"We designed and evaluated the accuracy and usability of a device to regulate the volume of fluid dispensed during intravenous drip therapy" Shah et al (2015).

Reference:

Shah, K., Skerrett, E., Nojoomi, M., Walker, T., Maynard, K., Pan, M., Flynn, B., Yuan, M., Horton, P., Vaughn, T., Miros, R., Molyneux, E., Saterbak, A., Oden, Z.M. and Richards-Kortum, R. (2015) Maji: A New Tool to Prevent Overhydration of Children Receiving Intravenous Fluid Therapy in Low-Resource Settings. The American journal of tropical medicine and hygiene. March 2nd. .

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Abstract:

We designed and evaluated the accuracy and usability of a device to regulate the volume of fluid dispensed during intravenous drip therapy. The mechanical system was developed in response to a pressing need articulated by clinicians in pediatric wards throughout sub-Saharan Africa, who require a tool to prevent overhydration in children receiving intravenous fluid in settings that lack burettes or electronic infusion pumps. The device is compatible with most intravenous bags and limits the volume dispensed to a preset amount that can be

adjusted in 50 mL increments. Laboratory accuracy over a range of clinically relevant flow rates, initial bag volumes, and target volumes was within 12.0 mL of the target volume. The ease of use is “excellent,” with a mean system usability score of 84.4 out of 100. Use of the device limits the volume of fluid dispensed during intravenous therapy and could potentially reduce the morbidity and mortality associated with overhydration in children receiving intravenous therapy.

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