HALO – Traction Systems

Facility	Response
A	Developed their own chair
B	Developed their own chair
C	• have had a halo traction program for many years. • have a wheelchair set up with mounting hardware to accept a 90 degree overhead bar with weights hung off the back and a wire with hook to the halo. • have a gait trainer set up so kids can be walking while in traction, if appropriate. • Looking for a better system currently.
D	Created one chair with traction with a pulley arm attached off the back of the chair. The orthopedic surgeon was involved in this, the wheelchair rep, and the orthotist. It was custom for that patient.
E	**INTRODUCTION:** Used design for the "McGhee Spring Gravity Traction System" we designed and built for our patients. You will need a good fabricator/machinist in order to proceed. We over-engineered a robust design and took infection control into consideration as well. This is not a quick, easy nor inexpensive venture but is well worth the effort in the interest of successful patient outcomes. With labor and materials I think we invested around $7,000 per unit as many pieces had to be designed, milled and machined out of raw materials. You should be able to do it for less since we have solved many issues already. **BACKGROUND:** Late last year I was presented with a challenge of providing patients with halo traction systems which would allow them to be mobile and even ambulatory while maintaining vertical traction force through the application of a halo ring. We needed to minimize legal liability and maximize hospital infection control by designing a safe, sturdy, user friendly system. Marching orders came directly from our CEO and our CMO which entrusted me with carte blanche to the usual bureaucratic environment. **SCALE and DATA**- The type of scale we use has changed a few times and eventually found that it will require more than a simple spring fish scale or digital scale. Inexpensive digital scales are not designed for extended use nor do they store information for compliance. The system we ended up purchasing, costs around $1800 per unit which records force data of 1000 events to show; amount of force, peak force and length of time force was applied. Typical force is around 30 pounds. E wrote the following: *"I think that we currently have 22 kids*

	in traction. We have a couple of neuromuscular kids who have been in traction for more than three years. The little kids, weighing less than about 35 pounds, will pick up their feet in the walkers and dangle with 100% body weight traction. We have only had a couple of kids who would tolerate more that 40 pounds of traction. They usually start to get neck pain beyond that. We had one boy complain of the roof of his mouth going numb. Radiographs showed increased disk space in the cervical spine, so we were stretching cranial nerves. (Do frequent neuro checks!)" **WHEELCHAIRS AND GAIT TRAINERS:** The Pacer gait trainers provided a strong stable platform for attachment, but be mindful of door heights. Wheelchairs were typical and we decided on 16" and 18" each. The smaller chair can have cushions added for shorter patients.
F	halo traction chair that we keep for neurosurgery use. Our adaptive seating expert made it using a donated tilt in space manual wheelchair and traction parts from ortho.
G	in-house Orthotics Department builds one each time we have a patient
H	built our own using some Zimmer products and a local welding company. We have 4 wheelchairs and 3 walkers set up for kids