

Significant trends were identified for factors that can affect a resident's nutritional status and factors that are a consequence of a poor nutritional status (Table 1).

Table 1	Low	Moderate	High
a. Factors that may influence dietary intake			
Assistance with meals	32%	49%	56%
Depression/dementia	54%	76%	83%
No teeth	8%	21%	29%
Pureed/soft meals	12%	30%	47%
Risk of undernutrition	0%	16%	28%
b. Factors effected by undernutrition			
Present weight	67.4kg	56.8kg	43.2kg
Wt change admission	+2.5kg	-2.6kg	-4.7kg
BMI <20	<1%	23%	86%
Fat <5th percentile	6%	25%	56%
Muscle <5th percentile	2%	6%	26%

2. Assessment of nutrition & dietary needs

The National Minimum Standards[2] require all residents to undertake undernutrition screening, dietary assessment and weight monitoring. All these were incorporated into the A3 "Focus on Food" nutrition profile.

1. Undernutrition Screening

- 0% residents were assessed for undernutrition at baseline, compared to 95% of residents OFL, 78% in-house and 15% no training homes at evaluation
- Staff failed to identify 53% of at risk residents at baseline, this reduced to only 5% in OFL homes and 33% in-house homes, but 68% in no training homes.
- There was an average 85% correlation between the project co-orindator and staff NST scores, with the greatest correlation seen in the OFL homes.

2. Dietary Assessment

The nutrition profile contained ten areas for staff to assess resident's dietary needs, such as change in appetite, assistance with meals, dental problems and admission weight.

- OFL had a 70% improvement in dietary documentation, in-house 57% and no training only 3%.
- At evaluation OFL completed an average of 99% of the various sections, in-house 88% and no training homes 32%.

3. *Monthly weight monitoring*
Monthly weight monitoring improved from 45% to 97% of residents in OFL homes, but declined from 70% to 31% of residents in the in-house homes and 8% to 0% in no training homes.

3. Dietary provision

1. *High calorie/protein diet provision*
At the start of the project no home was providing an adequate high calorie/protein diet, such as food fortification, nourishing snacks and high calorie nourishing drinks.

Nourishing snacks: At evaluation all the training homes were routinely providing nourishing snacks for at risk residents, but the no training homes still provided only plain biscuits mid afternoon.

Homemade nourishing drinks: All the training homes made the homemade high calorie nourishing drinks, based from the "Focus on Food" recipe book. The most popular was the milkshakes (300 calories, 10g protein per 200mls). Jugs of the "Focus on Food" milkshake were routinely placed on the drink trolley mid-morning and mid-afternoon.

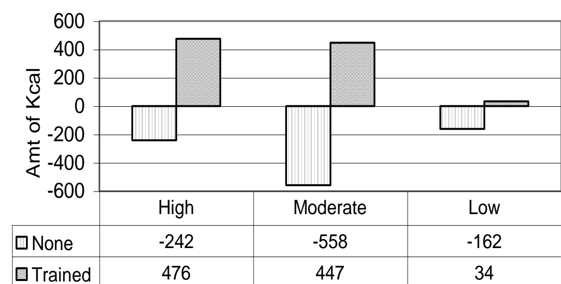
Food fortification: At baseline all homes used semi-skimmed milk, but by evaluation all homes except one no training home had changed to full cream milk, which was used in meal dishes in the training homes.

The level of food fortification varied throughout the homes. The majority of cooks added extra cream to dishes, some added milk powder but it was often added in quantities that were too small to have any therapeutic benefit.

No cook made separate fortified dishes for at risk residents. Some homes fortified the dish for all residents, other cooks only fortified the pureed diets. Several homes had jugs of cream which care staff added on top of cereals, puddings and cakes for at risk residents

2. *Effects of fortification on dietary intakes*
There was a 41% increase in energy intakes for undernourished residents in the training homes, compared to 33% reduction in the no training homes. The main increase in calories was obtained from snacks in the training homes.

