A surgical staple cartridge and surgical stapling instruments. In various embodiments, the surgical staple cartridge comprises a cartridge body fabricated from compressible material that supports at least one line of unformed staples therein. The staples may be oriented in linear and/or non-linear arrangements in staple lines. Various forms of staples may be used including staples that have base support members molded or otherwise attached to the base portions of the staples. The surgical stapling instrument has an anvil that is responsive to closing motions to selectively bring the anvil into forming contact with the non-moving staples in the compressible staple cartridge body. The anvil may have a common staple pocket that serves to form all of the staples in a single line of staples.