collection vessels, reagent vessels, implements, or waste vessels, or combinations thereof, are disclosed. Systems including such devices, or cartridges, or both, are disclosed; such systems may further include sample processing devices (e.g., automatic sample processing devices), reagents, implements, and other elements, are disclosed. Kits including such devices and cartridges; or such devices, cartridges, and swabs; or such devices, cartridges, and vessels (e.g., reagent vessels, waste vessels, or other vessels); or such devices, cartridges, and an implement (e.g., a cuvette); or combinations thereof, are disclosed.

[0001] In embodiments, Applicants disclose containers that are configured to receive a swab (swab containers). In embodiments, Applicants disclose cartridges configured to receive a swab container, and, in embodiments, configured to further receive implements (e.g., cuvettes) or vessels, such as sample collection vessels, reagent vessels, mixing vessels, and waste vessels, or both implements and vessels. In embodiments, Applicants disclose systems comprising one or more of swab containers, cartridges, vessels, implements, and sample processing devices. In embodiments, Applicants disclose methods for collecting samples, and methods for analyzing samples, using the swab containers, cartridges, and systems disclosed herein. In embodiments, Applicants disclose kits comprising one or more of swabs, swab containers, cartridges, vessels, and implements useful for collecting samples and for analyzing samples.

[0002] In ~~embodiments~~an aspect, Applicants provide a container for receiving a swab, comprising ~~an~~at least one entry port, said entry port configured to receive ~~a~~at least one swab having a handle; an assay chamber having a ~~an assay~~ port, said assay chamber being configured to receive at least a portion of a swab; a conduit comprising an interior channel connecting said entry port with said assay chamber, said conduit being configured to accept at least a portion of said swab handle therein; wherein said conduit provides fluidic communication between said entry port and said assay chamber effective that passing a swab through said entry port into said conduit allows at least a portion of the swab to be placed within said assay chamber.

[0003] In embodiments, a swab container may comprise a conduit interior channel that is configured to squeeze a portion of a swab placed in or through said conduit interior channel portion adjacent to said assay chamber. In embodiments, a swab container may comprise a conduit interior channel comprising interior dimensions, wherein said interior dimension near said entry port is greater than said interior dimension near said assay chamber. In embodiments, a conduit interior channel may comprise a cross-section having a cross-sectional shape selected from round, oval, square, rectangular, rhomboid, and

acrylonitrile-butadiene-styrene (ABS), poly(ethylene terephthalate), a fluorocarbon polymer (e.g., polytetrafluoroethylene (PTFE or Teflon®)), nylon, a co-polymer, or combinations thereof.

[0010] Applicants disclose cartridges, where the cartridges may be configured to receive a swab container. Accordingly, in embodiments, Applicants disclose a cartridge comprising: a cartridge frame; and a swab container, the swab container comprising: an entry port configured to receive a swab having a handle; an assay chamber having an assay port, said assay chamber being configured to receive a swab; an assay chamber having an assay port, said assay chamber being configured to receive a swab; a conduit comprising an interior channel connecting said entry port with said assay chamber, said conduit being configured to accept at least a portion of said swab handle therein; wherein said conduit provides fluidic communication between said entry port and said assay chamber effective that passing said swab through said entry port into said conduit allows a swab to be placed within said assay chamber, wherein said cartridge is configured to receive said swab container.

[0010a] In ~~embodiments~~ an aspect, there is provided a cartridge for holding reagents comprises at least one cartridge frame, and a swab container; ~~such a~~wherein said cartridge frame is configured to receive a swab container, and ~~such a~~ wherein said swab container is configured to receive a swab.~~,~~ ~~In embodiments, a~~ said swab container comprises an entry port configured to receive a swab having a handle; an assay chamber having an assay port, said assay chamber being configured to receive a swab; a conduit comprising an interior channel connecting said entry port with said assay chamber, said conduit being configured to accept at least a portion of said swab handle therein; wherein said conduit provides fluidic communication between said entry port and said assay chamber effective that passing said swab through said entry port into said conduit allows a swab to be placed within said assay chamber.

[0011] In embodiments of the cartridges disclosed herein, the assay chamber of the swab container contains a reagent for bathing a swab, wherein said reagent for bathing a swab is effective to receive sample material from said swab into said reagent. In embodiments of the cartridges disclosed herein, the cartridge frame is configured to receive a vessel, a pipette tip, a transport unit, an implement, or combinations thereof. In embodiments of the cartridges disclosed herein, the vessels may comprise one or more of a reagent vessel, a mixing vessel, a waste vessel, and a sample collection vessel. In embodiments of the cartridges disclosed herein, a vessel may comprise a reagent vessel containing a reagent. In embodiments, an implement may comprise a cuvette. In embodiments of the cartridges disclosed herein, the

swab container may comprise a cover configured to cover an entry port, a cover configured to cover an assay port, or both. In embodiments of the cartridges disclosed herein, such a cover may be a pierceable cover. In embodiments of the cartridges disclosed herein, such a cover may be flexibly connected to the swab container.

