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## JEFFREY DUNCAN

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[WWW.LINKEDIN.COM/IN/JEFFREY-DUNCAN-UTAH](http://WWW.LINKEDIN.COM/IN/JEFFREY-DUNCAN-UTAH)

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### Required Skills:

(List skills needed) Web Development, Stand Alone App Development, Project Management, Communications

### Preferred Team Communications:

WEBEX, Skype or Conference call

### Data Sources:

Project Mentor will assist with creation of synthetic data.

### Other Items:

Project has timezone flexibility. Mentors and students will determine a good time for virtual meeting. Mentor is open to using Webex, Gotomeeting, Google Hangouts, Slack, or other communications methods preferred by teams.

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## IDENTIFICATION OF LOSS TO FOLLOW UP (LTF) FOR NEWBORN HEARING SCREENING

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The Early Hearing Detection and Intervention (EHDI) Program is a state health department program that operates with guidance, support, and funding from CDC. The primary mission of EHDI is to screen every newborn infant for hearing loss prior to discharge from the hospital, for those born in hospitals. Babies born at home are provided no-cost hearing screening services within 10 days of birth. When identified and referred to early intervention services, newborns with hearing loss are able to develop and speech and language abilities with their peers.(1) All 50 states have EHDI Programs.

Hearing screening results are submitted by hospitals to state health department EHDI programs. Newborns who fail the initial screen will be referred to a secondary screen at their first well-baby visit with a pediatrician. Frequently, these follow-up screens do not occur as parents or pediatricians are unaware that the child failed the initial screen. Children who fail the initial screen and are not subsequently re-screened are known as Loss to Follow Up. (For some good background reading, see [https://www.infanthearing.org/coordinator\\_orientation/section13/46\\_follow\\_up.pdf](https://www.infanthearing.org/coordinator_orientation/section13/46_follow_up.pdf).)

Utah Department of Health previously developed an interface so that when parents request a birth certificate, either in person or via mail, a query is sent to the EHDI system to determine if the child needs a secondary screening. If yes, a letter is generated informing the parents how to schedule a free audiological screening. This program has had a noticeable impact on Loss to Follow Up rates in Utah and in the early identification of newborns with hearing loss.

1. Alam S, Gaffney M, Eichwald J. Improved Newborn Hearing Screening Follow-up Results in More Infants Identified. *Journal of public health management and practice : JPHMP*. 2014;20(2):220-223. doi:10.1097/PHH.0b013e31829d7b57.

The proposed FHIR API will connect to Utah's existing EHDI database and expose EHDI data as standard FHIR resources. Authorized client applications will be able to search the EHDI API for current screening status and screening history, for specific children by name, MRN, or some other agreed-upon combination of identifiers.

Students should also develop a lightweight client application to demonstrate query/response of the EHDI FHIR API.

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**Intellectual Property:** Project involves a government agency so the resulting project is made available to the public. Students do not own IP. Students will be recognized as contributors

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## PROJECT OBJECTIVES

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The primary objective of this project is to develop a FHIR API so that the EHDI database can be queried for a child's hearing screening status. The API could be accessed by vital records issuance systems, as described above, or by pediatrician or other healthcare providers' to determine screening status in encounters with newborn children, identify those lost to follow up (LTF), and refer them for secondary screening. This will help to improve screening rates, decrease LTF rates, and most importantly, will help to identify children in need of early intervention services.

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## SUCCESSFUL PROJECT

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A successful project will include a FHIR Server API that allows authorized client systems to query the UDOH EHDI database for a child's current hearing screening status and screening history.

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