Chart 1: Differences in energy intakes



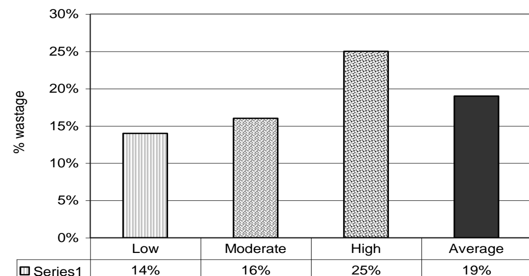
	High	Moderate	Low
None	-242	-558	-162
Trained	476	447	34

- The training homes showed a significant increase in protein intakes (high +16g, moderate +18g, low –5g), compared to a decline in no training homes (high –5g, moderate –19g, low –2g).

- In the training homes intakes of calcium, iron, vitamin C & vitamin D increased, but declined in the no training homes.

3. *Food wastage*
At baseline an average 19% of the food served was wasted, which increased with nutritional risk

Chart 2: Food wastage according to risk



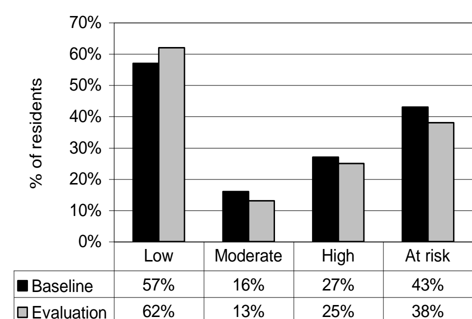
	Low	Moderate	High	Average
Series1	14%	16%	25%	19%

- The greatest food wastage was at lunch (23%) with the least with snacks (7%)
- Food wastage declined by 3% when the meals were fortified in the training homes, but increased by 10% in the no training homes.

4. Clinical Outcomes

The prevalence of undernutrition declined from 43% to 38% of residents.

Chart 3: Overall changes in undernutrition risk



	Low	Moderate	High	At risk
Baseline	57%	16%	27%	43%
Evaluation	62%	13%	25%	38%

Changes in Anthropometric measurements

- **Weight Change:** For residents in OFL weight increased an average of +1.0kg, in-house residents +0.5kg, but no training home residents declined –3.7kg
- **Muscle and fat levels:** High risk residents in the training homes moved up the percentile changers for triceps skinfolds and mid-arm circumference, reflecting improvements in the muscle and fat levels, whereas in the no training homes levels declined

5. Cost effectiveness

During the project dietary supplement usage declined 91% in the training homes, compared to a 31% increase in dietary supplement usage in the no training homes. The reduction in dietary supplement usage equates to £2,600 cost savings per care home annually. Whereas in the no training homes the increase equates to an increased cost of £1,370 per home each year.

- Only 8% (17) of residents were prescribed dietary supplements at the baseline. The above figures are for only 2.8 residents per home being prescribed dietary supplements.
- Examples of prescribed dietary supplements are: Fortisip (Nutricia), Ensure Plus (Abbott), Fresubin Extra (Fresenius).

The cost of food fortification based on the undernutrition protocol (page 2) is:

- 27p moderate risk/resident daily (600 Kcal, 20g protein; equivalent to 2 dietary supplements),
- 61p high risk/resident daily (900 Kcal, 30g protein; equivalent to 3 dietary supplements)
- Total cost of fortification to an average home: £7.11 day, £2,595 year
- Equivalent calories from dietary supplements costs: £62.79 day, £22,919 year

Food fortification is 89% cheaper than dietary supplements. Although the cost of food fortification is the same as the savings from supplements, 15 at risk residents are effectively treated with food fortification, compared to only 2.8 residents with dietary supplements

If "Focus on Food" is implemented into all nursing, elderly mentally ill (EMI) and dual registered homes throughout the geographical area, this could potentially save £278,200 per year for County Durham PCTs and £200,800 for Teesside PCTs, as a direct result of reduced dietary supplement usage.

GP Opinions on dietary supplements in care homes

An anonymous postal survey sent to each GP identified that GPs :

- considered the majority of supplements prescribed were for individuals living in their own home
- reported an increased usage of dietary supplements in care homes during the past 12 months
- commenced dietary supplements without trailing other dietary interventions
- failed to adequately assess and monitor residents prescribed supplements

6. Training and education

a. **Training needs assessments**: identified that 91% of staff wanted training on undernutrition, 86% on factors influencing eating.

b. **Training delivery:** 59% of healthcare staff completed the OFL compared to 33% of healthcare staff attending both training sessions. However, 69% of staff were given the OFL and 67% of in-house staff attended 1 training session. In both training homes 31% of healthcare staff failed to receive any training.

