



# Dental Public Health Activities & Practices

**Practice Number:** 36003  
**Submitted By:** Iverson Riddle Developmental Center (Morganton, NC) and Murdoch Center (Butner, NC)  
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<b>SECTION I: PRACTICE OVERVIEW</b>		
<b>Name of the Dental Public Health Activity:</b> North Carolina Institution-based Dental Services for Persons with Disabilities Living in the Community		
<b>Public Health Functions:</b> Assurance – Access to Care and Health System Interventions		
<b>Healthy People 2010 Objectives:</b> 21-1 Reduce dental caries experience in children 21-2 Reduce untreated dental decay in children and adults 21-3 Increase adults with teeth who have never lost a tooth 21-4 Reduce adults who have lost all their teeth 21-5a Reduce gingivitis among adults 21-5b Reduce periodontal disease among adults 21-6 Increase detection Stage I oral cancer lesions 21-7 Increase number of oral cancer examinations 21-8 Increase sealants for 8 year-olds' first molars & 14 year-olds' first & second molars 21-10 Increase utilization of oral health system 21-11 Increase utilization of dental services for those in long-term facilities 21-12 Increase preventive dental services for low-income children and adolescents		
<b>State:</b> North Carolina	<b>Federal Region:</b> South Region IV	<b>Key Words for Searches:</b> Access to dental care, persons with disabilities, institutional care, community based systems of care, special health care needs
<b>Abstract:</b> Two institution-based dental clinics in North Carolina serve persons with disabilities who live in the community. In the Murdoch Center, the dental program fully integrates dental care for persons living in the community with dental care for residents of the institution. In the Riddle Center, a separate program provides dental care for persons living in the community which operates independent of the dental program for residents of the institution. Both programs have a common objective of providing access to dental care for persons with disabilities who live outside the institution and are unable to obtain care from community sources. The cost of the Riddle dental program is higher than the Murdoch dental program because it has full time staff dedicated to serving outpatients; however, the Riddle program has the potential for serving more patients. Both dental clinics represent an innovative approach to utilizing scarce oral health resources which include trained dental professionals and institutional dental facilities. During the decades of de-institutionalization of persons with disabilities, many states have reduced or eliminated these institution-based dental clinics.		
<b>Contact Persons for Inquiries:</b> Richard Chapin, DDS, Director of Outpatient Dentistry, J. Iverson Riddle Developmental Center, 300 Enola Road, Morganton, NC 28655, Phone: 828-433-2777, Fax: 828-439-7906, Email: <a href="mailto:Richard.chapin@ncmail.net">Richard.chapin@ncmail.net</a> Donna Spears, DDS, MPH, Director of Dental Services, Murdoch Center, PO Box 3000 / 1600 E. "C" Street, Butner, NC 27509, Phone: 919-575-1160, Fax: 919-575-1648, Email: <a href="mailto:Donna.Spears@ncmail.net">Donna.Spears@ncmail.net</a>		

## SECTION II: PRACTICE DESCRIPTION

### History of the Practice:

The practice of providing institution-based dental care to individuals with mental retardation/developmental disabilities (MR/DD) living in the community has existed as long as there have been institutions serving persons with MR/DD in the North Carolina. A major factor influencing the ability of institutional dental clinics to serve persons living in the community has been the trend toward de-institutionalization resulting in less demand for dental care from fewer residents of institutions. In many institutions, dental programs have been eliminated or down-sized.

There are [five institutions in North Carolina providing dental care services to persons with MR/DD](#). Although the primary mission of dental clinics in these institutions is to serve residents of the institution, approximately 23% of patients served in NC institutional dental clinics reside in the community. This percentage varied over time and across institutions. Decisions for each institutional dental program regarding to what extent to serve persons living in the community have been based on factors such as clinic staff, demand for services among the residents, availability of dental services in the community, and differences in the philosophy and mission of the individual institutions.

Two centers in North Carolina are highlighted in this report. They illustrate different approaches to providing dental services to individuals with MR/DD living in the community:

- (1) The **Murdoch Center** located in the north central region of the state, and
- (2) The **J. Iverson Riddle Development Center** located in the western region of the state.