[0012] Accordingly, ~~in embodiments~~ to an aspect, Applicants disclose a cartridge comprising: a cartridge frame comprising a plurality of receptacles, wherein said receptacles comprise: one or more receptacles selected from a receptacle configured to receive a sample collection vessel, a receptacle configured to receive a reagent vessel, a receptacle configured to receive an assay unit, a receptacle configured to receive a mixing vessel, a receptacle configured to receive a waste vessel, a receptacle configured to receive a pipette tip, a receptacle configured to receive a transport unit, and a receptacle configured to receive an implement; and a swab container receptacle configured to receive a swab container; wherein said swab container comprises an entry port, said entry port configured to receive a swab having a handle; an assay chamber having an assay port, said assay chamber being configured to receive at least a portion of a swab; and a conduit comprising an interior channel connecting said entry port with said assay chamber, said conduit being configured to accept a least a portion of said swab handle therein, wherein said conduit provides fluidic communication between said entry port and said assay chamber effective that passing a swab through said entry port into said conduit allows the swab to be placed within said assay chamber.

[0013] In embodiments, a cartridge as disclosed herein may comprise a swab container in a swab container receptacle. In embodiments, a cartridge as disclosed herein may comprise a swab container including a reagent contained therein, the swab container being disposed in a swab container receptacle. In embodiments, a cartridge as disclosed herein may comprise an assay chamber containing a reagent for bathing a swab, wherein the reagent for bathing a swab is effective to receive sample material from a swab into the reagent. In embodiments, a cartridge as disclosed herein may comprise one or more of a sample collection vessel, a reagent vessel, an assay unit, a mixing vessel, a waste vessel, a pipette tip, a transport unit, and an implement disposed in one or more receptacles. In embodiments, a reagent vessel may comprise a reagent contained within said reagent vessel. In embodiments, an implement may comprise a cuvette.

[0014] In embodiments, a cartridge may comprise a swab container. In embodiments, a swab container disposed in a cartridge may comprise a conduit interior channel configured to squeeze a portion of a swab placed in or through a portion of the conduit interior channel

portion of the cartridge nearest to the aperture is the proximal portion of the cartridge, and the portion farther from the aperture is the distal portion, so that the orientation with the aperture positioned at the left as the distal portion is inserted into the automatic sample analysis device prior to insertion of the proximal portion, is the proper orientation.

[0019] Applicants disclose systems comprising swab containers; systems comprising cartridges configured to receive a swab container or comprising cartridges having swab containers disposed therein; and systems comprising cartridges and sample processing devices. In embodiments, such a system may comprise any swab container, or any cartridge disclosed herein, or both.

[0019a] Accordingly, ~~in embodiments~~ to an aspect, Applicants disclose a system comprising: a swab; a container for receiving swab, the swab container having an assay chamber, a conduit, and an entry port and being configured to receive at least a portion of the swab in the assay chamber; and a reagent for bathing a swab, ~~the reagent being~~ disposed, ~~at least in part,~~ in the assay chamber, wherein the reagent for bathing a swab is effective to receive sample material from the swab into the reagent. In embodiments, such a system may comprise any cartridge disclosed herein. In embodiments, such a system may comprise a reagent vessel, a waste vessel, a mixing vessel, a sample collection vessel, an assay unit, a pipette tip, a transport unit, an implement, or combinations thereof, disposed in said cartridge. In embodiments, a reagent vessel may comprise a reagent contained therein. In embodiments, an implement may comprise a cuvette.

[0020] In embodiments, Applicants disclose such a system, further comprising a sample processing device.

[0021] In ~~embodiments~~ an aspect, Applicants disclose a system comprising: a swab container, the swab container having an assay chamber, a conduit and an entry port and being configured to receive at least a portion of the swab tip in the assay chamber; a cartridge, the cartridge comprising a cartridge frame comprising a plurality of receptacles, the receptacles comprising a swab container receptacle configured to receive a swab container, and one or more receptacles selected from a receptacle configured to receive a sample collection vessel, a receptacle configured to receive a reagent vessel, a receptacle configured to receive an assay unit, a receptacle configured to receive a pipette tip, a receptacle configured to receive a transport unit, a receptacle configured to receive an implement, a receptacle configured to receive a mixing vessel, and a receptacle configured to receive a waste vessel; and a sample processing device.

[0022] In embodiments, the swab container may contain a reagent for bathing a swab, the reagent being disposed at least in part within the assay chamber, wherein the reagent for bathing a swab is effective to receive sample material from said swab into said reagent. In embodiments, the cartridge may contain a reagent vessel placed in a receptacle of the cartridge, wherein the reagent vessel contains reagent. In embodiments, the cartridge may comprise a waste vessel placed in a receptacle of the cartridge. In embodiments, the cartridge may comprise a sample collection vessel placed in a receptacle of said cartridge. In embodiments, the cartridge may comprise an assay unit placed in a receptacle of said cartridge. In embodiments, the cartridge may comprise a pipette tip placed in a receptacle of said cartridge. In embodiments, the cartridge may comprise a transport unit placed in a receptacle of said cartridge. In embodiments, the cartridge may comprise an implement placed in a receptacle of said cartridge; in embodiments, the implement may be a cuvette; in embodiments, the implement may be a magnet (e.g., a magnetic bar).