- 74% of staff were allowed to attended the training as part of working hours or receive lieu time.
- Between 97-100% of staff circled very positive comments regarding the relevance of the training content to their job and training delivery.

c. **Changes in knowledge:** 102% increase in nutrition knowledge in in-house training staff, 42% increase in OFL homes, but only a 4% improvement in no training homes.

d. **Changes in understanding:** 28% improvement in nutrition knowledge in in-house homes, 18% OFL and 10% in no training homes.

7. Staff opinions

89% of staff thought the "Focus on Food" project was very relevant to their everyday work. Quotes from staff included:

- *" Previously I always worried if the meals were adequate enough, but as a result of "Focus on Food" I am confident we are now providing adequate and suitable meals for all our residents"* – Manager

- *""Focus on Food" has helped us to identify problems areas with our dietary provision. It has been excellent in increasing the awareness of care staff of the importance of nutrition, and the catering staff now increase the calorie content of meals without increasing size".*- Manager

- *""Focus on Food" has been very useful in improving the dietary needs of our residents, the drinking chocolate ideas was great and fortifying the meals has made a big difference to our residents weights"* – Care assistant

- *"One month Mrs S went from low to moderate risk, we would have missed it if it wasn't for the NST, but we gave her the snacks and drinks and the next month she was low risk again! It was so encouraging seeing directly the benefits to residents, and care staff now actually look forward to doing the monthly weights, to see how residents have improved."* - Nurse

Discussion

Summary

"Focus on Food" has proved that it is practical for staff to incorporate a nutritional screening tool and guidelines into their everyday working routines when supported by training, of which open and flexible learning (OFL) is the most effective.

The project identified it is possible to improve the nutrition and dietary care of older people in care homes through simple practical strategies, which resulted in clear clinical improvements for residents and significant cost savings for local health providers.

Benchmarking against national reports

- *NSF for Older People*[1]

The NSF for Older People: section 7, requires the development of integrated strategies and initiatives for older people aimed at promoting good heath and quality of life through improved nutrition and diet. "Focus on Food" is an excellent example of a local initiative, which improved the quality of life of older people in nursing homes thorough improved nutrition and dietary care.

- *"National Minimum Standards – Care Homes for Older People"* [2]

The "Focus on Food" project encompassed all the nutrition and dietary related standards in this document in a practical format which staff successfully incorporated into their working practices, which improved the quality of dietary care provided and positively influenced residents outcomes.

Training strategies which improve dietary care

The project identified that the circulation of the NST and guidelines alone is ineffective at changing the quality of nutrition and dietary care provided. Additional training and support is required to implement the guidelines, of which OFL is the preferred option.

Consistently throughout the project OFL produced the greatest improvements in dietary care practices, which resulted in the highest clinical improvements for residents.

The "weakest link" in nutrition provision

"A food service is only as strong as it's weakest link"

The "Focus on Food" project was designed to be a practical framework linking together the process from assessment through to meal delivery. However, several "weakest links" were observed which could account for the process being less effective in the in-house training homes:

1. A paper exercise

Some staff in the in-house training homes completed the NST but failed to act upon the information. Residents were identified as moderate and high risk of undernutrition, but no care plan or dietary interventions were implemented.

2. Communication
It was recommended that a list of at risk residents was given to catering staff and placed on the drink trolley so other team members were aware which residents required a fortified diet. The list was the key link between assessment and food delivery.

Both OFL homes regularly updated their lists to enable nourishing drinks and snacks to be given out appropriately. However, although one in-house home had a list it was completed by identifying at risk residents by observation and was not updated once the NST had been completed.

3. Observation vs screening
At baseline 53% of at risk residents were not identified or treated by care staff, but when the NST was implemented this declined to 5% in OFL homes and 33% in the in-house homes.

In the in-house home that complied the resident list from observation, only 25% of high risk residents received the nourishing drinks. It is pivotal that a simple validated nutritional screening tool, such as the MUST tool, is used to correctly identify and promptly treat residents at risk of undernutrition.