At the **Murdoch Center**, individuals with MR/DD who live in the community have been provided dental care for at least 50 years. For the past 25 years, with the same dental director (Dr. Donna Spears) at Murdoch Center, patients residing in the community have represented an increasing proportion of the clinic patient load as the number of institutional residents declined. During this period, patients residing in the community have been integrated fully into the institution dental clinic practice, using the same facility, staff, appointment system, and patient record system.

At the **J. Iverson Riddle Development Center**, the practice of serving patients living in the community has varied, reflecting in part the frequent turnover in dental directors and changes in staffing levels over the years. During the earlier years of the Riddle Center, patients living in the community were integrated fully into the institutional dental clinic practice, much like the Murdoch Center. From 2002-2005, no dental services were provided to patients living in the community. Then in January 2006, a new out-patient dental program began serving persons with disabilities living in the community, operating independently of the dental clinic that serves institutional residents. The impetus for the establishing the outpatient clinic was a 2003 dental survey conducted by the Consortium for the Development of Community Supports (<http://www.astdd.org/docs/BPResLinkCDCSSurvey.pdf>). Survey findings documented the major barriers to dental care experienced by persons with disabilities who lived in the community. More information of the Riddle outpatient dental program is available on the Web: <http://members.agd.org/members/Outpatient.html> and <http://www.jirdc.org/dental/>.

In most states, persons with a disabilities living in the community are not usually served at institution-based dental clinics, or if they are, far fewer numbers are served at these dental clinics.

### Justification of the Practice:

Institution-based dental programs providing dental care for persons with disabilities living in the community are justified due to: (1) the need for dental care by this vulnerable population and (2) the efficient utilization of limited resources to deliver dental care.

#### Need for Dental Services

There is high need for dental care among persons with disabilities, especially those with severe conditions such MR/DD. The barriers to care are numerous. They include: scarcity of trained dentists who are capable of providing treatment; inadequate reimbursement by Medicaid and

commercial insurance to compensate the dentist for the extra time and skills required to treat a special needs patient; inability of some patients to cooperate during treatment; the high cost of care for hospital-based treatment; neglect of oral hygiene among persons who lack the ability for self-care; and distant travel to obtain specialized dental care at regional dental facilities. Access to care for persons with disabilities is a common problem resulting in neglected dental problems that will worsen over time. This may lead to a visit to the emergency room or suffering from chronic pain that compromises daily activities, such as eating and sleeping. Institution-based dental clinics can offer access to dental care for persons with disabilities.

#### Efficient Utilization of limited Resources for Dental Care

Institution-based dental programs are designed to provide specialized services to meet the complex behavioral and treatment needs of persons with disabilities. The dental staff of these programs have specialized training and experience in treating persons with severe disabilities and the facilities are designed to accommodate physical and behavioral access problems.

The institution-based dental programs are a scarce resource. As many of these dental programs have been eliminated, there has not been a corresponding increase in community-based specialized dental care for the individuals who left the institutions. As a result, highly-trained dental professionals are "lost" to the system of care for persons with disabilities. The Southern Association of Institutional Dentists (see: <http://saiddent.org/>) performed a survey of these dental programs 20 years ago and a new survey is being considered. Critical information needed include: (1) the current level of institution-based dental programs and (2) the potential for increasing this resource level to serve persons with disabilities living in the community.

The Academy of Dentistry for Persons with Disabilities, a component of Special Care Dentistry Association, has developed a policy statement that encourages the preservation of institutional dental care resources.

### **Inputs, Activities, Outputs and Outcomes of the Practice:**

#### Inputs

##### *(1) The Murdoch Dental Program*

*Staffing:* Staffing at Murdoch Center consists of 2 full time dentists, 3 dental assistants, and one office assistant. They serve both outpatients and inpatients. One of the dentists is the Dental Director, who has administrative and clinical duties. All staff are state employees. In the past, there were two dental hygienists but these positions were lost due to budget cuts from de-institutionalization. The dental program is supported by the Center's Specialized Services Department, which provides outreach and assistance to patients in the registration process.

*Facility:* The Murdoch dental clinic consists of 4 dental chairs and an X-ray room. The same facility is used to serve patients who live in the institution as well as those who live in the community.

*Funding:* Funding is provided by the NC Department of Health and Human Services, Division of Substance Abuse, Developmental Disabilities, and Mental Illness. The majority of patient care revenue comes from Medicaid reimbursement.

##### *(2) The Riddle Dental Program*

*Staffing:* Staffing of the outpatient program at Riddle Center consists of one full time dentist (the Director of Outpatient Dentistry), one full time dental assistant (also served as the Outpatient Dentistry Administrator), and one part time dental hygienist working a half-day per week. All staff are state employees. The Director of Outpatient Dentistry has both clinical and administrative duties. The Outpatient Dentistry Administrator manages tasks related to patient screening, scheduling and billing. The staffing of the outpatient clinic is separate from the staffing of the dental clinic serving residents of the institution.

*Facility:* The Riddle outpatient dental program operates out of a single chair within the existing 3-chair clinic that serves residents of the institution. The outpatient and inpatient programs share the waiting room and reception desk with separate patient record systems.

*Funding:* Funding for the outpatient program, like the inpatient program, is provided by the NC Department of Health and Human Services, Division of Substance Abuse, Developmental Disabilities, and Mental Illness. The program's patient care revenue is mostly from Medicaid reimbursement, although The Grottoes of North America Humanitarian Foundation is paying for the treatment of one patient.

## Activities

### *(1) The Murdoch Dental Program*

*Eligibility for outpatient dental services:* People who are enrolled in the state MR/DD system and live in the multi-county catchment area of the Murdoch Center are eligible for dental services. Priority is given to people who formerly resided at the Murdoch Center and to those who have previously received dental treatment at Murdoch. The dental program's goal is to create a dependable, continuous source of dental care (a dental home) for as many people in the community as possible, rather than to provide episodic care to everyone who requests an appointment.

*Comprehensive clinical care:* A full range of clinical services are provided, including: examinations, X-rays, head/neck cancer screening, cleanings, fluoride treatments, sealants, fillings, extractions, root canal treatment, periodontal treatment, and prosthetics. IV sedation is not provided. For more complex treatments, patients are referred to dental specialists, local hospitals for OR care, and to the University of North Carolina (UNC) School of Dentistry at Chapel Hill, which is within a reasonable driving distance.

*Recall program:* A 6-month recall program is maintained for patients who live in the community. Patients may be seen more frequently if they pay for the visit. For patients who live in the institution, the recall visit is scheduled at 3-month intervals.

*Dental education of individuals and caregivers:* When time allows, oral health education is provided to the patient and/or caregiver who accompanies the patient to the dental visit. In the past, oral health training was provided to caregivers at community sites, such as group homes and ICF/MR. However, due to budget cuts, the program service was eliminated.

*Dental student rotations:* Dental students from the UNC School of Dentistry provide services to patients at Murdoch during their clinical rotations. The Dental Director serves as the student preceptor.

### *(2) The Riddle Dental Program*

*Eligibility for outpatient dental services:* Eligibility for dental care at Riddle Center is limited to individuals who have conditions that make them eligible for services through the state MR/DD agency and who reside in Riddle's multi-county catchment area in the western corner of NC. Priority for care is given to individuals who formerly resided at Riddle or who previously received outpatient services.

*Comprehensive clinical care:* A full range of clinical services are provided including: examinations, X-rays, head/neck cancer screening, cleanings, fluoride treatments, sealants, fillings, extractions, root canal treatment, periodontal treatment, and prosthetics. About two thirds of patients receive IV sedation; nearly 90% receive some combination of oral and IV sedation. This reduces the number of patients who need to be referred to outside hospitals for treatment in the OR (less than 5% of patients). Referral to the state's dental school in Chapel Hill is usually not practical because it is so far away.

*Recall program:* A 6-month recall program has been established. Most patients' recall is every 6 months but some patients with severe periodontal disease have recall every three months.

*Dental education of individuals and caregivers:* Oral health education is provided to the patient and/or caregiver at the time of the dental visit. Community based dental education and prevention has been provided at a school for children with developmental disabilities and a health fair.

## Outputs

### *(1) The Murdoch Dental Program*

*Outpatient program: (averages for the past 6 years)*

Annual number of outpatients: 209  
Annual number of outpatient visits: 228  
Annual Medicaid revenue from outpatient visits: \$12,148

Compared to the inpatient program:  
Annual number of inpatients: 526  
Annual number of inpatient visits: 1,722

*Size of outpatient program in relation to inpatient program: (averages for the past 6 years)*

Number of Patients – An average of 209 outpatients and 526 inpatients were treated per year totaling 735 patients per year. Outpatients represented 28% of total patients and inpatients 72% of total patients.