[0023] Applicants disclose methods of obtaining samples, and methods of analyzing samples, wherein the methods utilize swab containers, cartridges, and systems as disclosed herein.

[0024] Accordingly, in embodiments, Applicants disclose a method of obtaining a sample, comprising: providing a system as disclosed herein comprising a swab, a container for receiving a swab, and a reagent, wherein said reagent is disposed within said assay chamber; contacting said swab with a subject effective to obtain sample material on said swab; and placing the swab into said assay chamber by maneuvering the swab through said entry port and conduit into the assay chamber, effective that said sample material on said swab is dispersed into said reagent.

[0025] In ~~embodiments~~ an aspect, Applicants disclose a method of obtaining a sample from a subject, comprising: contacting a subject with a swab effective to obtain sample material on the swab; and placing the swab into an assay chamber of a swab container, wherein the swab container comprises an entry port, a conduit, and an assay chamber containing a reagent, wherein placing said swab into an assay chamber comprises maneuvering the swab through said entry port and conduit into the assay chamber, effective that said sample material on said swab is dispersed into said reagent. In embodiments, such methods comprise use of swab containers wherein said conduit comprises an interior channel having a constricted portion configured to squeeze the swab when the swab is placed into said assay chamber via said interior channel.

[0026] In ~~embodiments~~ an aspect, Applicants disclose a method of analyzing a sample obtained from a subject, comprising: contacting a subject with a swab effective to obtain sample material on said swab; placing at least a portion of the swab into an assay chamber of a swab container, wherein the swab container comprises an entry port, a conduit, and an assay chamber containing a reagent, wherein placing ~~at least a portion of~~ the swab into an assay chamber comprises maneuvering the swab through said entry port and conduit into the assay chamber, effective that sample material on said swab is dispersed into said reagent; and analyzing the sample. In embodiments, such methods comprise use of swab containers wherein said conduit comprises an interior channel having a constricted portion configured to squeeze said swab when said swab is placed into said assay chamber via said interior channel. In embodiments, such methods comprise analyzing a sample using a sample processing device, which may be an automated sample processing device.

[0026a] In an aspect, Applicants disclose a system comprising: a swab container, said swab container having an assay chamber, a conduit and an entry port and being configured to receive at least a portion of a swab tip in said assay chamber; and a cartridge, said cartridge comprising a cartridge frame comprising a plurality of receptacles, said receptacles comprising a swab container receptacle configured to receive a swab container, and one or more receptacles selected from a receptacle configured to receive a sample collection vessel, a receptacle configured to receive a reagent vessel, a receptacle configured to receive an assay unit, a receptacle configured to receive a pipette tip, a receptacle configured to receive a transport unit, a receptacle configured to receive an implement, a receptacle configured to receive a mixing vessel, and a receptacle configured to receive a waste vessel; and a sample analysis device.

[0026b] In an aspect, Applicants disclose a swab container, said swab container being configured for receiving a swab, comprising: at least one entry port, said entry port configured to receive at least one swab having a handle; an assay chamber having an port, said assay chamber being configured to receive at least a portion of a swab; a conduit comprising an interior channel connecting said entry port with said assay chamber, said conduit being configured to accept at least a portion of said swab handle therein; wherein said conduit provides fluidic communication between said entry port and said assay chamber effective that passing a swab through said entry port into said conduit allows at least a portion of the swab to be placed within said assay chamber.

[0026c] In an aspect, Applicants disclose a method of obtaining a sample from a subject for analysis, comprising: Contacting a subject with a swab effective to obtain sample material on said swab; and Placing said swab into an assay chamber of a swab container, wherein said swab container comprises an entry port, a conduit, and an assay chamber containing a reagent, wherein placing said swab into an assay chamber comprises maneuvering the swab through said entry port and conduit into the assay chamber, effective that said sample material on said swab is dispersed into said reagent.

[0027] Applicants disclose kits comprising swabs; swab containers; kits comprising cartridges; kits containing vessels (which may include sample collection vessels), reagents, assay units, pipette tips, transport units, implements, and other elements; and kits comprising combinations thereof.

[0028] Accordingly, in embodiments, Applicants disclose a kit for obtaining samples, comprising a container as disclosed herein, and a swab. In embodiments, Applicants disclose a kit for obtaining samples, comprising a cartridge as disclosed herein, and a swab. In embodiments, Applicants disclose a kit for obtaining samples, comprising a swab container as disclosed herein, a cartridge as disclosed herein, and a swab. Applicants disclose a kit for obtaining samples, comprising a swab container as disclosed herein, a cartridge as disclosed herein, and a reagent (which may be in a reagent vessel, in a swab container, or both). Applicants disclose a kit for obtaining samples, comprising a swab container as disclosed herein, a cartridge as disclosed herein, a reagent (which may be in a reagent vessel, in a swab container, or both), and a swab.

[0029] This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter.