

Multi-Channel Jet Injector

For Simultaneous Vaccine Delivery

CLIENT: Centers for Disease Control and Prevention (CDC), Atlanta, Georgia
(Contract #200-97-0641; August 1997 – January 1998)

OBJECTIVE:

New childhood vaccines are being developed rapidly, but children, parents, and providers are less willing to accept the increased numbers of separate injections required at a single doctor visit. Missed immunizations can result in increased disease occurrence among unprotected children. Combination vaccines are an alternative, but potential chemical incompatibilities require years of expensive research and regulatory approval to ensure that vaccine efficacy and safety are not compromised. The objective of this project was to determine the scientific, technical and commercial merit and feasibility of a multi-channel jet injector to deliver multiple vaccines simultaneously.



SOLUTION:

The multi-channel jet injector must deliver several injections to the appropriate depth, and within the space available on the thigh of a small child. DCI carried out extensive analyses to determine the appropriate system parameters, and these were followed by laboratory testing and system design.

RESULTS:

A paper design was required to satisfy the contract, but DCI provided analyses of several potential techniques, paper designs for two of the most promising approaches, and a working prototype for the selected design. This prototype was successfully demonstrated for the CDC Measles Eradication Committee.