Number of Patient Visits – An average of 228 outpatient visits and 1,722 inpatient visits per year totaling 1,950 total visits per year. Outpatient visits represented 12% of total patient visits and inpatient visits 88% of total patient visits.

The size of the Murdoch outpatient dental program differs, ranging from 28% to 12%, depending on the comparison of patient numbers or visits. The program places more emphasis in the care of inpatients and has a strict 4-month recall schedule but not for outpatients.

### *(2) The Riddle Dental Program*

The outpatient dental clinic has been operating for a very short time (only since January 2006) and productivity was low during the start-up months: approximately 60 patients treated and \$39,000 billed from January-August 2006 (40% of billing for IV sedation). It is projected that under normal operating conditions, approximately 200 outpatients will be served annually with 400-600 patient visits.

## Outcomes

### *(1) The Murdoch Dental Program*

The desired outcome of the outpatient component of the Murdoch dental program is to improve the oral health of people with MR/DD who live in the community. It is presumed that this is happening as a result of the dental care services provided by the program. However, there has not been a formal oral health evaluation to measure the community impact of the program, such as a reduction in urgent need for dental care or patient/caregiver satisfaction with the program. The dental program does measure clinical outcomes on the patient level by recording oral hygiene scores for every patient. These measures are compared over time to provide data on the long-term improvement in patient oral hygiene. Clinical observations over many years showed a marked reduction in the need for extractions.

### *(2) The Riddle Dental Program*

The Riddle program has been operating since January 2006 and has not had the opportunity to institute any outcome measures. However, measuring program outcomes is will be an important objective of the program.

## **Comparison of the Murdoch and Riddle Outpatient Dental Programs**

The table below summarizes some of the similarities and differences between the Murdoch and Riddle outpatient dental programs.

<b>Comparison of Murdoch and Riddle Outpatient Dental Programs</b>		
	<i><b>Murdoch Program</b></i>	<i><b>Riddle Program</b></i>
<b><i>Inputs</i></b>		
Staff	2 dentists (one of whom is Dental Director), 3 dental assistants, 1 office assistant (note: this staff allocates its time between outpatients and inpatients)	1 dentist (serves as Director of Outpatient Dentistry); 1 dental assistant (also serves as Outpatient Dentistry Administrator); and half-day per week dental hygienist who serves only outpatients
Facility	4-chair facility; outpatients are treated in the same operatories as residents of the institution	3-chair facility; the outpatient program uses one of the operatories
Funding	Funding from the NC Department of Health and Human Services, Division of Substance Abuse, Developmental Disabilities, and Mental Illness	Funding from the NC Department of Health and Human Services, Division of Substance Abuse, Developmental Disabilities, and Mental Illness
<b><i>Activities</i></b>		
Patient eligibility	People enrolled in the state MR/DD system, living in multi-county catchment area; priority given to former inpatients and patients of record	Anyone who meets the state definition of "developmentally disabled" and lives in eligible counties. Persons with DD do not have to be in any system to be eligible for the dental program
Clinical services	Comprehensive dental care; IV sedation not provided; referral to outside system for general anesthesia and specialty care	Comprehensive dental care; oral and IV sedation integral part of comprehensive in-office care; referral to outside system for general anesthesia and specialty care
Recall program	Emphasis on inpatients rather than outpatients; outpatients sent reminders but not mandatory as with inpatients	6 month recall for all patients
Patient and caregiver education	Chairside education to patients and caregivers provided routinely; long-standing community-based program terminated several years ago; no plans to re-establish	Chairside education to patients and caregivers provided routinely; community based education at DD school and at health fair
<b><i>Outputs</i></b>		
Patients	209 per year, based on 6-year history	Estimated at 200 per year
Patient visits	228 per year, based on 6-year history	400-600 (estimate)
Revenue	\$12,000 per year, based on 6-year history	Estimated at \$80,000 per year; IV sedation representing ~40% of total revenue
<b><i>Outcomes</i></b>		
Improved community oral health	Not measured	Not measured
Improved patient status	Measurement of clinic patient oral hygiene status and extractions over time	System not in place yet
Patient and caregiver satisfaction with the program	Not evaluated	Not evaluated

## Budget Estimates and Formulas of the Practice:

Detailed program budget information (such as wages, benefits, dental and office equipment and supplies, facility and administrative overhead, insurance, depreciation, etc.) is not available for both programs. The major cost item for clinical dental programs is wages. All dental staff of the Murdock and Riddle programs are NC state employees.