4. A team approach
Nurses, care assistants, managers and catering staff are all an essential part in the "nutrition team"; each having a unique role to play in providing quality nutrition and dietary care to residents.

In the OFL homes each staff group appeared to be actively carrying out their individual responsibilities and worked well as a team. But in some in-house homes certain staff groups did not completely fulfil their responsibilities and as a result the link broke.

An explanation as to why OFL achieved the greatest results, may be provided in an old Chinese proverb:

"Tell me and I'll forget
Show me and I may remember
Involve me and I'll understand"

Cost effectiveness

As a direct result of "Focus on Food", the training homes reduced their supplement usage by 91%, while improving resident care. This equates to the equivalent to £2,600 per home per year being saved to PCTs. However despite food fortification being 89% cheaper than food supplements, the cost of food fortification for an average home per year is also £2,600 (61p/day high risk, 27p/day moderate risk).

However the cost savings from dietary supplements was for only 2.8 residents, but the cost implications of fortifying meals was for 15 residents, therefore treating 500% more residents for the same amount of money. Throughout the project no care home reported any concerns regarding the increased costs. Some homes reported that because they had seen the benefits it had done to residents, they felt that any increased cost was irrespective.

If "Focus on Food" is implemented into all nursing, dual registered and EMI homes significant cost savings could be made to PCTs, with up to £278,200 per year for County Durham and £200,800 per year in Teesside.

In order to improve the health of older people in County Durham and Teesside it is recommended that Health and Social Service providers now embrace the findings and recommendations of "Focus on Food".

Recommendations

To improve the health and quality of life of older people living both in private households and care homes in County Durham and Teesside, state registered dietitians should build upon the findings of "Focus on Food" by facilitating:

- The implementation of the "Focus on Food" nutritional screening tool and guidelines into all nursing, EMI and dual registered homes by open and flexible learning.
- The implementation of the "Focus on Food" NST and guidelines into the community at large, through working in partnership with health professionals (e.g. district nurses, specialist nurses, GPs), local authority workers (e.g. social service assessors, meals on wheels, private carer agencies) and local colleges.

If services are left as they are at present the clinical effects and cost implications of

undernutrition will be phenomenal to the older people in our communities.

The cost of undernutrition is in excess of £1 million per average parliamentary constituency per year. However local strategies based on dietitians implementing "Focus on Food" initiatives into the community will actually save PCTs money and improve the quality of life of older people in County Durham and Teesside.

The cost of treating undernutrition

It is recommended that three whole time equivalent Senior I Dietitians would be required to effectively facilitate this work across County Durham and Teesside.

Tables 2 and 3 identify the cost implications and cost savings for implementing the NST and guidelines into all nursing, dual registered and EMI homes across Co. Durham and Teesside.

Table 2: Cost savings in an average home

	Carers	Trained
Staff number	16	9
Cost of OFL pack/ staff	£21.85	£43.70
Total cost of OFL/home	£677.35	
Savings in dietary supps	£2,600	
Overall savings	£1,923	

Table 3: Cost savings across Co. Durham & Teesside

	Co. Durham	Teesside
No. homes	109	78
Cost OFL	£84,662	£53,279
Dietetic support	£60,000	£30,000
Savings in supps	278,200	£200,800
Overall savings/yr	£130,583	£117,521

Table 4: Annual cost savings & implications to an average PCT

	After 3 years	After 4 years
PCT costs /yr	£14,704	~ £10,000
Cost savings in supps/yr	£46,367	£46,367
Overall cost savings/yr	£31,663	£36,367

The above figures do not include the cost savings in dietary supplements achieved from implementing "Focus on Food" into private households and the training cost of staff outside care homes, such as district nurses, private carer agencies, meals on wheels cooks.

Funding options

- Option 1: PCTs joint funding "Focus on Food" by "top slicing" the pharmacy budget allocated to dietary supplements. This option has been endorsed by all the PCT chief executives in County Durham and the regional PCT pharmacy advisors
- Option 2: PCTs joint funding "Focus on Food" with new money via the local modernisation review process
- Option 3: Joint funding of "Focus on Food" between health and local authority funding
- Option 4: PCTs joint funding the dietetic element of "Focus on Food", but alternative funding sought for the training resources

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