Minimizing breathing motion is highly desirable for radiotherapy in the thoracic and upper abdominal regions by allowing substantial reduction of the treatment margin. We have recently constructed an ABC apparatus to immobilize breathing motion by restricting airflow to and from the patient temporarily and reproducibly. The potential advantages of ABC are currently being evaluated for treatments of focal liver disease and Hodgkin's disease. Using ABC, volumetric CT scans with length that spanned the entire treatment volume were acquired for 7 patients at 2 to 7 different phases of the breathing cycle. The 3D organ motion information were then incorporated in treatment planning to determine the dosimetric differences of treatment with and without ABC. Preliminary results show that for the liver treatment, the volume of normal liver irradiated changed by about 5% to 10% in the high dose and low dose regions respectively during normal breathing. Treatment with ABC reduced the volume and variation of the irradiated liver. As for the Hodgkin's patients, applying ABC during deep inspiration reduced the amount of irradiated lung mass by 10% to 20%. It also increased the separation of the spleen from the pericardium. In-depth analysis of the patient studies will be presented.