Rough estimates of personnel costs of the Murdoch and Riddle programs serving persons with disabilities living in the community can be calculated by assuming a Dentist II average salary of \$103K, a Dental Assistant average salary of \$30K, and benefits at 35% of wages (state government averages):

### *Calculation for the Murdoch Dental Program:*

Staffing = 2 dentists, 3 dental assistants and 1 office assistant (count as dental assistant) =  $2(\$103K) + 4(\$30K) = \$326K$  + benefits @ 35% = \$440K. This represents total cost to serve both inpatients and outpatients. Assuming that outpatients represent 20% of total effort, then wage and benefit cost of the outpatient program is approximately **\$88K**.

### *Calculation for the Riddle Dental Program:*

Staffing = 1 dentist, 1 dental assistant, 10% dental hygienist (count as dental assistant) =  $\$103K + 1.1(\$30K) = \$136K$  + benefits @ 35% = \$184K. **\$184K** represents the wage and benefit cost of the program staff since who serve only outpatients.

## Lessons Learned and/or Plans for Improvement:

### *(1) The Murdoch Dental Program*

#### Lessons Learned

- The outpatient dental program is highly popular with patients and caregivers who have had difficulty obtaining dental care from local community sources.
- There has been no discernable opposition to the program from persons or groups who are philosophically opposed to institutional services for persons with disabilities living in the community.
- Having the same Dental Director for over 25 years provides continuity and credibility to the dental program that has helped to sustain funding despite severe budget cuts at the institution.
- Weekly meetings with administrators who have oversight of the dental program have helped to keep everyone informed and encourage long term support for the dental program.
- Incorporating outpatients into the dental program serves to meet a community need while making full use of an existing dental facility and its highly trained staff.
- A close working relationship with the UNC School of Dentistry is beneficial, both as a place to refer Murdoch patients, and as a source of students who can serve additional patients during their clinical rotations.

#### Plans for Improvement

- If sufficient resources become available in the future, an evaluation of the outpatient program will be instituted to assess: how many people have been served, where they reside, how long they had postponed care for lack of access, and satisfaction with the program among families and caregivers.
- If additional resources become available, a third dentist will be hired to devote more time to serving outpatients and to developing administrative systems such as outpatient service protocols to make the program more cost-effective.

### *(2) The Riddle Dental Program*

#### Lessons Learned

- Notifying appropriate caregivers and agencies of the new dental program and the availability of services requires significant time and effort.

- Some caregivers need extra help and encouragement to timely fill out and return the intake forms.
- Individuals who are eligible for the program and need services have been coming to the program in a slow but steady pace during first four months of the program.
- The community has welcomed the new dental program.

#### Plans for Improvement

- Preliminary consideration to establish a staff position for a prevention-oriented dental hygienist/educator to work with consumers and caregivers in community settings.
- When funding and time are available, a program evaluation will be conducted.

#### **Available Information Resources:**

The five NC institutional dental programs often share administrative and clinical forms and protocols, and customize these standard forms for local use. Examples of forms and protocols that are used by many of the NC institutions include:

- Outpatient Dental Clinic Brochure
- Guidelines for Eligibility
- Letter providing intake packet to patients including consent forms and information for outpatient dental services
- Intake Checklist: Before Making First Appointment
- Appointment Information
- New Patient Medical and Dental Questionnaire
- Consent for Routine Dental Services
- Consent for Protective Devices for Dental Care
- Consent for Sedative Medication
- Information Sheet for Use of Sedation and/or Stabilizing Restraint to Provide Clinical Dental Treatment
- Information and Consent to Treatment for Endodontic Root Canal Therapy, Endodontic Surgery, local Anesthetics and Medications
- Information and Consent to Treatment for Removal of Teeth and Oral Surgery
- Orders Following Sedation and Dental Procedures

Copies of listed forms are available by request. Contact Dr Richard Chapin, Director of Outpatient Dentistry, J. Iverson Riddle Developmental Center (Phone: 828-433-2777 / [Richard.chapin@ncmail.net](mailto:Richard.chapin@ncmail.net)) or Dr Donna Spears, Director of Dental Services, Murdoch Center (Phone: 919-575-1160 / Email: [Donna.Spears@ncmail.net](mailto:Donna.Spears@ncmail.net)).



## SECTION III: PRACTICE EVALUATION INFORMATION

### **Impact/Effectiveness**

*How has the practice demonstrated impact, applicability, and benefits to the oral health care and well-being of certain populations or communities (i.e., reference scientific evidence, outcomes of the practice and/or evaluation results)?*

The Murdoch dental program, there has been consistent demand for services from people in the community. Currently the average appointment waiting time for a priority patient (one who has previously resided at Murdoch or who previously received treatment there) is 6-8 weeks. These waiting times indicate that the outpatient dental program is recognized as a community resource for dental care.

The Riddle dental program is too new to assess how well they meet the needs of the persons with disabilities living in the community. The program builds infrastructure for the community to access care, responding to the recommendations of a statewide assessment in 2003.

### **Efficiency**

*How has the practice demonstrated cost and resource efficiency where expenses are appropriate to benefits? How has the practice demonstrated realistic and reasonable staffing and time requirements? Provide unit cost analysis or cost-benefit analysis if appropriate.*

The Murdoch dental program is an efficient model that integrated services to inpatients and outpatients under one administration. The same facility and staff serve both populations.

The Riddle dental program is an efficient model that is tailored to specifically serve persons with disabilities living in the community. The program makes available specialized services, such as IV sedation, that meet the special needs population.

Both programs partner with NC Department of Health and Human Services, Division of Substance Abuse, Developmental Disabilities, and Mental Illness and are funded by the health agency to provide dental care services to persons with disabilities living in the community.

### **Demonstrated Sustainability**

*How has the practice showed sustainable benefits and/or how has the practice been sustainable within populations/communities and between states/territories? What mechanisms have been built into the practice to assure sustainability?*

The Murdoch dental program has demonstrated remarkable sustainability delivering dental care services to persons with disabilities living in the community for over 40 years (even with gaps in service from time to time). This practice has strong support from the North Carolina Department of Health and Human Services, Division of Substance Abuse, Developmental Disabilities, and Mental Illness.

The sustainability of the new Riddle dental program will need time to assess.

### **Collaboration/Integration**

*How has the practice built effective partnerships/collaborations among various organizations and integrated oral health with other health projects and issues? What are the traditional, non-traditional, public and private partnerships/collaborations established by the practice for integration, effectiveness, efficiency and sustainability?*

The Murdoch dental program integrates services with the Murdoch Center, Specialized Services Department. This Department provides outreach services to patients living in the community, such as confirming patient eligibility and assisting with registration. The dental program has a collaborative relationship with the UNC School of Dentistry. Murdoch patients requiring specialized care are referred to the dental school, and UNC dental students and residents are trained by the

Murdoch dental program under the supervision of the Murdoch Dental Director (holds a faculty appointment).

The new Riddle dental program is establishing collaborative relationships within the community (worked with a school for children with DD and involved in community health fairs).

### **Objectives/Rationale**

*How has the practice addressed HP 2010 objectives, met the call to action by the Surgeon General's Report on Oral Health, and/or built basic infrastructure and capacity for state/territorial oral health programs?*

The dental programs at the Murdoch and Riddle Centers address the HP 2010 Objectives and responds to the Call to Action by the Surgeon General to promote oral health. Both programs aim to increase access to dental care for the underserved population of persons with disabilities living in the community. These programs represent specialized dental care resources that should be essential to oral health infrastructure.

### **Extent of Use Among States**

*Describe the extent of the practice or aspects of the practice used in other states?*

It is not know the extent to which institution-based dental clinics across the nation provide care to persons with disabilities living in the community. Plans are underway to collect such information; a survey sponsored jointly by the Southern Association of Institutional Dentists, the Special Care Dentistry Association, and the ASTDD.

Based on informal communication with experts in the field, institution-based dental programs serving individuals with disabilities living in the community are not common but are seen in some states. Such dental programs are found in New Mexico and Florida:

- New Mexico's Los Lunas Community Program (Dr. Ray Lyons / [curlylyons@msn.com](mailto:curlylyons@msn.com))
- Florida's Tachachale Development Center (Dr. Paul Burtner / [Burtner@ufl.edu](mailto:Burtner@ufl.edu))